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14. ABSTRACT Purpose: The purpose of this study was to identify factors that contribute to the retention of mobilized NNC reservists, because a negative experience with a recall to active duty could make a nurse reservist resign his/her commission. The specific aims of this study were to compare the factors that predict intent to stay of NNC reservists; to determine the scope of the problem of nurses' intent to stay in the Reserves after return from deployment; test a causal model of voluntary turnover with a sample of NNC reservists who have returned from deployment; and offer an opportunity for mobilized reservists to describe any additional factors influencing one's intent to stay in the Navy Reserves. Design: This project utilized a non-experimental, retrospective, cross-sectional study design. Methods: The mailing procedure of the questionnaire via a survey firm consisted of the five-step compatible contacts process that Dillman (2000) advocates for maximizing response rates. Sample: Subjects who met the inclusion criteria – NNC reservists who were <u>involuntarily</u> recalled to active duty in support of OIF/OEF – were recruited. Exclusion criteria were nurses <u>not</u> recalled, or those who <u>volunteered</u> to be recalled, for OIF/OEF. Of the 437 recalled NNC reservists, only 383 were eligible to participate in this study. 264 subjects were ultimately enrolled, yielding a response rate of 69% (264 ÷ 383 = 0.6893). Instrumentation: Price and Mueller's Causal Model of Voluntary Turnover (1981, 1986) was used for this study since it addressed factors that may influence job satisfaction, organizational commitment, and intent to stay and has been adapted for use in the military setting. Analysis: Data were collected by questionnaires and analyzed via descriptive statistics, exploratory factor analysis, multiple regression analysis, structural equation modeling (SEM), and content analysis. Quantitative analyses were performed using SPSS and Mplus Version 4. Qualitative analysis consisted of identifying significant concepts, inductively sorting them into categories, and recording their frequencies via Microsoft Word. Findings: Data indicate that the causal model fits the data well (Model fit index CFI = 0.944; TLI = 0.927; and RMSEA = 0.047 [90% CIs 0.032 – 0.061]), with job satisfaction having the strongest influence on one's intent to stay in the Navy Reserves. The data analyses did not support the concern that a negative experience with a recall could make a nurse reservist resign his/her commission. Nursing Implications: The findings have implications for NNC Leaders by offering insight into retention issues for mobilized nurse reservists. This is noteworthy because NNC reservists are medical assets – active duty nurses cannot deploy without the assistance of their reservists.					
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Abstract

Purpose: In March 2003, 437 Navy Nurse Corps (NNC) reservists were recalled to active duty to provide “continuum in care” at several Navy Medical Treatment Facilities (MTFs), as well as deployed with the Marines to Iraq (in support of *Operation Iraqi Freedom – OIF*) and Afghanistan (in support of *Operation Enduring Freedom – OEF*). The purpose of this study was to identify factors that contribute to the retention of mobilized NNC reservists, because a negative experience with a recall to active duty could make a nurse reservist resign his/her commission. The specific aims of this study were to compare the factors that predict intent to stay of NNC reservists; to determine the scope of the problem of nurses’ intent to stay in the Reserves after return from deployment; test a causal model of voluntary turnover with a sample of NNC reservists who have returned from deployment; and offer an opportunity for mobilized reservists to describe any additional factors influencing one’s intent to stay in the Navy Reserves.

Design: This project utilized a non-experimental, retrospective, cross-sectional study design.

Methods: The mailing procedure of the questionnaire via a survey firm consisted of the five-step compatible contacts process that Dillman (2000) advocates for maximizing response rates.

Sample: Subjects who met the inclusion criteria – NNC reservists who were involuntarily recalled to active duty in support of *OIF/OEF* – were recruited. Exclusion criteria were nurses not recalled, or those who volunteered to be recalled, for *OIF/OEF*. Of the 437 recalled NNC reservists, only 383 were eligible to participate in this study. 264 subjects were ultimately enrolled, yielding a response rate of 69% ($264 \div 383 = 0.6893$).

Instrumentation: Price and Mueller’s Causal Model of Voluntary Turnover (1981, 1986) was used for this study since it addressed factors that may influence job satisfaction, organizational commitment, and intent to stay and has been adapted for use in the military setting.

Analysis: Data were collected by questionnaires and analyzed via descriptive statistics, exploratory factor analysis, multiple regression analysis, structural equation modeling (SEM), and content analysis. Quantitative analyses were performed using SPSS and Mplus Version 4. Qualitative analysis consisted of identifying significant concepts, inductively sorting them into categories, and recording their frequencies via Microsoft Word.

Findings: Data indicate that the causal model fits the data well (Model fit index CFI = 0.944; TLI = 0.927; and RMSEA = 0.047 [90% CIs 0.032 – 0.061]), with job satisfaction having the strongest influence on one’s intent to stay in the Navy Reserves. The data analyses did not support the concern that a negative experience with a recall could make a nurse reservist resign his/her commission.

Nursing Implications: The findings have implications for NNC Leaders by offering insight into retention issues for mobilized nurse reservists. This is noteworthy because NNC reservists are medical assets – active duty nurses cannot deploy without the assistance of their reservists.

Introduction

Total Force Policy

Since the implementation of the total force policy – which integrated the active, reserve, and National Guard forces into one force in the 1970s – the armed forces rely heavily on its reserve forces to augment its missions (Mangelsdorff, 1999; Wynd & Dziedzicki, 1992). According to Schmidt (2001), 9,800 nurses belong to the Army, Navy, and Air Force Reserves, with over 5,000 more in the Individual Ready Reserve (IRR). As for the Navy Reserve, there are 1,800 active nurses with another 1,250 in the IRR. The implication of the total force policy concept is that when an event occurs that affects national defense interests, reservists no longer think in terms of “if” there is going to be a recall but rather “when” they will be returned to active duty.

Military Studies

What happens when reservists are called to active duty? They can become stressed, as studied by Braswell (1992); Perconte, Wilson, Pontius, Dietrick, and Spiro (1993); Ryan-Wenger (1992); and Wynd and Dziedzicki (1992). Ryan-Wenger discovered that the most helpful coping strategies for recalled reserve nurses were social support, distraction, and family contacts and that the positive aspects of a recall included professional development, the creation of new friendships, and experiences of personal growth. Wynd and Dziedzicki’s study population demonstrated that years of military service, gender, and children in family contributed to anxiety when anticipating mobilization; consequently, separation from loved ones and financial concerns were the largest contributors to anxiety for Army nurses anticipating mobilization during *Operation Desert Shield/Storm*.

Additional negative aspects associated with the mobilization of reserve medical personnel, as reported by Clegg (1992) and Mangelsdorff (1999), include fragmentation of units and redistribution of personnel; financial loss; inadequate communication; unequal treatment by active component; poor command structure; lack of support for family members left behind; and specialties versus requirements. Roach (1991) surveyed Army nurse reservists who volunteered and served within the United States (US) during *Operation Desert Shield/Storm* and found that 20% said they would not volunteer again if called to serve. Roach concluded that as role conflict and role ambiguity increased, work satisfaction decreased. The variables found useful for predicting who would leave the reserves prior to retirement were overall satisfaction with the reserves, years of prior active service, and role conflict.

Schumm, Gade, and Bell (2003) convey that job satisfaction has been linked to retention within the military system. Conducting a secondary analysis of job satisfaction items from The Sample Survey of Military Personnel in 1996, the researchers report that a maximum likelihood factor analysis of this survey yielded four factors: satisfaction with supervision, the job environment, the duty specifically, and the opportunity for development. As for family factors and readiness, two of the same authors conducted research on both Army reserve and active duty members and concluded that family

issues affect retention more than readiness, especially with reservists (Schumm, Bell, & Resnick, 2001). Agnew, Curbow, and Schneiderman (1999) write that reservists must constantly balance roles related to military duties, civilian occupation, and family. Time constraints and schedule conflicts can be important stressors. Additionally, fatigue and exhaustion, childcare issues, and animosity between active and reserve components have been found to be potential stressors of mobilized reservists.

A review of CINAHL, MEDLINE, PsycINFO, Dissertation Abstracts International (DAI), and Web of Science databases – as well as a personal literature review with a Georgetown University librarian – in 2004 revealed only a handful of studies, as discussed above, regarding the experience of reserve nurses when recalled to active duty. Additionally, the TriService Nursing Research Program (TSNRP) has funded studies regarding military retention issues (e.g., Agazio, 1996; Aponte, 2001; King, 2002; Messecar, 1993; Patrician, 2001; Phyll, 1995; Ray, 1998; Renaud, 1994; Russek, 2003; Williams, 2001; Zangaro, 2002); however, none of these TSNRP-funded initiatives have specifically addressed the recall of NNC reservists, much less any mobilized during *Operation Iraqi Freedom (OIF)* and *Operation Enduring Freedom (OEF)*. Thus, a gap in the literature demonstrated a need to explore this timely concept further.

Quality of Care

Since a majority of the mobilized reservists in this study provided direct patient care during their recall, one has to ask if job satisfaction impacts patient care? The answer is a resounding YES in the civilian sector. A meta-analysis of nurses' job satisfaction conducted by Blegen (1993) found that high levels of job satisfaction were linked with enhanced quality of care. Aiken, Clarke, Sloane, Sochalski, and Silber (2002) performed an amazing cross-sectional analyses of linked data from over 10,000 surveyed staff nurses with over 200,000 general, orthopedic, and vascular surgery patients, and administrative data from 168 non-federal adult general hospitals in Pennsylvania and concluded that in hospitals with high patient-to-nurse ratios, surgical patients experienced higher risk-adjusted 30-day mortality and failure-to-rescue rates, and that nurses are more likely to experience burnout and job dissatisfaction.

Atkins, Marshall, and Javalgi (1996) looked further by hypothesizing that nurses who are unhappy with their jobs have a hard time concealing their feelings from patients; therefore, patient loyalty could be forfeited with dissatisfied nurses. They found that there is a strong, positive correlation between overall job satisfaction and patients' intent to return and their willingness to recommend a hospital to friends and family. They also concluded that satisfaction with nursing care was the strongest determinant of hospital quality. Since a majority of the Navy nurse reservists recalled for *OIF/OEF* performed direct patient care while mobilized, one wonders if dissatisfied nurses conveyed their frustration(s) to their patients.

Significance

In March 2003, 437 Navy Nurse Corps (NNC) reservists were recalled to active duty to provide “continuum in care” (the Navy’s buzzword for “backfill”) at several Navy MTFs, as well as deployed with the Marines to Iraq (in support of *OIF*) and Afghanistan (in support of *OEF*). When this principle investigator (PI) worked side-by-side with these reservists at an MTF in 2003, it was sensed that they were experiencing varying degrees of job dissatisfaction and the PI wondered whether the reservists would stay in the Navy once they were demobilized. This is noteworthy because NNC reservists are medical assets. In fact, active duty Navy nurses cannot deploy without the use of their reservists. It was proposed that a negative experience with a recall to active duty might make a nurse reservist resign his/her commission. Given that the US’ current military obligations are extensive, it is likely that future mobilizations will come with extensions. If this is the case, then the NNC needs to ensure that its reservists are satisfied with their commitment to the Navy, that they are prepared to be mobilized, and that those with pessimistic attitudes regarding the Reserves be allowed to leave. It does not take many disgruntled reservists in the workplace to make for a hostile work environment that negatively impacts patient care. Bottom line: It is very important that organizationally committed nurses join the Reserves and stay in. This concept not only impacts work force requirements, it also influences quality patient care. The significance of studying factors that may influence job satisfaction, organizational commitment, and intent to stay in the Navy Reserves of recalled nurses is that when duty calls, there will be a generous supply of reserve nurses to draw from.

Scope of the Study

The purpose of this research study was to identify factors that contribute to the retention of mobilized NNC reservists. A research team was assembled in order to achieve the following aims, with a focus on specific research questions:

Specific Aim	Research Question
1. Compare the factors that predict intent to stay of NNC reservists.	A. Is there a difference in the factors that predict intent to stay of NNC reservists among different military ranks? B. Is there a difference in the factors that predict intent to stay of NNC reservists based on gender?
2. Determine the scope of the problem of nurses’ intent to stay in the Reserves after return from deployment.	A. Do family issues (kinship responsibility) affect intent to stay (retention) in the Reserves? B. What employee factors impact job satisfaction the most? C. What employee factors influence organizational commitment the most? D. What work-related factors impact job satisfaction the most? E. What work-related factors influence organizational commitment the most?

<p>3. Test a causal model of voluntary turnover with a sample of NNC reservists who have returned from deployment.</p>	<p>A. What relationship do environmental, employee, and work-related factors have with job satisfaction, organizational commitment, and intent to stay? B. Do job satisfaction, organizational commitment, and intent to stay vary by organizational characteristics (e.g., MTF versus Marine Corps Support Units in Iraq)?</p>
<p>4. Offer an opportunity for mobilized reservists to describe any additional factors influencing one’s intent to stay or leave the Navy Reserves.</p>	<p>Does this survey address all concerns of mobilized NNC reservists?</p>

Research Plan

Framework: Causal Model of Voluntary Turnover

Background

The conceptual framework for understanding the retention of NNC reservists mobilized for *OIF/OEF* represents the hypothesized relationships developed by Price and Mueller (1981, 1986). According to Gurney, Mueller, and Price (1997), Price and Mueller’s Causal Model of Voluntary Turnover derives its origins from three disciplines: economics, organizational psychology, and sociology. Price and Mueller developed their model, and then refined their instrument to test the model, because they felt that previous models lacked inclusiveness. Based on expectancy theory, the key assumption of the model is that employees will be more satisfied and less likely to leave their job if the conditions of work they value exist in their workplace (Gurney, Mueller, & Price; Kim, Price, Mueller, & Watson, 1996). In addition, Price (2000b) bolsters an economic framework when stating that the model stresses the balance of satisfactions and dissatisfactions – this balance is known as “cost and benefits.” Price postulates that more dissatisfactions than satisfactions means a situation that is “costly” to employees and that employees will attempt to leave a costly situation.

Price and Mueller’s (1981, 1986) Causal Model of Voluntary Turnover specifies the process whereby employee factors, interacting with environmental and work related factors, are translated into staying or leaving a work organization. Two variables – job satisfaction and organizational commitment – describe this process (Kim et al., 1996). This model was utilized for this study since it addressed factors that may influence job satisfaction, organizational commitment, and intent to stay and was adapted by Zangaro (2002) for use in the military setting. Other researchers that have used this model include Agho (1993); Blegen and Mueller (1987); Freeman and O’Brien-Pallas (1998); Gurney et al. (1997); Kim, et al. (1996); Parsons (1988); and Wakefield, Curry, Price, Mueller, and McCloskey (1988). Price (2000b) also reports that 33 dissertations and theses directed by Price and Mueller have contributed substantially to the research they have conducted with this model over the years.

The following review is divided into the factors categorized in the model: Controls, Environmental Factors, Employee Factors, Work-related Factors, endogenous variables (e.g., Job Satisfaction and Organizational Commitment) and the outcome variable of Intent to Stay.

Controls (Demographics and Affectivity)

This category encompasses demographics (social categories) as well as affectivity. According to Price (1995) and Price and Kim (1993), one condition of a causal model “is that it should specify exactly what it is that is producing the effect being explained ... if a model does not indicate precisely what it is that is producing the effect being explained, then this model explains nothing,” (Price & Kim, p. 27). Demographic variables do not “illustrate the means whereby they produce variations in turnover,” (Price & Mueller, 1981, p. 548). For example, when looking at “age,” Price and Mueller write that data support a negative relationship between age and turnover: younger employees tend to turnover more than older employees. However, “age” does not indicate *how* the younger age produces turnover. Thus, Price (1995, 2000b) argues for only using demographic variables to check the completeness of models as well as to empirically check models (because one demographic variable will often measure several determinants). This tactic is supported by Kim et al. (1996), who found the demographic variables non-significant when analyzing the endogenous variables.

