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Perceived Deprivation in Active Duty Military Nurse Anesthetists

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Perceived Deprivation in Active Duty Military Nurse Anesthetists

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

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Dedication

This dissertation is dedicated to the men and women who serve in harm's way, particularly those who have made the ultimate sacrifice.

Acknowledgements

I have been told that I live a charmed life, and that I do, mostly because of the people mentioned by name or inference in this section. Thanks to their support and encouragement I persevered through the dissertation process, an aspiration I have had for over 15 years.

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My departed Scottish terrier, Duncan, who napped under my desk chair while I wrote, curled up with me while I reviewed articles, "attended" my presentation rehearsals but despite his best efforts, was called to the Rainbow Bridge before I could finish the degree.

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Abstract

PERCEIVED DEPRIVATION IN ACTIVE DUTY
MILITARY