“Affectivity” is a psychological (dispositional) concept that Price (2000a) hypothesizes impacts intent to stay via organizational commitment and job satisfaction. Kim et al. (1996) recommends controlling “affectivity” because these variables may confound critical determinants of turnover (e.g., job stress and social support). Zangaro (2002) illustrates this point by explaining that if an employee is predisposed to experience pleasant emotional states, then he/she may report low stress and good social support when in all actuality this might not be the case.

Environmental Factors

Environmental factors are composed of “kinship responsibility” and “opportunity.” Price and Mueller (1981, 1986) believe that kinship responsibility increases intent to stay because continuity in a job is one of the ways employees fulfill their obligations to family (Kim et al., 1996). Price (2000a) wonders if kinship responsibility is gender dependent because in American society, kinship duties have been traditionally assigned to women, and Price’s previous studies focused heavily on women. In Kim’s et al. study, which also included a significant amount of men, kinship responsibility was found not to be a significant determinant of turnover. Borda and Norman (1997) discovered a positive relationship between job satisfaction and intent to stay but there was no relationship between kinship responsibility and intent to stay. In congruence with other studies, they concluded that employees leave for a variety of reasons, not just one.

Economists emphasize opportunity as a job market variable. The model assumes that increased job opportunities decreases intent to stay because of the increased awards

afforded to the employee who moves on (Kim et al., 1996). Price (2000a) speculates that more opportunity results in a greater awareness by employees of alternative jobs in the environment. Employees then evaluate the costs and benefits of the alternative jobs and, if the benefits outweigh the costs, employees will quit their jobs.

Employee Factors

Generally, employees enter the work environment with knowledge and skills (e.g., general training) that contribute to the job they will perform for an organization. Price (2000a) writes that general training produces a greater amount of turnover. The term “work motivation” comes from the psychological literature and Kim et al. (1996) reports a likely sequence of events for work (job) motivation: highly motivated employees work harder and receive more rewards for their efforts. This results in increased job satisfaction and organizational commitment. Additionally, employees whose expectations about the job are met, who have input into their assignments, and are dedicated to their profession also have increased job satisfaction and organizational commitment, which makes them more likely to stay in their job. Finally, employees bring expectations and values to the job that interact with job satisfaction and organizational commitment (Kim et al.). Incidentally, two studies reviewed for this study revealed the importance of employee factors when evaluating job satisfaction and/or organizational commitment (Erbin-Rosemann, & Simms, 1997; “The survey says ...”, 1998) and one study specifically identified values of Air Force nurses (Hutchison, All, Loving, & Nishikawa, 2001).

Work-related Factors

The work-related factors (e.g., autonomy, distributive justice, job hazards, job stress, fringe benefits, pay, professional growth, promotional opportunity, routinization, legitimacy, unused skills, social support, military specific obligations, communication, and decision making) reflect structural variables and represent conditions of the work place and issues of professional growth (Kim et al., 1996; Zangaro, 2002). Studies that demonstrate the importance of work-related variables on job satisfaction and/or organizational commitment include Blankertz and Robinson (1997), Bratt, Broome, Kelber, and Lostocco (2000), Bolon (1997), Chung-Park (1998), Grindel, Peterson, Kinneman, and Turner (1996), Ito, Eisen, Sederer, Yamada, and Tachimori (2001), Johnston (1997), Jones, Stasiowski, Simons, Boyd, and Lucas (1993), Kangas, Kee, and McKee-Waddle (1999), Kennerly (1996), Leveck and Jones (1996), Lucas, Atwood, and Hagaman (1993), McNeese-Smith (1996), Morrison, Jones, and Fuller (1997), Moss and Rowles (1997), Mullen (1996), Owings (1999), Robinson, Rodriguez, Sammons, and Keim (1993), and Schwab (1996).

Work related factors have an indirect impact on intent to stay through job satisfaction and organizational commitment. Unused skills, job hazards, job stress, and routinization tend to decrease job satisfaction and organizational commitment; whereas, participating in job related decisions, being informed about job related issues, having close friends employed by the same organization, receiving good pay, being fairly

compensated, and having an opportunity to obtain a better job in the organization tends to increase job satisfaction and organizational commitment. As job satisfaction and organizational commitment increase, employees tend to stay with the organization (adapted from Price & Mueller, 1981).

Endogenous Variable: Job Satisfaction

Job satisfaction is best defined as “an affective feeling that depends on the interaction of employees, their personal characteristics, values, and expectations with the work environment, and the organization” (Cumbey & Alexander, 1998, pp. 40-41). According to Aponte (1985), Karl Marx measured job satisfaction as early as 1880. Marx developed a survey for workers’ societies to determine how its members felt about their job situations. Job satisfaction research took a turn in the 1930s when Frank Taylor, a founding father of scientific management, assumed that job satisfaction was entirely related to rewards. Further studies revealed that job satisfaction was actually related to other variables as well as rewards (e.g., an employee’s adaptation to the work environment, the influence of the employee’s coworkers, and the nature of the job).

The concept of job satisfaction spans many fields, including nursing, psychology, business, sociology, and human resources. The nursing community has been concerned with job satisfaction since the 1940s when Nahm conducted a study at the University of Minnesota to discover satisfaction among nurses (Cumbey & Alexander, 1998; Parsons, 1998). Interest in work, establishment of satisfactory relationships, hours of work, income, and advances for opportunity were the factors that differentiated satisfied from dissatisfied nurses in Nahm’s study. It is amazing that almost 70 years later, nursing is still evaluating job satisfaction.

Although the effect of job satisfaction on employee behavior cannot be fully explained, “it has been consistently and significantly associated with the likelihood of leaving and actual turnover or quit behavior,” (Buchbinder, Wilson, Melick, & Powe, 2001, p. 702). In Price and Mueller’s (1981, 1986) Causal Model of Voluntary Turnover, job satisfaction is simply defined as the extent to which employees like their job. Zangaro (2002) not only measured general job satisfaction, but also “Navy Job Satisfaction” – the extent to which employees like the Navy.

Endogenous Variable: Organizational Commitment

In the past, job satisfaction has been measured from a limited focus that centered on a small number of intrinsic and extrinsic factors; however, a lot of studies incorporated organizational variables in their design (Bolon, 1997; Cumbey and Alexander, 1998; Grindel et al., 1996; Ingersoll, Olsan, Drew-Cates, DeVinney, & Davies, 2002; Knoop, 1995; McNeese-Smith, 1996; Morrison et al., 1997; Moss & Rowles, 1997; Mullen, 1996; Schwab, 1996). This variation may be attributed to the consequences of major restructuring in health care delivery systems as experienced within the last two decades.

Zangaro's (2001) concept analysis article reveals three categories of defining attributes of organizational commitment: morally committed (whereby, the employee has accepted and identifies with the organization's goals and values); calculatively committed (whereby, the employee exchanges his/her contributions for inducements provided by an organization; the employee puts forth his/her best effort only when noticed by influential people); and alienatively committed (whereby, the employee perceives a lack of control in his/her organizational environment, and senses an absence of alternatives for committing to the organization). Naturally, a morally committed employee would be desirable and would assist an organization with meeting its goals. A calculatively committed individual is not a bad thing – managers would just need to recognize that this employee would probably be appreciative of tangible rewards (e.g., time-off). Unfortunately, an alienatively committed employee may infuse his/her negative attitude to other nurses, thus breeding an environment of dissatisfaction.

Price (2000b) argues that the traditional view of job satisfaction being a determinant of organizational commitment is no longer valid. In fact, a review by one of Price's students found the relationship between the two to be spurious because of common determinants. Since job satisfaction and organizational commitment have no significant relationship, the path between them was not connected for this study.

In Price and Mueller's (1981, 1986) Causal Model of Voluntary Turnover, organizational commitment is simply defined as employee loyalty to the employer. Zangaro (2002) not only measured organizational commitment, but also "Navy Organizational Commitment" – employee loyalty the Navy.

Outcome Variable: Intent to Stay

It is interesting to note that Price and Mueller added "intent to stay" as a mediating variable because "graduate Sociology students who planned to do their dissertations on turnover at the University of Iowa did not relish the idea of waiting for turnover to occur in the organizations they were studying," (Price, 2000a, p. 13). Kim et al. (1996) emphasize that intent to stay is significant because of its impact on turnover: employees who indicate they plan to leave an organization typically do so.

Boyle, Bott, Hansen, Woods, and Taunton (1999) write that "intent to stay" has the strongest predictive relationship with retention and that the term "anticipated turnover" (or "intent to leave") differs from "intent to stay." The authors do not clearly differentiate between the two terms but perhaps it can be postulated that organizational commitment is lower for participants intending to *leave* versus those intending to *stay*.

Prevosto (2001) examined the impact of mentoring, job satisfaction, and intent to stay of company-grade US Army Reserve (USAR) officers (assuming that intent to stay was a predictor of turnover). The researcher raised the question: "What makes a nurse want to stay past the initial statutory obligation of eight years?" Prevosto discovered a significant correlation between job satisfaction and intent to stay and that mentored registered nurses reported a higher intention to stay. Yoder (1995) examined career

development relationships – as well as professionalism, job satisfaction, and intent to stay in the military – experienced by Army staff nurses and found that job satisfaction and intent to stay were significantly associated with having experienced a career development relationship.

Kocher and Thomas (1994) built a turnover model of actual retention behavior of active duty Army nurses and found that satisfaction with work life, military life, location and assignment stability, as well as race and ethnic group affiliation, and family status had significant effects on the retention of Army junior nurse officers. Reinick (1990) studied civilian turnover at Army hospitals. Using structural equation modeling (SEM), Reinick found that group cohesion, satisfaction with compensation, career intentions, growth need, communication, and task identity had direct effects on job satisfaction and indirect effects on anticipated turnover. Foley, Kee, Minick, Harvey, and Jennings (2002) also discovered that nurses in military medical centers report higher than average workplace satisfaction.

Civilian studies that evaluated turnover (anticipated versus actual) include Alexander, Lichtenstein, Oh, and Ullman (1998); Bishop (1998); Cartledge (2001); Chang (1999); Cox (2002); Ito et al., (2001); Janssen, deJonge, and Bakker (1999); Shader, Broome, Broome, West, and Nash (2001); Song, Daly, Rudy, Douglas, and Dyer (1997); Stoller, Orens, and Kester (2001); Tai and Robinson (1998); and Thompson and Brown (2002).

In conclusion, when an individual's needs are not fulfilled at work, the consequence is job dissatisfaction. Additionally, it can be postulated that there is not just one predictor of employee turnover – turnover is impacted by various factors.

Criticisms of the Model

Price (2000a) addresses several criticisms of Price and Mueller's (1981, 1986) Causal Model of Voluntary Turnover. First, the model has too many variables. Price agrees with this thought but believes that there are many explanations for turnover that need to be estimated at some point in time. Second, the model may have a large percentage of insignificant variables. Price argues that this occurs when some variables have not been controlled. Third, the environmental factors' pathway goes directly to intent to stay. Price justifies this by stating that not all of the variables have to impact intent to stay through job satisfaction and organizational commitment.

Design

Pilot Study

Pilot data were acquired for the power analysis prior to full data collection. Five colleagues that were recalled to an MTF in support of *OIF/OEF* in 2003 agreed to complete the survey, and a 100% response rate was achieved. Furthermore, four of the five participants offered these comments:

“Although this was a mildly traumatic event, I thoroughly enjoyed it and would not hesitate to serve again if called upon.”

“One of my major concerns is that as a senior officer with lots of specialty experience and administrative experience, that I reported directly to a junior officer (three ranks below) with less education, clinical and administrative experience than myself. I did not mind my assignment as a staff nurse, but was very disconcerted that as a senior officer, I was given no recognition of my level of experience or rank. I was treated the same way as any LT(jg) or ensign. I was required to work nights and weekends in the same proportion as my juniors. It would have been nice to have been required to rotate less nights and weekends in recognition of my senior officer status. When reservists with senior rank are treated like their [junior] active duty counterparts, I think it sends a message about the meaning of ranks in the Reserves! It is a negative message.”

“What would influence me the most in getting out of the Navy before I achieve 20 years is the fact that my husband is active duty, currently the CO [commanding officer] of a ship and I cannot be recalled for the next two years while I am fulfilling the role of a CO's spouse (senior spouse leadership role the CNO [Chief of Naval Operations] promotes wholeheartedly). In addition, I have a child who is EFM “3” [exceptional family member, category 3] [with] multiple life-threatening food allergies and [without] a parent who can be guaranteed to be at home with him, this is becoming more and more difficult to manage his care.”

“Value of mobilization/recall was not necessarily shared by those not recalled/mobilized. There exists inconsistency between what many officers do in Reserve capacity during drill weekends, and mob [mobilization] billet/needs of supported command. More value to being “seen” on drill weekends than direct operational support. Those officers with very visible admin [administration] roles consistently rank higher [on] fitness reports/job opportunities than those performing clinical support so needed at [the MTF]. As a result (sometimes), these ‘admin’ officers require significant orientation/training at time of mobilization. With the current focus on alignment of Active/Reserve Forces, it would appear that the need for these Admin-intensive roles may diminish. More operational support to gaining command should result. Bottom Line: Any dissatisfaction I have is related to being valued by [MTF] active duty peers/seniors, but this is not translating to value by [my reserve unit].”

Power Analysis / Sample Estimation Based Upon Pilot Study

The power analysis and sample size estimation for the Structural Equation Model used in this study were obtained from a Monte Carlo simulation study as recommended by Muthen and Muthen (2002). The proposed model testing the causal effects of voluntary turnover was originally proposed by Zangaro (2002) and adapted from Price and Mueller (1981, 1986). Monte Carlo studies are the most common and preferred method for determining sample size and power in structural equation modeling (SEM). Consistent with the study design, the Monte Carlo simulation was programmed with at

least three indicators. The outcome variable was Intent to Stay.

Parameters used in the Monte Carlo simulation were based on the pilot data. From the pilot data with five respondents, the estimated average loading from Environmental Factors, Job Satisfaction and Organizational Commitment to the outcome variable was 0.2. The loadings from Employee Factors and Work-Related Factors to Job Satisfaction and Organizational Commitment were also set at 0.2 in the simulation. The population correlation coefficients between Environmental Factors, Employee Factors and Work-Related Factors were set at 0.3. The variance of Environmental Factors, Job Satisfaction and Organizational Commitment as exogenous variables was set at 1 and the variance for endogenous factors was set at 0.5. For each latent variable, one of the three observed indicators had a loading of 1.0 (to equate the factor scale to the scale of this indicator).

Muthen and Muthen (2002) recommend several criteria for estimating appropriate sample sizes in power analysis for SEM. Parameter bias should not exceed 10%, standard error bias should not exceed 5%, and the coverage remains between 90% to 98%. The Monte Carlo simulation conducted 3,000 replications. The results from the simulation indicated that a sample size of $n = 450$ with the parameter specifications previously listed would have more than 90% power for testing all the loadings between latent factors. Missing values were simulated with the Monte Carlo study because the maximum likelihood imputation was performed for the final analysis, assuming the values were missing at random (MAR).

Sampling Plan (Inclusion, Exclusion Criteria)

Institutional Review Board (IRB) approvals were obtained from Georgetown University (GU) in Washington, DC; the National Naval Medical Center (NNMC) in Bethesda, MD; and the Uniformed Services University of the Health Sciences (USUHS) in Bethesda, MD. Please note that IRB closeouts have occurred with both GU and NNMC and that the paperwork was forwarded to TSNRP on 30 May 2008. IRB closeout with USUHS is pending as of 30 June 2008.

After obtaining a survey control number from the Naval Bureau of Personnel (BUPERS), subjects who met the inclusion criteria – NNC reservists who were involuntarily recalled to active duty in support of *OIF/OEF* – were recruited. Names and home addresses were supplied by the Naval Bureau of Personnel (BUPERS). These mobilized nurses were deployed to both MTFs (in the US) and with the Marines (in theater). Exclusion criteria were nurses not recalled, or those who volunteered to be recalled, for *OIF/OEF*. Of the 437 recalled NNC reservists, only 383 were eligible for enrollment (refer to Table 1 for recruitment and retention numbers). This figure was derived after eliminating surveys that were returned for no forwarding address; address expired; member deceased; or the respondent reported that he/she did not meet the criteria for enrollment. 264 participants were ultimately enrolled in this study, yielding an effective response rate of 69% ($264 \div 383 = 0.6893$) which is higher than other military studies (e.g., Allgood, O'Rourke, VanDerslice, & Hardy, 2000; Hutchison et al., 2001; Moorhead, 1993; Nice et al., 1994; Yoder, 1995; Zangaro, 2002).

Table 1: Recruitment and Retention

	Projected # from original proposal		Actual #	
# subjects available	437		383	
# subjects contacted	437		383	
# subjects screened	437		264	
# subjects refused	0		0	
# subjects consented	437		264	
Intervention/Control	n/a	n/a	n/a	n/a
# subjects enrolled	437	n/a	264	n/a
Intervention/Control	n/a	n/a	n/a	n/a
# subjects dropped out	0	n/a	0	n/a
Intervention/Control	n/a	n/a	n/a	n/a
# subjects completed intervention	437	n/a	264	n/a
Intervention/Control	n/a	n/a	n/a	n/a

The specific demographics of the study population are listed in Tables 2, 3, 4 and 5. Table 2 reveals that the participants who answered the survey were representative of their gender in relation to the total number of recalled NNC reservists. Past experience with mobilizations has shown that most recalled NNC officers are female and married; have children; work either full- or part-time as civilians; and that the mean age is 35 years (Nice et al., 1994); however, this study’s population included males, 43 % of the participants had children, and the mean age was 45 years. The highest degree held was 49% for BSN and 42% for a master’s. These numbers reflecting advanced education may seem high when compared to the civilian community but are not surprising for the NNC since its members need to obtain advanced degrees in order to be competitive for senior officer promotions.

Table 2: Gender.

	No. (%) of Subjects Available	No. (%) of Subjects Enrolled
Male	121 (27.7 %)	63 (23.84 %)
Female	316 (72.3 %)	199 (75.4 %)
Unknown	0	2 (0.76 %)

Table 3: Rank During Period of Recall.

Rank Category*	No. (%) of Subjects Enrolled
Senior Officers (O-4, O-5, O-6)	188 (71.2 %)
Junior Officers (O-1, O-2, O-3)	70 (26.5 %)
Unable to Determine	6 (2.3 %)

*Note: Information regarding the rank for all eligible subjects was not disclosed to the PI.

Table 4: Other Demographics.

Category	No. (%)
Highest Degree Held	
• Associates	1 (0.38)
• Diploma	10 (3.8)
• BSN	129 (49)
• Master's	112 (42)
• Doctorate	8 (3)
• Missing data	4 (1.13)
Ethnicity (Spanish/Hispanic/Latino)	
• No	208 (79)
• Yes	13 (5)
• Missing data	43 (16)
Race	
• White	216 (82)
• Black or African American	19 (7)
• American Indian or Alaskan Native	0
• Asian	15 (5.7)
• Native Hawaiian or Other Pacific Islander	2 (0.76)
• Other	7(2.65)
• Missing data	5 (1.89)
Age	
• Range	27 – 60
• Mean and Median	45
• Mode	42 and 46
Marital Status	
• Never married	23 (8.7)
• Engaged	2 (0.76)
• Married	177 (67)
• Separated	1 (0.38)
• Divorced	23 (8.7)
• Widowed	0
• Missing Data	38 (14.4)

Time Consuming Custodial Role	
<ul style="list-style-type: none"> • Children • Elderly parents or others 	<p>113 (43)</p> <p>17 (6)</p>

Table 5: Mobilization Sites.

Mobilization Site	No. (%) of All Nurses Recalled	No. (%) of Participants Returning Survey
Commanding General, First Marine Expeditionary Force (CG 1 MEF) – deployed with the Marines to Iraq or Afghanistan	27 (6%)	14 (5 %)
Family Practice Teaching Hospital/Small Medical Command: <ul style="list-style-type: none"> • Naval Hospital (NH), Beaufort, SC • NH, Bremerton, WA • NH, Camp Lejeune, NC • NH, Camp Pendleton, CA • NH, Charleston, SC • NH, Cherry Point, NC • NH, Corpus Christi, TX • NH, Jacksonville, FL • NH, Oak Harbor, WA • NH, Pensacola, FL 	129 (30 %)	65 (25 %)
Major Medical Treatment Facility <ul style="list-style-type: none"> • National Naval Medical Center (NNMC), Bethesda, MD • Naval Medical Center, Portsmouth, VA • Naval Medical Center, San Diego, CA 	281 (64 %)	145 (55 %)
Unable to Determine	-----	40 (15 %)
Total	437	264

Data Collection/Measurements

Instrumentation

Price and Mueller's (1981, 1986) Causal Model of Voluntary Turnover was used for this study since it addressed factors that may influence job satisfaction, organizational commitment, and intent to stay and was adapted for use in the military setting by Zangaro (2002). Variables representing demographic characteristics and affectivity were assessed as control variables. Because the instrument is published (and in the public domain), written authorization from Price and Mueller was not required; however, Zangaro gave his written permission to utilize his version of the tool (which had been adapted for use in the military). Completion of the survey took about 30 minutes.

The measures of the variables were derived from the literature (Kim et al., 1996; Moorhead, 1993; Polit and Hungler, 1999; Price and Mueller, 1981; Schumm, Gade, & Bell, 2003) and from pilot testing of the instrument for use in the military setting (Zangaro, 2002). Reliabilities from Zangaro's psychometric evaluations ranged from 0.32 to 0.86, with the average alpha coefficient being 0.69. Furthermore, these measures hold construct validity in that they have been used in other studies that have supported the hypothesized relationships (Gurney, Mueller, & Price, 1997).

Part I of the survey asked for demographic information including a retention intention question that was borrowed from the 1996 Sample Survey of Military Personnel (Schumm, Gade, & Bell, 2003). Also collected was family situation information pertinent to the period of recall, as this has been identified as an important factor in job retention for military nurses (Agnew et al., 1999; Clegg, 1992; Kocher & Thomas, 1994; Mangelsdorff, 1999; Wynd & Dziedzick, 1992). The last question in Part I of the survey reflected a measurement of pay and was included to recognize military pay possibilities.

For Part II of the survey, each construct was represented by multiple questions, measured on a 5-point Likert-type scale (refer to Table 6 for definitions of the variables as well as a list of the questions). Participants were instructed to mark their answers for the questions using the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree Nor Disagree, 4 = Agree, 5 = Strongly Agree. The questions that addressed values were also rated using a 5-point scale, with a change in definitions: 1 = Not Important at all, 2 = Of Very Little Importance, 3 = Of Some Importance, 4 = Quite Important, 5 = Of Great Importance. Since the study participants were reflecting on past experience, the verbs were changed to the past tense (a change of only one dimension) on many of Zangaro's (2002) survey questions.

Finally, Prevosto's (2001) study demonstrated that not all questions can be answered by quantitative methods because out of 171 participants who completed Prevosto's study questionnaire, 84 took the time to write out additional comments. Borda and Norman (1997) echoed this sentiment with their comment that "the problem inherent in using questionnaires in studies on job satisfaction is that important aspects of the reasons why any individual decides to withdraw and information on feelings and values

may be ignored,” (p. 376). Polit and Hungler (1999) advocate blending quantitative and qualitative data in an effort to avoid “if only” situations whereby additional information may enhance the researcher’s interpretation of study findings. Thus, participants had an opportunity to write comments on the survey in response to this question: “No matter how carefully prepared, questionnaires sometimes fail to measure all of the important factors. If this is the case for you, please use the space below to describe any additional factors influencing you to stay in or leave the Navy.”

Table 6: Variables, Definitions, and Survey Questions for the Causal Model.

Construct	Definition	Survey Item Question
Control Variables	Variables used to check how completely the model is specified	
Demographics	Included questions regarding mobilization site, education level, rank, ethnicity and race, gender, age, marital status, and kinship responsibilities	
Affectivity (Positive & Negative)	Dispositional tendency to experience pleasant or unpleasant emotional states	<ul style="list-style-type: none"> • It is easy for me to become enthusiastic about the things I am doing. • I often feel sort of lucky for no special reason. • I always seem to have something to look forward to. • Often I get irritated at little annoyances. • I often lost sleep over my worries. • I sometimes feel miserable for no good reason.
Environmental Factors	Features outside of the organization that employees have expectations and values about	
Opportunity	Availability of alternate jobs in the environment	<ul style="list-style-type: none"> • There are plenty of good civilian jobs that I could have. • Given the state of the job market, finding a civilian job would be very difficult for me. • It would be difficult for me to find a

Construct	Definition	Survey Item Question
		civilian job that I liked as well as my Navy job. <ul style="list-style-type: none"> • There is at least one good civilian job that I could begin immediately if I were to leave the Navy.
Employee Factors	Personality dispositions that accompany expectations & values of the employee	
General Training	Transferability of skills and knowledge among employers	<ul style="list-style-type: none"> • The skills and knowledge used in my job are needed in civilian jobs. • It would be difficult to use the skills and knowledge of my job outside the Navy. • Most of my present job skills and knowledge would be useful to me if I left the Navy.
Work Motivation	Willingness to exert effort on the job	<ul style="list-style-type: none"> • The most important things that happen in life involve work. • Work should be considered central to life. • Life is worth living only when people get absorbed in work.
Met Expectations	Extent to which beliefs about the nature of employment corresponds to the facts about employment	<ul style="list-style-type: none"> • Generally, the Navy has not been what I thought it would be. • My experiences in the Navy have been better than I originally expected. • The Navy has lived up to the experiences I had when I first entered. • All in all, I have been disappointed with the Navy
Job Preference	Relates to employee's input into a new job assignment, including consideration of employee's career path	<ul style="list-style-type: none"> • When I arrived at my command, I was able to negotiate with the leadership for my job assignment. • I was usually assigned to a job based on my specialty area. • I was rarely assigned to positions outside of my specialty area. • I was motivated to work harder and at a higher level when I was assigned to work in an area that I liked.

Construct	Definition	Survey Item Question
Professionalism	Degree of dedication to occupational standards of performance	<ul style="list-style-type: none"> • My job was central to my very existence. • I lived, ate, and breathed my job. • The most important things that happened to me involved my job. • I had very strong ties with my job which would have been difficult to break.
Values	Ideals held by the employee	<ul style="list-style-type: none"> • To have variety on your job. • To have opportunity for advancement in the Navy. • To have very close friends at work. • To have freedom to make decisions about your job. • To be rewarded fairly for the job you do. • To know what is expected of you on the job. • To have enough resources to do your job. • To be free of conflicting job demands from other people. • To have job opportunities outside the Navy. • To receive good pay and allowances. • To have a chance to spend time with your family. • To have a safe job. • To have enough time to do your job.
Work-related Factors	Factors in the work environment that employees routinely assess as important prior to accepting employment with an organization	
Autonomy	Degree to which employee exercises power related to his/her job	<ul style="list-style-type: none"> • I was left on my own to do my job. • I had very little freedom to do what I wanted on my job. • I was not able to act independently of my immediate supervisor in performing my job. • I controlled the scheduling of work on my job.

Construct	Definition	Survey Item Question
Distributive Justice	Extent to which rewards and punishments are related to job performance	<ul style="list-style-type: none"> • I was rewarded fairly for the amount of effort that I put in. (Money and recognition are examples of rewards). • I was rewarded fairly considering the responsibilities that I had. • I was not rewarded fairly in view of my experience. • I received recognition from my supervisor for the work I did. (Recognition is verbal praise). • I received encouragement and positive feedback from my supervisor. • I was encouraged to belong to departmental or command committees.
Job Hazards	Degree to which employment is physically dangerous	<ul style="list-style-type: none"> • My job rarely exposed me to physical dangers. • My job often exposed me to unhealthy conditions. • Serious accidents often occurred in the job I did.
Job Stress: Resource Adequacy	Lack of means to perform job	<ul style="list-style-type: none"> • I didn't have enough physical space to do my job. • I had adequate equipment to do my job. • I had enough support services to do my job. • I had difficulty getting supplies I needed on my job.
Job Stress: Role Ambiguity	Unclear job expectations	<ul style="list-style-type: none"> • I knew what procedures to use to get my job done. • I did not know what my responsibilities were in performing my job. • I knew exactly what was expected of me in my job.
Job Stress: Role Conflict	Inconsistent job obligations	<ul style="list-style-type: none"> • I got conflicting job requests from different supervisors. • My immediate supervisor and peers had very different ideas about how my job should be done. • I got conflicting job requests from my immediate supervisor.
Job Stress: Work Load	Amount of effort required by job	<ul style="list-style-type: none"> • I did not have enough time to get everything done on my job.

Construct	Definition	Survey Item Question
		<ul style="list-style-type: none"> • My workload was too heavy on my job. • I had to work very fast on my job. • I had to work very hard on the job.
Fringe Benefits	Vacation, holidays, sick leave, medical plan, educational, & retirement benefits	<ul style="list-style-type: none"> • Compared to the civilian sector, the fringe benefits in the Navy are good. • Compared to civilian organizations, fringe benefits in the Navy are poor.
Pay	Money and its equivalents that employees receive for services from employers	<u>Asked in Part I of the survey:</u> What were <u>your</u> total military gross (before tax) earnings in 2003?
Professional Growth	Chances provided by an employer to increase job-related knowledge and skills	<ul style="list-style-type: none"> • The Navy provides the opportunity for me to keep up with new developments related to my job. • The Navy provides me the opportunity for self-improvement regarding my job. • The Navy does not provide the opportunity for me to attend courses which increase my job skills. • I am offered training and professional development opportunities in the Navy.
Promotional Opportunity	Degree of potential vertical occupational mobility within an organization	<ul style="list-style-type: none"> • I have a good chance to get ahead in the Navy. • I am in a dead-end job in the Navy. • I have the opportunity for advancement in the Navy.
Routinization	Extent to which jobs are repetitive	<ul style="list-style-type: none"> • My job had variety. • I had the opportunity to do a number of different things in my job. • My duties were repetitious in my job.
Unused Skills	Expertise not utilized in the job	<ul style="list-style-type: none"> • I was given a chance to do the things I do best. • My job let me use my skills and abilities.
Social Support: Family	Assistance for job-related problems provided by relatives	<ul style="list-style-type: none"> • My spouse (wife or husband) was willing to listen to my job-related problems. (If you are not married, please mark “not applicable” on your answer sheet). • My spouse (wife or husband) could be

Construct	Definition	Survey Item Question
		<p>relied on when things got tough on my job. (If you are not married, please mark “not applicable” on your answer sheet).</p> <ul style="list-style-type: none"> • My spouse (wife or husband) was helpful to me in getting my job done. (If you are not married, please mark “not applicable” on your answer sheet).
Social Support: Supervisor	Assistance for job-related problems provided by immediate supervisor	<ul style="list-style-type: none"> • My immediate supervisor could be relied upon when things got tough on my job. • My immediate supervisor was willing to listen to my job-related problems. • My immediate supervisor was helpful to me in getting my job done.
Social Support: Work Group	Assistance for job-related problems provided by peers at work	<ul style="list-style-type: none"> • I was very friendly with one or more of my co-workers. • I rarely discussed important personal problems with my co-workers. • I knew almost nothing about my co-workers as persons. • I regularly did things outside of work with one or more of my co-workers. • My co-workers could be relied upon when things got tough on my job. (Do not consider your immediate supervisor as a co-worker). • My co-workers were willing to listen to my job-related problems. (Do not consider your immediate supervisor as a co-worker). • My co-workers were helpful to me in getting my job done. (Do not consider your immediate supervisor as a co-worker).
Social Support: Occupational Community	Diversional resources	<ul style="list-style-type: none"> • Most of my very close friends were Navy personnel. • My recreational activities usually took place on a Navy base. • Most of my off-the-job activities took place outside a Navy base. • I avoided participating in off-duty base activities.

Construct	Definition	Survey Item Question
Communication	Degree to which information about the job is transmitted by an organization to its members	<ul style="list-style-type: none"> • Most of the people that I knew very well were Navy personnel. • I received all necessary information to perform my job efficiently. • My command fostered and encouraged open and honest communication between management and staff. • I rarely received the information I needed to perform my job effectively and efficiently. • Command strategies were communicated to everyone at the command.
Decision Making	Extent to which employees have input into work decisions	<ul style="list-style-type: none"> • I had input into the decision making process at my command. • My immediate supervisor rarely solicited my input when making unit level decisions. • My supervisor provided me with adequate time to express new ideas. • My command encouraged input from all staff when making decisions.
Endogenous Variables	Variables whose variation is determined by other variables in the model	
Job Satisfaction – Job	Extent to which employees like their job	<ul style="list-style-type: none"> • I felt dissatisfied with my job. • I was often bored with my job. • I found enjoyment in my job. • Most days I was enthusiastic about my job.
Job Satisfaction – Navy	Extent to which employees like the Navy	<ul style="list-style-type: none"> • I do not find enjoyment in the Navy way of life. • Most days I am enthusiastic about the Navy as a way of life. • I am dissatisfied with the Navy way of life. • I like the Navy better than most other people I know in the Navy. • Overall, how satisfied are you with the military way of life?
Organizational	Employee loyalty the	<ul style="list-style-type: none"> • I speak highly of the Navy to my

Construct	Definition	Survey Item Question
Commitment: to the Navy	Navy	friends. <ul style="list-style-type: none"> • I am not dedicated to the Navy. • I am proud to tell others I am part of the Navy. • The Navy inspires the very best job performance in me. • I feel it is my duty to support the Navy. • The Navy is the best of all possible places to work. • I don't care about the fate of the Navy. • The Navy's values are not the same as mine.
Organizational Commitment: to Past Work Organization (Command)	Employee loyalty to employer (where mobilized to)	<ul style="list-style-type: none"> • My command was the best of all possible places to work. • I speak highly of the command I was mobilized to. • I was proud to tell others I was a part my command. • My command did not inspire my best job performance. • I did not care about the fate of the command I was mobilized to.
Intent To Stay	Extent to which an employee plans to continue membership with his/her organization	<p><u>Asked in Part I of the survey:</u> What are your retention intentions (based on current Navy surveys)?:</p> <ul style="list-style-type: none"> • I will definitely leave the Navy upon completion of my present obligation. • I will probably leave the Navy upon completion of my present obligation. • I will probably stay in the Navy beyond my present obligation, but not necessarily to retirement. • I will definitely stay in the Navy beyond my present obligation, but not necessarily to retirement. • I will probably stay in the Navy until retirement. • I will definitely stay in the Navy until retirement • I have already left the Navy <p><u>Asked in Part II of the survey</u> (based on Zangaro's [2002] work):</p>

Construct	Definition	Survey Item Question
		<ul style="list-style-type: none"> • I plan to leave the Navy as soon as possible. • Under no circumstances will I voluntarily leave the Navy. • I would be reluctant to leave the Navy. • I plan to stay in the Navy as long as possible. • Suppose that you have to decide whether to stay in the Navy Reserves. Assuming you could stay, how likely is it that you would choose to do so?
Desire to Quit	Extent to which an employee wishes to discontinue membership with his/her organization	<ul style="list-style-type: none"> • I would like to leave the Navy. • I would prefer to work somewhere other than the Navy.

Table constructed with information adapted from Kim et al., 1996; Moorhead, 1993; Polit and Hungler, 1999; Price and Mueller, 1981; Schumm, Gade, & Bell, 2003; and Zangaro, 2002.

Procedures

A research packet was mailed via a survey firm to NNC reservists who were recalled to active duty in support of *OIF/OEF*. Delays with obtaining a survey control number and IRB approvals impacted access to this study population, which also postponed the timeline for mailing out the surveys to participants. Consequently, the first mailing for this study was not until January 2007, making it a survey by recall, not contemporaneous to the job activity under study. Thus, the independent or predictive factors were not collected prior to the actual final job decision, but retrospectively by recall.

The design of the mailing procedures was the five-step compatible contacts process that Dillman (2000, p. 151) advocates for maximizing response rates to questionnaires:

- First letter – sent 1/24/07 – A brief, personalized pre-notice letter was sent to respondents a few days prior to actually mailing the questionnaire. It noted that a survey was soon to follow, and that the individual’s response would be greatly appreciated.
- First Survey – sent 1/31/07 – A questionnaire mailing that included a detailed cover letter explaining why a response was important followed step one. This cover letter also discussed the individual’s consent to participate. Return postage paid envelopes were included in this mailing, which added to the convenience of responding. Per Dillman, the presence of stamps on the return envelope, and not sending a business reply envelope, has been proven to

increase survey response rates – the theory being that people keep stamped envelopes, but sometimes inadvertently throw business reply envelopes away.

- Postcard – sent 2/7/07 – A thank you postcard followed a week after the questionnaire was sent. This mailing expressed appreciation for responding, and indicated that if the completed survey had yet to be mailed, that it was hoped it would be returned soon. Per Dillman, a postcard follow-up jogs memories and rearranges priorities on behalf of respondents.
- Second Survey – sent 2/21/07 – Two to four weeks after the first questionnaire mailing, a replacement questionnaire was sent to non-respondents. A cover letter specified that the individual's survey had not been returned, and urged the person to respond. Return postage paid envelopes were included in this mailing, too.
- Third Survey – sent 3/21/07 – A final contact occurred a month after the fourth contact. This was sent via FedEx delivery.

Dillman (2000) writes that the contact sequence listed above has a different look and feel to it each time and that these delivery modes build upon past research, showing that a “special contact” such as these types improves overall response rates to mailed surveys. The use of multiple attempts gives lots of opportunity to motivate recipients to respond. For this study, repeated mailings increased the response rate from 62% (n = 237) to 69% (n = 264).

Dillman (2000) recommends avoiding mailings between Thanksgiving and Christmas (because people are busier during this time and more likely not to be home; it is also a high volume time for the Post Office and delivery mistakes may be higher at this time). Rather, the best time of year that is most conducive to getting surveys filled out is the January – March timeframe (perhaps because “there is less that one can do outside of the home,” [p. 176]).

Data Analysis

Discriminant and convergent validity of the model's constructs were assessed by exploratory factor analysis (EFA). These analyses utilized maximum likelihood methods of extraction. Factor loadings greater than |.30| indicated discriminant validity, a cut-off value employed by other researchers when evaluating this model (Chu, Hsu, Price, & Lee, 2003; Morehead, 1993). In passing, Price and Mueller (1981) retained items with factor loadings greater than |.40|.

The use of multiple regression analysis was the data analysis method of choice for Study Aims #1 and #2. It is known that other factors – particularly family responsibilities – contribute heavily to job retention among Navy nurses (Agnew et al., 1999; Clegg, 1992; Kocher & Thomas, 1994; Mangelsdorff, 1999; Wynd & Dziedzick, 1992). The initial model was expanded to include other factors known to influence retention, particularly marital status, number and ages of children for whom the subject was primary caretaker or custodian, and whether there were elderly parents or other infirmed

family members for whom the subject felt responsible. Interactions were not expected, but were tested for exclusion.

Structural Equation Modeling (SEM) was used to address Specific Aim #3. With SEM, relationships between observed (measured) variables and latent (unobserved) variables – and among the latent variables themselves – are estimated and tested. SEM not only finds correlations, but also confirms relationships (and even gives additional insight into the nature and strength of those relationships) thus providing more information than traditional methods alone. SEM merges confirmatory factor analysis with path analysis and provides the means for constructing, testing, and comparing comprehensive structural path models as well as comparing the goodness of fit of models and their adequacy across samples (Pedhazuer & Schmelkin, 1991).

Incidentally, the effect of each question on the Price-Mueller (1981, 1986; Zangaro, 2002) instrument and each demographic factor was analyzed for association with the main outcome, simply as a description of each item's predictive value. Due to multiple comparisons, only associations with p -values less than 0.05 were considered as having a moderately strong association.

For Study Aim #4, the comments (i.e., the qualitative data) were analyzed via content analysis, a technique used to quantify narrative, qualitative data (Polit & Hungler, 1999). 58.7% ($n = 155$) of the surveys were returned with comments and 41.3% ($n = 109$) had no comments. Words and/or themes were identified, inductively sorted into categories, and the frequencies were recorded via Microsoft Word. Intercoder reliability of the qualitative data was assessed with members of the research team.

Comparison of Possible Causality from Inference of Primary Analysis with Structured Equations Modeling Results using the Price and Mueller Model

Because the ascertainment of the probable causes of retention were not collected at the time they occurred, and indeed not at all in possibly the most disaffected individuals (namely, those who resigned and did not complete the survey – see “Limitations” below), any association between what was captured as an antecedent condition and the ultimate decision to resign or not (which may be passive), cannot be inferred to be causal, unless a reasonable case can be made about the accuracy or veracity of the state of dissatisfaction especially in the recall setting. That is, the recall needs to be shown valid, accurate and reproducible. That was done indirectly by comparing the results of the factor structure from this study with those of a similar study (Zangaro, 2002). Since the same factor structures were uncovered by both studies, this provided some confirmation of the validity of the instrument both in real-time settings as well as in retrospective settings.

Since the factor structures were similar between the two settings, the Price and Mueller (1981, 1986) model was applied to this study, at least in an exploratory manner. Since parallel structures were detected in the two settings, it was reasonable to apply the model. Importantly, the path structure of the resulting SEM model was compared to the

results of the logistic regression of retention on the primary factors. Since the factors were significantly associated with retention by logistic regression, and the factor structures between the two studies were similar thus validating each other, the case was made that the recall setting was valid, and that the identified factors preceded the decision to resign or not. Since the SEM model results show the relationship expected among the explanatory variables and the outcome variable in general agreement with the results of the logistic regression, the factors were interpreted as causal.

Missing Values

Mplus (Version 4) provides features of missing value estimation with maximum likelihood methods, assuming values are missing at random (MAR). In fitting Price and Mueller's (1981, 1986) causal model, this feature was applied to handle occasional missing values. Therefore, the entire sample was used for fitting the causal model without excluding participants because of missing values on a few variables.

Data Cleaning

PROC COMPARE within SAS software was used to check inconsistencies in the two data files. Any error in the dataset was double-checked and corrected. Range check was performed using PROC Means with SAS to ensure that maximum and minimum values for each variable are within reasonable ranges. Outliers were then checked. Variables were transformed into z scores and any z scores greater than 3 or less than -3 were treated as outliers. Missing values in the data were treated using maximum likelihood estimation provided by Mplus.

Results/Discussion

Specific Aim #1: Compare the Factors that Predict Intent to Stay of NNC reservists.

Research Question A: Is there a difference in the factors that predict intent to stay of NNC reservists among different military ranks?

The participants were grouped into two categories: junior officers and senior officers. This was done to make the results of the analysis more useful, since the initial categorization and data analyses across six ranks revealed few significant differences. Junior officers included the ranks of O-1 (ensign), O-2 (lieutenant, junior grade), and O-3 (lieutenant). The senior officer ranks were O-4 (lieutenant commander), O-5 (commander), and O-6 (captain). No participants higher than the rank of an O-6 participated in this study.

Incidentally, the traditional career path time line for both active duty and reserve nurses is that one is an ensign for two years, followed by two years at the rank of lieutenant (junior grade), and then promoted for a five year period at the rank of lieutenant. It is usually at this point (e.g., the 9-10 year mark) that a majority of NNC reservists tend to

make a big career decision (e.g., “Shall I stay in another 10 years in order to retire at the 20-year mark or do I get out now, before I’m too vested in the organization?”). If the officer is successful in his/her performance as a NNC reservist and wants to remain with the organization (e.g., the Navy Reserves), then he/she is eligible to compete for the next rank of lieutenant commander, followed by commander, and then captain. Each of these senior officer ranks encompasses about 5-7 years, with most successful officers reaching the 20-year mark at the rank of commander. This milestone brings with it an officer’s second career decision (e.g., “Do I retire as an O-5, or do I pursue ‘making’ O-6?”). If the officer obtains the rank of O-6, then he/she is required to stay in the Navy Reserves another three years in order to receive retirement pay at that rank. NNC reservists may stay in the Navy Reserves for as long as 30 years. Price and Kim (1993) emphasize that the option to retire after 20 years of service is not what one would expect in a non-government workplace; whereby, workers intend to stay until a retirement date based on age and not necessarily based on years of service.

The *t*-test procedure comparing junior and senior officers was significant for three factors (see Table 7 for values): General Training (transferability of skills and knowledge among employers), Social Support: Occupational Community (diversional resources), and Intent to Stay (extent to which an employee plans to continue membership with his/her organization). It makes sense that senior nurses have more general job skills and probably greater camaraderie with their Navy peers than do junior nurses just based on their years of experience; whereby, their skills, friendships, and knowledge of diversional activities have multiplied with each year of service:

“As a reservist, I find that returning to the same command so that you learn your job and establish relationships is a plus, but experience and expertise will support you wherever you go.” [1119]

“Originally, I had planned to just stay in up to my commitment, but my experiences have influenced me to stay and retire. I really enjoyed being mobilized [twice].” [1257]

“I have stayed in the Navy because I have met many outstanding friends in the Reserves. I think it’s important to note that living in a tent while under hostile fire creates special bonds for some of us old timers, and had it not been for that experience, I might have become discouraged by the frustrations of Navy life. There is something to be said for war stories, and unit cohesion.” [1294]

“... The Navy has been very good to me, and I have made many lifelong friends. I am proud to have had the opportunity to serve my country and to use my nursing skills to help shipmates.” [1391]

As for Intent to Stay, Price and Kim (1993) found this variable to be the strongest for their Air Force participants who had been in the service for 10 to 14 years and weakest for those with less than 10 years of service (when they could get out before being strongly vested) or more than 14 (when they felt that their careers were drawing to a

close, based on completing 20 years of service). However, for this study, Intent to Stay remained high for senior nurses, with one commenting:

“Retirement is in sight for me within four years so leaving is highly unlikely for me at this time.” [1295]

If a senior nurse was considering leaving, these comments exemplified that scenario:

“I have been in the Navy for over 23 [years]. I currently am in the IRR and planning to retire this fall. I have enjoyed my time but find that the state of the Nation with recall being frequent, I have to leave.” [1081]

“I left the Navy once I was eligible to retire. I did not want to stay longer because as a reservist the likelihood of getting deployed again was high. I have two young children and my quality of life would have been greatly affected if I stayed any longer!” [1208]

“I intend to either transfer to the IRR or retire when I am eligible to do so later this year. I have given service to my country for almost 20 years. It is now time to ‘give service’ to my family (husband and elderly parents).” [1215]

“I plan to retire. There are very few opportunities for senior level Nurse Corps officers.” [1384]

Table 7: Comparison of Senior and Junior Officers.

Variable	n*	Mean	Standard Deviation	T-Tests Pooled p Value
General Training				
Senior Officer	188	3.44	0.37	0.0090
Junior Officer	70	3.28	0.55	
Social Support: Occupational Community				
Senior Officer	188	3.07	0.52	<.0001
Junior Officer	70	2.77	0.54	
Intent to Stay				
Senior Officer	188	3.37	0.65	0.0003
Junior Officer	70	3.03	0.64	

* Missing rank data for six officers

Research Question B: Is there a difference in the factors that predict intent to stay of NNC reservists based on gender?

The *t-test* procedure comparing genders was significant for two factors that have not been previously reported in the literature (see Table 8 for statistics): Positive Affectivity and Family Support. The female nurses had a more positive outlook on life and had greater assistance with job-related problems provided by their spouses than did their male counterparts:

“When I was mobilized in 2003, my children were very young and we just moved. It was very hard for me to be mobilized. My husband and I were able to arrange childcare. My supervisor (a civilian) was amazing! She worked with my schedule accordingly. She was great to work for. I was very happy to be taking care of all the troops returning from Iraq. I was glad I was not being utilized at a desk job somewhere.” [1160]

“During my mobilization I was at a local command and was lucky to be able to stay at home with family and report to work everyday. I have recently been mobilized to active duty to fill an overseas billet for one year. I may have different answers for some of the questions when I return from being away from family that long.” [1295]

“My family was supportive, which is extremely important.” [1260]

Table 8: Comparison of Genders

Variable	n*	Mean	Standard Deviation	T-Tests Pooled p Value
Affectivity: Positive				
Female	195	3.8376	0.6142	0.0100
Male	66	3.6187	0.5228	
Social Support: Family				
Female	195	4.1778	0.8769	0.0056
Male	66	3.8283	0.8853	

* Missing gender data for three officers

Specific Aim #2: Determine the Scope of the Problem of Nurses’ Intent to Stay in the Reserves after Return from Deployment.

Research Question A: Do family issues (kinship responsibility) affect intent to stay (retention) in the Reserves?

Price (2000b) believes that kinship obligations diminish turnover because kinship responsibilities produce a sense of duty to provide and this commitment is best met by

having the employee stay in the job. Price reports that data show no significant difference between retention intentions for those with kinship responsibilities versus those without. However, one might think that military nursing might have the opposite effect, especially when the recalled member has to deploy and leave family members behind. Nevertheless, for this study, family issues (kinship responsibility) did not correlate with intent to stay (retention) in the Reserves ($R^2 = 0.026$; $p = 0.683$). This finding is consistent with Kim's et al. (1996) military study.

Research Question B: What employee factors impact job satisfaction the most?

Met Expectations ($p = 0.0064$) (extent to which beliefs about the nature of employment corresponds to the facts about employment) impacted job satisfaction the most. In other words, the nurses' expectations about work conditions were not met, thus negatively impacting their job satisfaction. This was especially apparent in the comments made by senior nurses, who expected to be placed in senior leadership positions – as they had been trained for – but were instead utilized as bedside nurses who rotated shifts and reported to junior active duty nurses:

“After being recalled to a Command I worked at as a GS [Government Service] employee, I was very disappointed to not be appointed as DEPT Head or at least the Division Officer of a place I knew very well. It was very disheartening as a CDR to have a LCDR as my Division Officer. I was not offered any leadership positions while on AD [active duty] which was questioned after I finished my time at my recalled command.” [1033]

“I did NOT appreciate being placed in a staff nurse position with an active duty ensign/JG as my charge nurse. I have worked like a dog doing all the administrative jobs and leadership jobs the reserves require. We were always told that, if mobilized as senior officers, we would be in administrative and management positions. When mobilized, I was placed in a staff nurse position, pounding the concrete on 12 [hour] shifts with my 47-year-old feet. After spending an untold number of uncompensated hours in my various leadership positions, it was insulting to be placed in a staff nurse position. I did not see ONE SINGLE active duty commander pounding the concrete! They were all in admin[istrative] positions.” [1172]

Unmet work expectations were also exemplified by the comments that a “nurse is not just a nurse” and that experienced nurses who were certified in their specialties should not have been placed in a position outside of those specialties:

“The Navy should assign personnel to the background of the person's profession. To clarify: When the Navy sends critical care ICU nurses to ... the new command, the person is assigned where a body is needed and not where that nurse's specialty is.” [1035]

“The Navy needs to stop looking at nurses as ‘a nurse is a nurse is a nurse.’ I have never been a pediatric nurse yet was mobilized to a pediatric ward. I could have killed someone's child. As an educator I had to fight everyday for one month to convince Navy supervisors that I was not competent to care for children. I was an educator who maintained clinical skills on an adult medical-surgical floor. I finally won my battle and did not have to care for kids under 8 years old. I think the Navy has learned a lesson since then. We even had nurse practitioners working on med/surg floors. This was difficult for them as they had not done floor nursing for years. The civilian sector understands [what] nursing is and [that it] does have specialties. A nurse is not a nurse across the board. In the civilian sector, if a nurse has not worked in an area for over a year (such as peds, maternity, rehab,) he or she would not be hired without a refresher course.”
[1232]

This sentiment was voiced in Moorhead's (1993) study regarding active duty Air Force nurses: “Nurses want a say in where they work, their specialty, and in decisions in the work setting that impact their jobs,” (p. 113). Decreased job satisfaction, because of unmet work expectations, can make a nurse not want to stay in the organization.

Research Question C: What employee factors influence organizational commitment to the Navy the most?

Work Motivation ($p = 0.0058$) (willingness to exert effort on the job) and Job Preference ($p = 0.0115$) (relates to one's input into a new job assignment, including the consideration of one's career path) influenced organizational commitment to the Navy the most. As for Work Motivation, the respondents disagreed with the comments that the most important things that happen in life involve work, that work should be considered central to life, and that life is worth living only when people get absorbed in work:

“Family time: to spend significant amounts of ‘after hours’ time taking care of Navy business starts to have a negative impact on your family time as well.”
[1157]

As for Job Preference and the Navy Reserves:

“Usually as a Reservist, I feel we are under utilized. There are so many humanitarian efforts and needs for medical people where we are not even looked at as a source of medical care. Our reserve weekends, for example, we have vast amounts of highly experienced medical personnel joining one weekend a month to do physical exams, half of the staff which are not even utilized, especially higher ranking members. These weekends and the trend toward all our training being computer based [are] making Reserves less enjoyable. Also, the lack of support from our Active Duty side makes it very difficult to deal with. There are many opportunities for us, but most of the time we never find out about these.” [1126]

“I have been fortunate to serve in the Navy Reserves. I have made great friends and my job as a Critical Care nurse is never dull! In my opinion, it seems the higher the rank the fewer the opportunities. There are only so many command billets and as an officer you are expected to take them. I understand the need for senior officers for leadership positions but as you leave the clinical areas (ICU for me) to meet the needs of the Navy, job satisfaction diminishes. You have to switch hours of taking care of our wounded and dependents to hours of computer work. We spend entire drill weekends doing nothing but sitting at a computer when the clinical areas are looking for help. My job satisfaction comes from working at the bedside with patients and junior nurses. I am lucky I can maintain this in my civilian job. I am grateful to be able to complete my time to retirement in the Navy but the more time I have to waste sitting on a computer (especially at home) the more dissatisfied I've become with my Navy career.” [1284]

“As you can see by my answers, I am very committed to the Navy. However, my reasons for staying have almost nothing to do with the clinical aspects of Navy Nursing, as discussed below. As an advanced practice nurse in psychiatric nursing, I believe that my clinical expertise has never been recognized by the Navy Because there have been no billets for advanced practice nurses, I have had to create useful tasks as I have recognized them while on annual training or during recalls; luckily, I have many years of experience in varied settings and can usually see opportunities to create more efficient approaches to tasks at hand. Otherwise, I would have been truly bored when asked to do jobs that could have been done by much less experienced personnel (even an LPN could do some of the jobs I have been assigned to). During the recent war, it seems even more likely that psych nurses could be useful seeing some of the many traumatized patients who are returning, yet there seems to be no opportunity for nurses to do what we have skills and credentials to do. Advanced practice nurses obtained masters degrees so that we could do advanced practice roles, including practicing crisis intervention, independent psychotherapy, and now even some who can safely prescribe medications. In spite of that, the Navy seemingly does not want nurses to do these things.” [1294]

“I have the critical skill set desperately needed by the Navy, but my senior rank is the stumbling block. It is nearly impossible to work through a way for all to win in this situation (i.e. keep me in the Navy using the skills I have while finding a way to fund my rank).” [1402]

The employee factor that was significant for organizational commitment to the Command where the reservist was recalled was Job Preference ($p = 0.0029$). These comments reflected concerns when nurses appeared to not be recognized for their experience in nursing and/or leadership capabilities, or were not given a meaningful job:

“I joined the Reserves at 41 with 18 years experience as an RN. Because I did not complete my Bachelors until 2001, no credit was given to me for rank and I

came into the Reserves as an Ensign. My 18 years experience as an RN included being certified as a CEN for 15 years. My experience as an Emergency/Trauma nurse with a CEN, ACLS, PALC, TNCC, as a flight nurse, sexual assault nurse examiner (SANE) was not utilized. My job as a reservist is to serve when and where I was needed. I was placed on a med/surg floor, which I had never done in my career.” [1080]

“I have a Master's degree in administration and work full-time in nursing administration. The Navy utilize[d] my skills as a bedside nurse during mobilization – expensive talent.” [1089]

“The main problem with recall was being a senior officer reporting to a very junior officer. Reserves were not given authority associated with rank. No special consideration was given to senior rank, education or experience while I was recalled to active duty.” [1218]

“They recalled too many of us at one time so we were not needed. I did not have a meaningful job so was bored, but glad to have the good salary and benefits.” [1349]

Research Question D: What work-related factors impact job satisfaction the most?

Job Stress: Work Load ($p = 0.0042$) (amount of effort required by the job) impacted job satisfaction the most. The participants did not agree, or had no strong opinion, regarding the comments that they did not have enough time to get everything done on the job, that the workload was too heavy, or that they had to work very fast and/or hard on the job:

“The recall in 2003 went very well! I was sent to a great Command where everyone did what was needed to get the job done. Even if short-staffed, everyone pitched in.” [1284]

Research Question E: What work-related factors influence organizational commitment the most?

Job Stress: Resource Adequacy ($p = 0.0137$) (lack of means to perform job) and Job Stress: Work Load ($p = 0.0017$) (amount of effort required by the job) influenced organizational commitment the most. The respondents had no strong opinion about the lack of physical space, equipment, support services, or supplies needed for their job. If they did have an opinion, it was expressed in comments such as this one:

“... I have ambivalence about staying. The OR [operating room] tables were broken or missing. It was not the ‘state of the art’ as I had anticipated going in.” [1311]

As for Work Load, these comments reflected frustration with the many requirements required to stay in the Navy Reserves:

“The increasing demands from all of the chains of commands that we report to as reservists is driving me crazy. All of the NKO [Navy Knowledge On-line] trainings, DOD [Department of Defense], OSO [Operational Support Office] requests, multiple questionnaires; MANY unpaid hours to stay mobilization ready.” [1196]

“I would not recommend the Reserves to young people today. There is way too much work above and beyond the two days per month that I initially signed up for. Every year there is more computer/on-line training that I don't get time or reimbursement for.” [1200]

“I am a senior officer so I will retire from the Navy. Morale and retention are at an all time low due to the additional requirements of being a reservist. We need to support reservists to do their job and not continually ask them to do more ...” [1319]

Specific Aim #3: Test a Causal Model of Voluntary Turnover with a Sample of Navy Reserve Nurses who have Returned from Deployment.

Research Question A: What relationship do environmental, employee, and work-related factors have with job satisfaction, organizational commitment, and intent to stay?

Data indicate that the model fits the data well (see Figure 1), with job satisfaction having the strongest influence on one's intent to stay in the Navy Reserves. This finding is not consistent with Kim et al.'s (1996) study involving physicians at a US Air Force hospital; whereby, the researchers concluded that the total effect was largest for organizational commitment, followed by job satisfaction and search behavior. Thus, physicians who were satisfied with their jobs and not searching for other jobs intended to stay in the Air Force.

More specifically, the causal model in Figure 1 explains that:

- Job Satisfaction was a significant mediator between the effects of Environmental Factors, Employee Factors, and Work Related Factors in relation to the outcome variable of Intent to Stay.
- The total indirect effect from Environmental Factors to Intent to Stay was 0.174. With a direct effect of -0.72, the total effect was 0.102, indicating that more Environmental Factors were associated with an increased likelihood of staying in the Navy Reserves.
- The total effect from Employee Factors to Intent to Stay was 0.167, indicating that enhanced Employee Factors were related to a greater likelihood of staying in the Navy Reserves. Job Satisfaction was a significant mediator, and the indirect

effect from Employee Factors to Intent to Stay through Job Satisfaction was 0.140. Therefore, about 83.8% ($0.140 \div 0.167$) of the effect from Employee Factors to Intent to Stay was through the mediation effect of Job Satisfaction.

- The total effect from Work Related Factors to Intent to Stay was 0.339, showing that more Work Related Factors were positively related to Intent to Stay. Job Satisfaction was a significant mediator between Work Related Factors and Intent to Stay. The indirect effect from Work Related Factors to Intent to Stay was 0.297; therefore, the mediation accounted for 87.6% ($0.297 \div 0.339$) of the total effect.

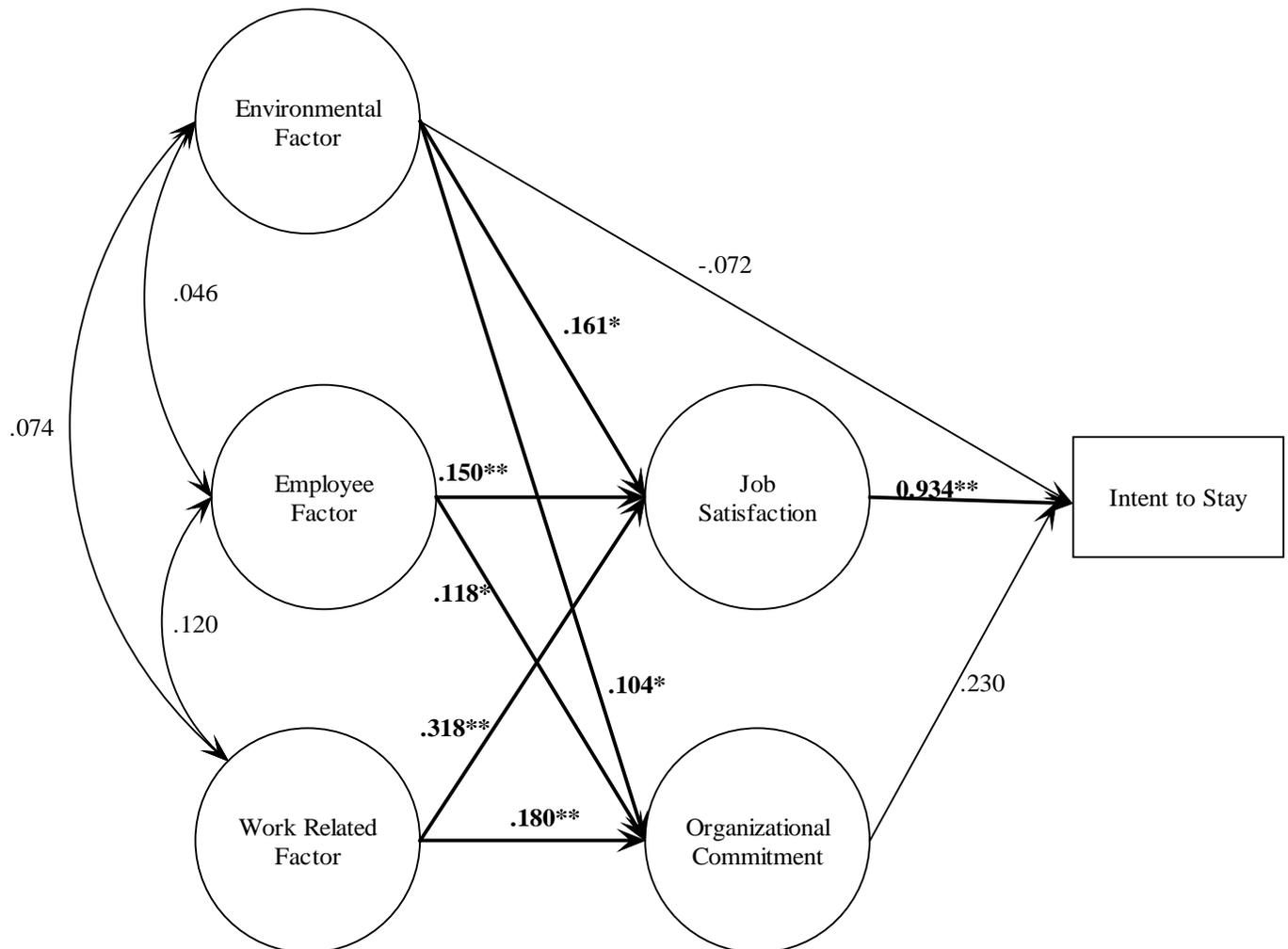
The bottom line is that for the majority of those recalled to active duty for *OIF/OEF*, the mobilization did not affect their decision to stay in the Navy:

“While I am generally dissatisfied with the Navy Reserves (too much on-line training, never enough money for meaningful training, too many surveys etc., ALWAYS a threat of downsizing, the APPLY program, [my Command] ALWAYS changing the rules about AT [active training], fitrep rankings, etc.), I am dedicated to the military and feel a duty to be the best nurse possible to our country's fighting force ... If I were in any other job I would leave the Navy. However, I am proud to serve those who serve and would not abandon our young soldiers and sailors who need caring, compassionate, competent nursing care.” [1044]

“If the main question is: Am I likely to get out of the Navy because I was recalled, the answer is Absolutely NOT. I know why I joined the Navy, and it was to hopefully give more than what I receive. The courage yet innocence that I see in the faces of these young sailors is all that I need, to want to be there for them with the hope of making a difference as they do. The other reason that I want to stay is because I'm proud to be a Navy nurse because it goes far beyond nursing. The challenge to be a leader and to grow and learn new info on a regular basis is very appealing to me.”[1120]

“As for retention, my deployment has no bearing on my future with the Reserves. Since my husband is a Marine reservist with almost 18 years in and two Iraq tours, I am considering going to the IRR until my husband retires. Please note that I love being a Navy Reserve nurse. It is an honor to be a part of this great Nurse Corps.”[1188]

Figure 1: The Causal Model



Note: Model fit index CFI = 0.944; TLI = 0.927; and RMSEA = 0.047 (90% CIs 0.032 – 0.061). Unstandardized path coefficients are shown except for correlations.

Research Question B: Do job satisfaction, organizational commitment, and intent to stay vary by organizational characteristics (e.g., MTF versus Marine Corps Support Units in Iraq)?

The three types of organizations were compared even though the sample sizes were unequal and consequently skewed (see Table 9). Professionalism ($p = 0.0209$) (degree of dedication to occupational standards of performance), Social Support: Supervisor ($p = 0.0038$) (assistance for job-related problems provided by immediate supervisor), Communication ($p = 0.0041$) (degree to which information about the job is transmitted by an organization to its members), and Job Satisfaction: Navy ($p = 0.0068$) (extent to which employees like the Navy) differed among the three command structures. Professionalism was highest for those who worked with the Marines, keeping in mind

that the low means for this category reflect the position that one's profession is not necessarily central to one's life:

"Being mobilized to Iraq was the best assignment I ever had and allowed me to do what I had been trained for. It also motivated me to transfer to Program 9, where I have never worked harder or enjoyed it more." [1356]

Supervisor support and Communication were greatest for those mobilized to large MTFs; however, the reported means actually reflected the stance of having no opinion versus strongly agreeing with the questions posed:

"When I was mobilized in 2003, my children were very young and we just moved. It was very hard for me to be mobilized. My husband and I were able to arrange childcare. My supervisor (a civilian) was amazing! She worked with my schedule accordingly. She was great to work for. I was very happy to be taking care of all the troops returning from Iraq. I was glad I was not being utilized at a desk job somewhere" [1160]

Job satisfaction with the Navy was equal for those deployed with the Marines or working in large MTFs, and lowest for those in the smaller MTFs; however, consider that the scaling of the questions again reflects no opinion versus a strong agreement:

"My mobilization to [a major medical treatment facility] was the high point of my Naval Career." [1126]

"I did stay in the Navy because I'm devoted to our sailors, marines, and soldiers. They are the reason I'm in and I had very memorable experiences providing their care. In the end I won because I was one of only a handful of nurses who actually cared for our sailors and marines. I have since completed an ADSW [active duty special work] in my field of expertise and I'm happy to say it was one of the best times of my 28 years as a nurse. I would go back in a heartbeat." [1370]

Table 9: Comparison of Organizations via ANOVA.

Variable	n*	Mean	Standard Deviation	p Value
Professionalism				
• CG1 MEF	14	2.62	0.82	0.0209
• Family Practice Teaching Hospital/Small Medical Command	65	2.21	0.74	
• Major Medical Treatment Facility	145	2.07	0.71	
Social Support: Supervisor				
• CG1 MEF	14	3.26	0.93	0.0038
• Family Practice Teaching Hospital/Small Medical Command	65	3.27	1.11	
• Major Medical Treatment Facility	145	3.74	0.93	
Communication				
• CG1 MEF	14	2.66	0.35	0.0041
• Family Practice Teaching Hospital/Small Medical Command	65	3.07	0.45	
• Major Medical Treatment Facility	145	3.11	0.51	
Job Satisfaction: Navy				
• CG1 MEF	14	3.04	0.26	0.0068
• Family Practice Teaching Hospital/Small Medical Command	65	2.88	0.30	
• Major Medical Treatment Facility	145	3.04	0.36	

* Missing command data for 40 participants

Specific Aim #4: Offer an opportunity for Mobilized Reservists to Describe any Additional Factors Influencing One's Intent to Stay or Leave the Navy Reserves.

Research Question A: Does this survey address all concerns of mobilized Navy Nurse Corps reservists?

This survey allowed participants to record additional comments not addressed by the quantitative questions. 155 (58.7%) surveys were returned with comments and 109 (41.3%) had no comments (see Table 10 for results).

Table 10: Survey Comments (sorted by highest to lowest frequency of mention).

Content	Examples of Comments	Frequency
Command specific	<p>“I did NOT appreciate being placed in a staff nurse position with an active duty [junior officer] as my charge nurse When mobilized, I was placed in a staff nurse position, pounding the concrete on 12-hour shifts with my 47-year-old feet I did not see ONE SINGLE active duty commander [senior officer] pounding the concrete! They were all in administrative positions.” [1172]</p> <p>“The recall in 2003 went very well! I was sent to a great command ...where everyone did what was needed to get the job done. Even if short-staffed, everyone pitched in.” [1284]</p> <p>“I enjoyed my deployment ... and would serve again if called. BUT – don’t fly people to a Navy hospital and then tell them they need a car. Make sure the reserve centers give people options for driving. I had to buy a car to accommodate work and different call hours.” [1346]</p> <p>“Being mobilized to Iraq was the best assignment I ever had and allowed me to do what I had been trained for.” [1356].</p>	43
Already retired	<p>“After 27 years in the Navy, I decided to retire due to family obligations. A 12-month recall would be too difficult for my husband in his current career, along with caring for three children and running the household. It was easier to juggle the Navy and family when my children were younger. In summary, my reason to retire was not because I didn’t like the Navy, but due to family obligations.” [1148]</p> <p>“It’s getting more difficult to be in a paid billet and having to travel several hundred miles. If I stayed that’s what I’d face. This would also put a hardship on my civilian employer.” [1153]</p> <p>“I ... reached a senior officer level and [had] enough years to retire.” [1344].</p> <p>“Factors influencing my drive to retire: Concern that I might be mobilized again and not be close to my mother and spouse; non-pay drill status; exhausting amount of</p>	33

	<p>on-line training, communication, planning between drill weekends, in addition to my fulltime civilian employment.” [1417]</p> <p>I retired on 1 April 2007 after 30 years in the military [1426].</p>	
<p>Reasons to stay in the Navy</p>	<p>“If the main question is: ‘Am I likely to get out of the Navy because I was recalled,’ the answer is Absolutely NOT. I know why I joined the Navy, and it was to hopefully give more than what I receive. The courage yet innocence that I see in the faces of these young sailors is all that I need, to want to be there for them with the hope of making a difference The other reason that I want to stay is because I'm proud to be a Navy nurse because it goes far beyond nursing. The challenge to be a leader and to grow and learn new info on a regular basis is very appealing to me.” [1120]</p> <p>“Retirement is in sight for me within four years so leaving is highly unlikely for me at this time.” [1295]</p>	<p>27</p>
<p>Dissatisfactions with the Navy</p>	<p>“While I am generally dissatisfied with the Navy Reserves (too much on-line training, never enough money for meaningful training, too many surveys etc., ALWAYS a threat of downsizing, the APPLY program, [my drill site] ALWAYS changing the rules about AT [annual training], fitrep [fitness reports] rankings, etc.), I am dedicated to the military and feel a duty to be the best nurse possible to our country's fighting force ... If I were in any other job I would leave the Navy. However, I am proud to serve those who serve and would not abandon our young soldiers and sailors who need caring, compassionate, competent nursing care [1044].</p> <p>“One thing that really stuck in my crew was the brevity of the mobilization. We went through A LOT to get there, train rapidly up to speed, and then we were bounced out like hot potatoes when the [hospital ship] was brought home. In other words, we were deeply uprooted, given orders for a year (and planned accordingly) then were booted out unceremoniously within three months.” [1246]</p> <p>“I would like to complete my 20 years in the Navy and PAY status. Bumping members to VTU [voluntary training unit] and [at] the 14/15 yr mark is very unfair Where is the commitment for us to STAY if the Navy is not committed to pay us GUARANTEED for 20 years?</p>	<p>23</p>

	<p>Part of my reason for joining the Navy was retirement. Now I have to get it by drilling FREE (no pay status) for my last 2 years. Not a good feeling.” [1298]</p>	
<p>Kinship</p>	<p>“28.5 years in USNR and retired. Loved it. Retired only to please my husband. Otherwise I would have stayed for 30 [1117].”</p> <p>“I joined the reserves not knowing I could potentially be recalled every few years. Now I have a young family and can't afford the stress from thinking I may be separated from them every few years now.” [1337]</p> <p>“My experience as a recalled reservist was both exciting and [a] disappointment. I was pleased to help in a time of need. This meant leaving my children with a relative because my husband had just left for deployment My co-workers were great. However, I found decision[s] made by others unfair, schedule changes without notification, etc. Despite this experience, I'm staying in the Navy because of the many positive, personal and career, experiences.” [1341]</p>	<p>23</p>
<p>Recommendations</p>	<p>“Educational opportunities and grants for undergrad and post-grad education would help in the retention and boost morale.” [1065]</p> <p>“I also would be more enthusiastic about being recalled or volunteering to be recalled if my family situation would be considered. For instance, if my husband is at the Pentagon, send me to Bethesda, not Camp Pendleton.” [1123]</p> <p>“More options for billets ... more billets with Marines or even shipboard would be a nice welcome change. Plus, advertise billets and AT [annual training] opportunities available. Don't lock people into a gaining command particularly if they had several bad experiences at that command on AT.” [1157]</p> <p>“My civilian job supported a mobilization, but [has] not been as enthusiastic with the possibility of more I feel one-year mobilizations are too long. I would rather spend 3-6 months every few years. There are few active duty Navy who spend one year away from family, yet reservists are expected to leave a civilian life [for] one year.” [1184]</p>	<p>23</p>

	<p>“During the recent war, it seems even more likely that psych nurses could be useful seeing some of the many traumatized patients who are returning, yet there seems to be no opportunity for nurses to do what we have skills and credentials to do. Advanced practice nurses obtained masters degrees so that we could do advanced practice roles, including practicing crisis intervention, independent psychotherapy, and now even some who can safely prescribe medications. In spite of that, the Navy seemingly does not want nurses to do these things.” [1294]</p> <p>“If Reservist Awards are going to be reviewed and given by AD [active duty] Boards, a Reserve Representative should be a part of that Board for fairness.” [1325]</p>	
Survey specific	<p>“Hope asking the same questions multiple times in the survey was a way to validate responses. If so, you may want to explain that point as it can be insulting and may lower your response rate.” [1368]</p>	22
Dissatisfaction (too many requirements)	<p>“The time as my status of drilling reservist with its extensive demands in addition to [full time] work is becoming to be too much, an IRR [Individual Ready Reserve] option is being considered, especially if a non-paid status were to occur.” [1404]</p> <p>“Factors influencing my drive to retire ...Exhausting amount of on-line training, communication, planning between drill weekends, in addition to my fulltime civilian employment [1417].</p>	14
Reasons to leave	<p>“Probably the reasons I would leave the Navy would be: #1 Placed in VTU [voluntary training unit] status. #2 [Reaching the] age [of] 60. #3 Some sort of physical disability.” [1077]</p> <p>“I am leaving the Navy because I have been passed over twice for promotion. I would like to stay Navy.” [1272]</p> <p>“I want to stay in the Navy as long as I find it fun. I like challenges and don't mind them but when I stop getting personal gratification from being a part of the organization, I'll leave.” [1403]</p>	11
Reserves ≠ Active Duty	<p>“The main problem with recall was being a senior officer reporting to a very junior officer. Reserves were not given authority associated with rank. No special consideration was given to senior rank, education or experience while I was recalled to active duty.” [1218]</p>	11

	<p>“I believe that the most difficult challenges for a reservist is that full time active personnel fail to recognize that we do not work just one weekend a month and two weeks/year. For the most part we all have full time jobs plus our military commitment, plus family obligations and general life errands and tasks. Time is of the essence and requires much organization to make all this work. This allows for just six days off a month to manage family plus [run] errands plus [take] personal time. Not to mention the time spent preparing for a drill weekend (paper work, courses, and presentations that are a part of our weekend). I for one would like to have this remembered, recognized, and appreciated. Being mobilized greatly simplified time management.” [1255]</p>	
<p>Satisfaction</p>	<p>“I consider my time spent on Active Duty service for the Navy to be the best and most memorable experiences of my life regardless of location. I have served at Camp Lejeune, Guantanamo Bay, NH JAX and thoroughly felt blessed to serve. The Navy has been very important to my life and has been good to me and for me; rewarding and challenging. It has been my honor and privilege to serve.” [1326]</p> <p>“The Navy has been very good to me, and I have made many lifelong friends. I am proud to have had the opportunity to serve my country and to use my nursing skills to help shipmates.” [1391]</p>	<p>9</p>
<p>Already left</p>	<p>“Being mobilized made me realize that I have to be at home with my family Most of the people mobilized with me did not have young children Once my boys get older, I may start drilling again.” [1150]</p> <p>“I don't like that you can't stay a staff nurse for your 20 years in the Navy. I am a critical care nurse and I like direct patient care. I would have been happy to retire as a lieutenant, but once I got to be a lieutenant commander, precepting and teaching at the bedside were not enough. The culture would not allow me to provide direct care to patients as my primary duty.” [1321]</p>	<p>9</p>
<p>A nurse is a nurse</p>	<p>“The Navy needs to stop looking at nurses as ‘a nurse is a nurse is a nurse.’ I have never been a pediatric nurse yet was mobilized to a pediatric ward. I could have killed someone's child I had to fight everyday for one month to convince Navy supervisors that I was not competent to</p>	<p>7</p>

	care for children I finally won my battle and did not have to care for kids under 8 years old. I think the Navy has learned a lesson since then. We even had nurse practitioners working on med/surg floors. This was difficult for them as they had not done floor nursing for years A nurse is not a nurse across the board. In the civilian sector, if a nurse has not worked in an area for over a year (such as peds, maternity, [or] rehab) he or she would not be hired w/out a refresher course." [1232]	
Physical readiness test (PRT) program	"The Navy is pushing members out based on physical fitness standards, yet we are short staffed. I have seen high quality 'out of standard' individuals forced out and am often left with "skinny" idiots that don't support the Navy way of life." [1236]	7
Anesthetist-specific	As an anesthesia program director and 24 years total time in the military, I believe in both Anesthesia and the Navy. I hope to have the opportunity to continue the improvement of the Navy administratively and provide good anesthesia when nursing skills are needed. The multiple mobilizations have negatively affected our retention of many in anesthesia and have made it more difficult to recruit new providers." [1017] "I did not get the CRNA Bonus pay while mobilized that was a HUGE burden financially. I think that will make or break my Navy career if I am recalled again. I was also taxed wrong and [it] screwed up my taxes that year." [1191]	6
Criticisms of senior officers/leadership	"On the reserve side I had a CO [commanding officer] [nurse] who lived up to 'nurses eat their young.' This behavior is tolerated in the Navy and is not tolerated on the civilian side [1311]."	5
Benefits	"I plan to stay in the Navy Reserves until I retire. I currently have 19.5 years active and reserve time in. The benefits available when I turn 60 years old (as long as they still exist) will be of great value to me and my family." [1116]	4
Pay issues	"During mobilization ... we never knew when we were paid, if we got our allowances, per diem. It was really messed up and a real stressor." [1224]	4
Apply program	"It is important to me to continue to drill in a paid status the higher in rank I advance. The APPLY process is DEEPLY FLAWED in my opinion. Everyone should have the opportunity to drill in a paid status until they reach 20 years in, providing they have satisfactory fitness reports of course. The threat of going non-pay is worrisome to	3

	many senior NC officers I know. It is demoralizing, especially to direct commission officers such as myself. I have been mobilized twice. I should never have to worry about going non-pay, but I do, every 2-3 years!" [1097]	
Why I'll retire	<p>"I am currently in the VTU [voluntary training unit] and am working on my 20th year for retirement. If I had a pay billet I would probably stay awhile longer but I have a number of family commitments: elderly parents and a child with MS [multiple sclerosis], so I will likely retire after this year. It has been a wonderful career and opportunity to serve!" [1042]</p> <p>"Ability to stay with in weight standards." [1050]</p> <p>"I have been in the Navy for over 23 yrs. I currently am in the IRR [Individual Ready Reserve] and planning to retire this fall. I have enjoyed my time but find that the state of the Nation with recall being frequent, I have to leave." [1081]</p>	4
Just doing what I signed up for	"Just doing my duty when called upon to do so." [1015]	2

Limitations

There was a distinct potential for the non-responders to be mostly those who did resign, and who did so for dissatisfaction. Unfortunately, imputing non-responders to be dissatisfied resignees was statistically anti-conservative. Thus, it was important to do both best-case and worst-case analyses, as described. Non-response can also occur through either non-contact with potential participants, or refusal of eligible candidates to participate in the study. Finally, self-selection bias may occur because only people who were interested or highly motivated participated in the study.

Per the Heisenberg Principle – which implies that the actual problem may not be detected based simply on the manner in which the researcher phrases the question (Pedhazur & Schmelkin, 1991) – another limitation was that not all factors that cause resignation were captured by the survey. Certainly the many contextual models that have been developed in various areas of job satisfaction and retention are exhaustive and authoritative. The questionnaire did cover issues of patriotism, loyalty to the Navy, sense of duty, and the like. Yet, there may be other dimensions not accounted for, particularly in the setting of recall to active duty and the circumstances of the particular mission (*OIF/OEF*). If there were a substantial proportion of unexplained total variance it was likely due to unidentified factors.

“Wash-out” may have also occurred (based on the premise that “time heals all wounds”). For example, nurses who were ready to resign their commissions immediately after being released from duty by July 2002 may have changed their minds by the time they received this survey. The final limitation was that it may be possible that the real reason for many resignees to leave was not elicited by the survey. That would have been detected with a poor association between the main predictor (overall satisfaction) and retention.

In actuality, 14% of the participants who returned the survey had already left the Navy Reserves. 10% represented those getting out or thinking of such, with another 16% considering not staying until retirement. Ultimately, 73% will probably/definitely stay in the Navy Reserves until retirement (refer to Table 11 for specifics). Of the 14% who already left, a case-by-case analysis revealed that the majority of those nurses either retired or transferred to the IRR (in order to complete their service requirements for retirement). Of the 16% questioning staying until retirement, the majority were not vested in the organization (meaning they had been in the Reserves for less than 9 years), and/or they cited that there was too much paperwork in the Reserves and that the huge investment was less than the return.

Table 11: Retention Intentions.

Question	No. (%) [*]
I will definitely leave the Navy upon completion of my present obligation.	6 (2.27)
I will probably leave the Navy upon completion of my present obligation.	4 (1.52)
I will probably stay in the Navy beyond my present obligation, but not necessarily to retirement.	11 (4.17)
I will definitely stay in the Navy beyond my present obligation, but not necessarily to retirement.	5 (1.89)
I will probably stay in the Navy until retirement.	46 (17.43)
I will definitely stay in the Navy until retirement	148 (56)
I have already left the Navy	38 (14.39)

* Missing retention intention data for six officers

Conclusion and Implications

In March 2003, 437 NNC reservists (about 25% of all active nurse reservists) were recalled to active duty to provide continuum in care at several Navy MTFs, as well as deployed with the Marines, in support of *OIF/OEF*. Anecdotal information revealed discontent with a variety of factors in at least one Navy MTF. When looking for precedence, a review of numerous databases was conducted and revealed a gap in the literature regarding the experience of mobilized NNC reservists. Because active duty Navy nurses cannot deploy without the use of their reservists, it was proposed that a negative experience with a recall to active duty might make a NNC reservist resign his/her commission and thus leave the NNC without appropriate resources during periods of conflict. However, the data analyses did not support this concern.

Data indicate that the model fits the data well (Model fit index CFI = 0.944; TLI = 0.927; and RMSEA = 0.047 [90% CIs 0.032 – 0.061]), with job satisfaction having the strongest influence on one's intent to stay in the Navy Reserves: the more satisfied nurses are the ones who intend to stay. The findings from this study have implications for NNC leaders and offer insight into what impacts nursing job satisfaction for mobilized nurse reservists. Additionally, since this research builds on Zangaro's (2002) TSNRP-funded Phase I Instrumentation study, the results will contribute to Zangaro's psychometric evaluations. However, as reflected in the data analysis and the participants' comments, the study's measures call for revision for future use in the hospital setting.

Significance of Research to Military Nursing

These nurses wanted to be heard. In fact, 13 completed the survey twice just to make sure their experience counted! The results indicate that job satisfaction has the strongest influence on one's intent to stay in the Navy Reserves, with the more satisfied nurses intending to stay. Additionally, the data analyses did not support the concern that a negative experience with a recall could make a nurse reservist resign his/her

commission; based on the comments, only a handful of nurses actually resigned for this reason.

This is good news for the NNC; however, when one looks closely at the reported means for job satisfaction, the value is just *average*, not strong. The NNC should challenge itself to improve this quality of job satisfaction for its reservists by recognizing their invaluable experiences; conceding that the majority also have full-time civilian jobs, which makes it even harder for them to balance civilian employment with their Navy Reserve responsibilities, family commitments, and (for some), school commitments; and training them for jobs they will occupy when mobilized. If the majority of the nurses will be working clinically when recalled, then they need to train at the bedside, perhaps splitting their reserve requirements between direct patient care and administration. Senior active duty nurses are now required to maintain clinical competency by working at least 168 hours/year in their specialty, as should reservists.

Additionally, please recognize that future recruits to the NNC may be dissuaded to join if they encounter a less than satisfied member:

“I would not recommend the Reserves to young people today. There is way too much work above and beyond the two days per month that I initially signed up for. Every year there is more computer/on-line training that I don't get time or reimbursement for.” [1200]

“I do not recommend the Navy reserves to my civilian colleagues, because the Navy does not value clinical skills and clinical excellence. Good luck recalling reserves for the war. The good clinicians have left the Navy. What you have left are senior officers unable to provide care.” [1351]

Many senior nurses hold master's degrees and are licensed as advanced practitioners; yet, they are not utilized as advanced practice nurses when recalled as a reservist, or drilling with their units. They would like to be recognized for their potential contributions to Navy Medicine and to be able to practice in their specialty.

Finally, a major dissatisfaction with the Navy Reserves as voiced by the participants was the amount of time spent on reserve matters outside of their drill time, especially in this age of technology where many on-line training requirements are expected to be completed prior to the drill weekend, but on the reservist's own time. The active duty component needs to realize that it cannot require full-time work out of part-time colleagues – there just are not enough hours in the day to meet this expectation. It is an unfortunate commentary when one participant concluded that being mobilized actually *simplified* her life:

“I believe that the most difficult challenges for a reservist is that full time active personnel fail to recognize that we do not work just one weekend a month and two weeks/year. For the most part we all have full time jobs plus our military commitment, plus family obligations and general life errands and tasks. Time is

of the essence and requires much organization to make all this work. This allows for just six days off a month to manage family plus [run] errands plus [take] personal time. Not to mention the time spent preparing for a drill weekend (paper work, courses, and presentations that are a part of our weekend). I for one would like to have this remembered, recognized, and appreciated. Being mobilized greatly simplified time management.” [1255]

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Outcomes Resulting From Study

Publications

None, but currently developing the following manuscripts (which the PI will then submit to NNMC for “Request for Clearance of Professional Presentations and Publications”):

1. “The Retention of Recalled Navy Nurse Reservists”
2. “Survey Research: Revisiting Dillman’s Compatible Contacts Process For Maximizing Response Rates”

Abstracts or Other Materials – none

Presentations

1. Poster Presentation/Abstract presented at the Western Institute of Nursing’s (WIN) 41st Annual “Communicating Nursing Research Conference” from April 17 - 19, 2008 in Garden Grove, CA.*
2. Poster Presentation/Abstract accepted for presentation at the 2008 National State of the Science Congress in Nursing Research from October 2 –4, 2008 in Washington, DC.*
3. Poster Presentation/Abstract submitted for the annual AMSUS (The Society of the Federal Health Agencies) meeting from November 09 – 14, 2008 in San Antonio, TX.*

*Please note that the abstract is the same for all of the poster presentations listed above; It received NNMC’s approved “Request for Clearance of Professional Presentations and Publications” in DEC 2007. This approval was then forwarded to TSNRP in February 2008.

Seminars, Invited Lectures, Workshops, etc. – none as of yet

Patents, Licenses, etc. – none

Changes in Practice resulting from findings of study. – none as of yet

Changes in Policy resulting from findings of study (at hospital level, etc.) – none as of yet

Press Coverage (military times, newspapers, etc.) – none as of yet

APPENDIX A

Final Budget Report
(Attach an official budget per your grantee organization
upon termination of your award period.)

CATEGORY	ORIGINAL AWARD	REALLOCATIONS	REVISED BUDGET	EXPENSED AT END OF STUDY	REMAINING AMOUNT
Personnel	84,646	0	84,646.00	86,222.09	(1,576.09)
Consultant	0	0	0	0	0
Equipment	3,000	\$695.38 moved to "Subcontract"	2,304.62	2,304.62	0
Subcontract	15,011	\$5,507.68 moved from "Equipment, Supplies and Other Expenses"	20,518.68	19,718.52	800.16
Supplies	1,350	\$1,286.50 moved to "Subcontract"	63.50	63.50	0
Travel	1,800	0	1,800.00	1,066.53	733.47
Patient Care Costs	0	0	0	0	0
Other Expenses	3,750	\$3,525.80 moved to "Subcontract"	224.20	231.80	(7.60)
TOTAL DIRECT	109,557	--	109,557.00	109,607.06	(50.06)
Indirect Costs	60,475	--	60,475.00	60,424.93	50.07
TOTAL GRANT	170,032	--	170,032.00	170,031.99	.01

APPENDIX B**Problems Encountered, Resolutions**

The following time line explains the delay in conducting this study, thus providing detailed problems encountered during the reporting period and how they were resolved:

A. On 29 AUG 2006, I notified the Responsible Conduct of Research Department (RCRD) at the National Naval Medical Center (NNMC), Bethesda, MD that I had relocated to Okinawa, Japan (where my active duty Navy spouse assumed the Executive Officer – XO – position at the US Naval Hospital). At that time, my RCRD project file was updated with my new contact information.

B. Because I had to move outside of the US, I replaced the contact information on my consent document with that of Mary Hoehn, so that the participants would have a local contact number. Ms. Hoehn works in the Office of Research Support in the School of Nursing & Health Studies (NHS) at Georgetown University (GU); this is the office that administered my grant for this research project.

I then submitted the revised consent document to the Institutional Review Board (IRB) at GU, which approved it; however, its only requirement prior to issuing its approval was that Ms. Hoehn undergo Human Subject Research Protection Training, which she did. When I submitted GU's IRB paperwork to the RCRD at NNMC, the RCRD said that since Ms. Hoehn was being added to the study as an associate investigator, I had to complete and submit a *Standards of Conduct and Project Investigator Report*, along with Mrs. Hoehn's curriculum vitae; this requirement was met on 31 AUG 2006 and I received an "Approval of an Amendment and an Investigator Addition" from the RCRD at NNMC on 08 SEP 2006.

C. Since my grant is funded through the TriService Nursing Research Program (TSNRP), I had to submit both GU's and NNMC's updated IRB correspondence to the IRB at the Uniformed Services University of the Health Sciences (USUHS), which I did on 20 SEPT 2006. When I had not heard from the IRB at USUHS by November 2006, I asked TSNRP to intervene on my behalf. It was not until 05 DEC 2006 that I was given the go-ahead to proceed with administering my survey.

D. I am concerned that a research project that was developed in 2003 was not implemented until 2007. I would like to ask all IRBs to consider ways to expedite the IRB process when multiple IRBs are involved.

- Additionally, it took almost a year to receive written notification of the Report Control Symbol (RCS) – otherwise known as a survey control number – from the Naval Bureau of Personnel (BUPERS); thus, it would be helpful to address the workload burden of the survey reviewers at BUPERS.
- Another matter is that I had initially included an incentive (a \$5.00 Starbucks gift card) with the survey in an effort to maximize the response rates with this study and to capitalize on the theory of immediacy. This incentive was approved by the legal officer that sat on the IRB at NNMC in 2004; however, given the time delays discussed in this section, a new legal officer joined the IRB at NNMC

and said that I could not offer the incentive, despite the fact that the reservists were filling this survey out on their own time (and not in the Navy workplace). This directive resulted in another time delay, since I had to delete any mention of the incentive in my consent document, which then required forwarding paperwork to all three of my IRBs, as well as to the organization that assigned the survey control number (BUPERS). It would be extremely helpful to future researchers if they could be directed to a written policy regarding the use of incentives in Navy Medicine research, with focus not just on active duty members, but also on reservists.

- Another item that added to the delay of this project was the change of name for NNMC's "Human Research Protection Department" to the "RCRD"; this name change required additional revisions in my research paperwork (e.g., the consent document) for all three of my IRBs; thus, adding another setback with initiating this project. It would have been beneficial for PIs not primarily assigned to NNMC to have been notified of this information when it transpired.

E. Finally, the use of a survey firm was beneficial to the PI; however, some problems did arise. For one, the timing of the mailings was sometimes too short in between contacts; therefore, participants who had already returned their questionnaires actually received duplicate surveys since the survey firm was unable to update its returns before the next scheduled mailing. Additionally, the cost of services provided by the survey firm increased from the initial budget due to the time delays in starting the project, changes in the scope of services provided by the survey firm, as well as US postal regulation changes (including a change in mailing rates effective in 2007). See Appendix G for the survey firm's scope of services. This PI recommends spacing out the timing of the contacts suggested by Dillman (2000) so that duplications can be avoided.

**APPENDIX C
Psychometric Report**

Reliability and Validity of Measures

If no instrumentation was used for your study, check here

Directions: Please complete the questions below addressing demographic characteristics of your sample and overall sample size. For the tool identified in the attached cover letter, please complete the following questions regarding any reliability and/or validity testing you performed. Please note that this list is not meant to be exhaustive. If you performed other reliability and/or validity testing which is not listed, please identify the test, and report your findings under "other." If further space is needed, please attach additional pages. Please submit a copy of the tool if you made any modifications.

Principal Investigator – Contact Information

Name:	Catherine Wilson Cox	Telephone	[REDACTED]	Work
Address:	[REDACTED]	Number:	[REDACTED]	Home
		E-mail:	[REDACTED]	
Title of Study	The Retention of Recalled Navy Nurse Reservists Following <i>Operation Iraqi Freedom</i>			

Demographic Characteristics of Sample

Total sample size:		Age Range:			Number	Service
	<19 yrs	19-60 yrs	>60 yrs	Other		
					0	Army
Male	--	63	--	--	0	Air Force
Female	--	199	--	--	264	Navy
* note: 2 participants did not reveal their age					0	Marine
Number	Race:				Number	Service Component:
216	Caucasian			--	0	Active Duty
19	African-American			--	0	Retired
**	Hispanic			(In this study, this category reflected ethnicity, not race)	264	Reserve
17	Asian/Pacific Islander			--	0	National Guard
12	Other (Describe)			Not identified	0	Dependent

Briefly describe defining characteristics of sample:

The majority were senior officers at the rank of lieutenant commander or above (71.2%). The highest degree held was 49% for BSN and 42% for a master's. 49% had a custodial role of either children, elders, or others.

Instrument Reference

Instrument Title:	Price and Mueller's Causal Model of Voluntary Turnover, as adapted by Zangaro in 2002	Number of Scales:	1
Instrument Publication Year:	1981, 1986	Edition:	n/a
Authors:	Price and Mueller		
Publisher:	University of Iowa		
Journal or Book Title:	n/a		
Year:	n/a	Volume:	n/a
		Page Numbers:	n/a

Tool Modifications

Did you modify this tool?	<input checked="" type="checkbox"/> Yes (Answer A & B below)	<input type="checkbox"/> No
A. Briefly describe why modifications were made:	Since the study participants were reflecting on past experience, the verbs were changed to the past tense (a change of only one dimension) on many of Zangaro's (2002) survey questions.	
B. Describe what modifications were made (attach page if additional space is needed):	The verbs were changed to the past tense.	

Directions: Please indicate any reliability and/or validity testing you did on this instrument. Please report findings of each scale next to the test.

Check all that apply

Reliability		Validity
<input type="checkbox"/> Internal-Consistency Reliability		Content Validity
<input type="checkbox"/> Cronbach Coefficient Alpha		<input type="checkbox"/> Index of Content Validity (CVI)
<input type="checkbox"/> Kuder- Richardson (KR-20)		<input type="checkbox"/> Other (please describe on back of form)
<input type="checkbox"/> Interrator Reliability		Criterion-Validity
<input type="checkbox"/> Intrarater Reliability		<input type="checkbox"/> Predictive
<input type="checkbox"/> Coefficient of Stability (test-retest)		<input type="checkbox"/> Linear Correlation
<input type="checkbox"/> Coefficient of Equivalence		Name of Criterion Measure Used:
<input type="checkbox"/> Other (please describe on back of form)		<input type="checkbox"/> Concurrent
		<input type="checkbox"/> Linear Correlation
Reliability of Individual Scales		Name of Criterion Measure Used:
Scale Name	Reliability	<input type="checkbox"/> Construct Validity (include a copy of findings)
Causal Model of Voluntary Turnover	0.69	<input type="checkbox"/> Multitrait-Multimethod
		<input type="checkbox"/> Hypothesis testing
		<input type="checkbox"/> Contrasted Group
		<input type="checkbox"/> Factor Analysis
		<input type="checkbox"/> Exploratory
		<input type="checkbox"/> Confirmatory
Please use back of form for additional scales		<input type="checkbox"/> Other (please describe on back of form)

Evaluation of Measure – The measures of the variables were derived from the literature (Kim et al., 1996; Moorhead, 1993; Polit and Hungler, 1999; Price and Mueller, 1981; Schumm, Gade, & Bell, 2003) and from pilot testing of the instrument for use in the military setting (Zangaro, 2002). Reliabilities from Zangaro's psychometric evaluations ranged from 0.32 to 0.86, with the average alpha coefficient being 0.69. Furthermore, these measures hold construct validity in that they have been used in other studies that have supported the hypothesized relationships (Gurney, Mueller, & Price, 1997).

Would you recommend the use of this measure in your population to other researchers? Use extra page, if needed.	
<input type="checkbox"/> Yes. Please explain why.	
<input checked="" type="checkbox"/> No Please explain why.	<p>As reflected in the data analysis and the participants' comments, the study's measures call for revision for future use in the hospital setting. Here are specific comments from a number of the participants (some of which echo exasperation with the tool):</p> <p>"Many of questions were vague ... when there were questions regarding my supervisor-wasn't sure if it was related to active duty supervisor or reservist that were mobilized that were in positions of authority." [1005]</p> <p>"Many of these questions are difficult to answer when deployed in a combat zone. Appears questionnaire more geared to CONUS recall." [1021]</p> <p>"Few things I would like to share about the survey: 1) I find it extremely difficult to focus only on my 3 months of recall, without thinking about my entire experience as a reservist as I answer the questions." [1120]</p> <p>"I was left on my own to do my job' - open for lots of interpretation. I was and needed to be that way - and wanted it to be that way. I was also mobilized and deployed in 2005. When is that survey coming out? Why is it just directed to 2003? Just curious. 'I'm not dedicated to the Navy' - why did you phrase that in the negative - I almost answered that completely wrong. My students get me on that all the time. There were questions which seemed to be borrowed from other surveys. Lots of time I wanted to respond - not applicable. Edit it to military language. 'I lived, eat, and breathed my job' - yes! But I loved it. I couldn't say that in the survey. So many items - should have been numbered. 'Strongly agree' should have been closer to the item than 'strongly disagree.' 'My co-workers were willing to listen to my job-related problems' - I was in charge of enlisted. I would never share this with them. I would NOT socialize with them. Very generalized questions yet this is what we are told for the Nurse Corps, but yet the questions do not fit the uniqueness of nurse mobilized into another medical model - more generalized- could fit staff or even Line corps." [1150]</p> <p>"Because I have left the Navy, the wording of some questions were difficult to interpret." [1160]</p> <p>"I was mobilized in 2003. My recall only lasted for 3 months. A lot of these questions seem to pertain to someone who is still working or on active duty Navy. Some of the questions are redundant." [1194]</p> <p>"In my situation, I have about 2 years until I can retire. My responses</p>

regarding staying in the Navy as long as I can, until retirement, leaving as soon as possible, etc. may appear conflicting because of the closeness to retirement.” [1203]

“Note: My highest degree completed at time of recall was a Bachelor of Science in Health Education (NOT a BSN). [I am a diploma-grad nurse].” [1215]

“I found answering some questions for 2003 specifically difficult, since I was recalled again Jun 06 and am currently on Active Duty. My experience on this mobilization influences my answers for 2003.” [1230]

“I was an OIC when mobilized, I was mobilized with the Marines. I emailed [name of research assistant] to clarify job (as being OIC not civilian). Some of these questions were difficult to respond to, I did my best I hope this is helpful to you and not skewed.” [1239]

“I think you needed to ask questions re: one's active duty versus reserve duty time. This may help reflect the answers to certain questions. There are direct commissioned officers in the reserves who never served active duty until a mobilization.” [1252]

“It is difficult to keep responses specific to the deployment period especially on questions related to feelings regarding the Navy. The last four years definitely color those responses.” [1259]

“Hard to answer questions about Navy retention when I am retired.” [1260]

“Please exclude me for any further research surveys or studies - repetitive questions/poor questions.” [1276]

“I am very glad you are seeking to look at reasons for Navy Nurse Corps retention and I have several beliefs that do not correlate with your questions.” [1294]

“I retired from the Navy Reserve after 28 years of dedicated service: this may be an influencing factor in some responses being ‘neither agree or disagree.’ Thank you...and best wishes.” [1303]

“Hope asking the same questions multiple times in the survey was a way to validate responses. If so, you may want to explain that point as it can be insulting and may lower your response rate.” [1368]

“I found a lot of statements to be redundant. Since I worked in my regular civilian job site during my mobilization in 2003, I really didn't feel I had been mobilized-nothing changed except my going to work in uniform.” [1371]

“Being a Civil Service Nurse/contract Nurse skews the answers to this questionnaire.” [1383]

“This survey was worded in such a way that many questions presumed I was in the Navy while answering. Very tricky to address questions based on daily life when that is not the circumstance behind what I thought this survey is based.” [1394]

APPENDIX D

Research Categorization Using TSNRP Areas of Research

Identify the main research priority investigated in this research study.

Please check one item for Primary (Required) and one item for Secondary Priority Areas (if appropriate)

Primary Research Priority Area: (Required)

Military Deployment Health

Translating Knowledge & Research Findings into Practice in a Military Context

Evidence Based Practice

Recruitment & Retention of the Military Nursing Workforce

Developing & Sustaining Military Nursing Competencies

Secondary Research Priority Area:

Military Deployment Health

Translating Knowledge & Research Findings into Practice in a Military

Evidence Based Practice

Recruitment & Retention of the Military Nursing Workforce

Developing & Sustaining Military Nursing Competencies

Other (*fill in*) _____

Identify 3-5 key words relating to the proposal. (Required)

(You MUST use the *CRISP Thesaurus* for key words. The thesaurus is on the web at:

http://crisp.cit.nih.gov/crisp/crisp_help.help

1. Job Satisfaction
2. Nursing Personnel
3. Work Environment
4. Survey Methodology
5. Nursing Research

APPENDIX E

Do you have any articles or presentations 'in press' yes no

If yes, provide copies and all PAO clearance information. All citations listed must be in APA format.

APPENDIX F

Public Affairs Office Clearances

The abstract/presentation mentioned on page 65 of this report received NNMC's approved "Request for Clearance of Professional Presentations and Publications" in DEC 2007. This approval was then forwarded to TSNRP in February 2008.

APPENDIX G: Scope of Services Provided by Survey Firm



A Proposal for

**Georgetown University
School of Nursing & Health Studies**

Project No. 346385-000109

May 15, 2006

Submitted to:

Catherine Cox
Georgetown University
School of Nursing & Health Studies
3700 Reservoir Rd NW
Washington, DC 20057
Phone: 202-687-3216
Fax: 202-687-5553
E-mail: cwc5@georgetown.edu

Bill to:

Same as 'submitted to'

Submitted by:

Suzanne Lehman
Forms Sales Professional
1043 Hearthstone Rd.
Lancaster, PA 17603
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Heidi Eilenberger
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Columbia Processing Center
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This document contains confidential information of Pearson NCS, Inc. In consideration of the receipt of this document, Georgetown University agrees not to reproduce or make information available in written, verbal or other manner to persons outside of Georgetown University who are not directly responsible for the evaluation of this document. The information contained in this document is based on the preliminary analysis of Georgetown University's requirements. Estimated costs may change based on a more in-depth analysis of the applications. Provision of services under this proposal and Scope of Services is governed by the terms and conditions of the attached Services Agreement.

Scope of Services

Form Composition, Printing & Mailing

Pearson will Design and print 1350 6-color, 8-page booklets with litho-code serial numbering for tracking respondents, printed from Georgetown University's data file. Litho-code serial number will be on the first signature only.

Pearson will send an initial mailing to 450 people which will include a personalized cover letter on GU supplied letterhead sent in window #10 envelopes (printed 1-color), mailed first-class, with postage stamp.

Pearson will send the first booklet mailing to 450 people which will consist of a personalized cover letter on GU supplied letterhead, survey booklet, #2 pencil sharpened, 9x12 return envelope (folded, with BRE indicia & printed with Pearson address). These items will be sent in a 9x12 window envelope, printed 1-color, and mailed first-class, with postage stamps. The outside envelope will also have printed on the front "Important Navy Nurse Corps Survey Enclosed" in black.

Pearson will send a Reminder Postcard to any person from data file who did not respond to survey, estimated to be 340. Postcard will be printed front and back and addressed. Mailed first-class with postage stamp.

Pearson will send second booklet mailing to non-respondents, estimated to be 340, consisting of a personalized cover letter on GU supplied letterhead, survey booklet, #2 pencil sharpened, 9x12 return envelope (folded, with BRE indicia & printed with Pearson address). These items will be sent in a 9x12 window envelope, printed 1-color, and mailed first-class, with postage stamps. The outside envelope will also have printed on the front "Important Navy Nurse Corps Survey Enclosed" in black.

Pearson will send a final booklet mailing to all non-respondents, estimated at 225, consisting of all items in previous survey mailings, but sent Federal Express.

Programming Development

Pearson will create a ScanTools program that will be used to collect the OMR (scannable) data from an 8-page Questionnaire.

Pearson will create a Key-from-Image component for key-entering the 4 open-ended questions and the one comment area on the Questionnaire.

Data Collection

Pearson is assuming that all questionnaires will be arriving in separate 9x12 BRE envelopes. Pearson will have a BRE account set-up for Georgetown University.

Pearson will open all envelopes, extract and prep all surveys for processing.

All questionnaires arriving for scanning should not contain staples, paper clips, or other attachments. All questionnaires must arrive in good condition for scanning. If questionnaires arrive in poor condition, scanning time will increase and additional pricing may be submitted based on the type of additional services required.

It is Pearson's experience that approximately 1% to 3% of questionnaires arriving for scanning will be damaged or otherwise unscannable.

- All unscannable questionnaires will be transcribed
- All OMR Data and comments will be Transcribed onto clean forms and will then be scanned and key-entered so that they are apart of the final data

Georgetown University must provide 20 blank questionnaires for the service of transcription.

Before scanning, all questionnaires will be separated into individual sheets.

Pearson will scan approximately 255 Questionnaires.

Pearson will key-enter the 4 open-ended questions and the 1 comment area on the Questionnaires.

- Pearson assumes that 50% of the questionnaires will return with comments. This totals 128 questionnaires. Each of those 128 questionnaires will have 4 open-ended questions and 1 commented area. Those 128 questionnaires will return with 100 characters per each open-ended answer and commented area. The total character count for this project is going to be priced at 500 characters per questionnaire; with the return questionnaires count standing at 50% or 128. However, if the total is less or more the estimated price on this proposal may increase or decrease.

Distribution

Pearson will provide the scanned data and the key-entered data in ASCII format on diskette.

Pearson will provide 1 data file at the end of the project.

Pearson will return the processed questionnaires to Georgetown University at the end of the project.

Ongoing Projects:

For projects that involve multiple processing cycles, with downtime between each cycle, there will be a minimum fee of \$270.00 per processing cycle if the established line-item charges for the services performed during a cycle do not meet or exceed \$270.00 in and of themselves.

Postage and Freight

All postage/freight will be billed at actual costs. Any increases in postal rates by the U.S. Postal Service will be passed on at actual price.

Project Management

Pearson will provide a Project Manager to manage the data-collection and data-distribution elements of the project. The Project Managers at Pearson are responsible for the definition and implementation of these elements of all projects. The main objective of the Project Managers is to ensure that all data-collection and data-distribution services are delivered to the expected quality in the agreed-upon time frame. The Project Manager is responsible for the timely and accurate supervision of the following: receipt of documents, scanning, reporting, and providing data to clients on a timely basis. The Project Manager acts and communicates proactively to resolve any issues and initiates the involvement of any additional resources.

If in the process of implementing the project the service requirements change, the Project Manager will document the changes, with corresponding fee adjustments, in a written Change of Scope. Project tasks that may require a Change of Scope include, but are not limited to, modified programming specifications and increased/decreased processing volumes. The Change of Scope must be approved by the client in writing before it can be implemented.

Pricing

Services	Quantity	Unit Price	Estimated Total Price
Form Composition, Printing & Mailing	1	\$15,625.09	\$15,625.09
ScanTools Program with Key-from-Image Component	1	\$1,330.00	\$1,330.00
Access to BRE Account	1	\$25.00	\$25.00
Incoming 9x12 BRE Envelopes	255	\$0.74	\$188.70
Open Envelopes, extract, prep and separate surveys	255	\$0.24	\$61.20
Transcribe Surveys	8 surveys or 3%	\$14.75 each survey	\$118.00 (estimated)
Scan Surveys (8 page booklet)	255	\$0.60 per survey	\$153.00
Data-Entry	128	\$3.50 per survey	\$448.00 (estimated)
Distribution of ASCII on Diskette	1	\$100.00	\$100.00
Project Management	1	\$630.00	\$630.00
Estimated Total			\$18,678.99
Postage will be billed at actual cost			

Note: Pricing listed above is subject to change. If the quantity changes, NCS PEARSON will adjust the price accordingly. The pricing will also change if the specifications are altered during and/or after the project. Final specifications are required prior to the start of the project.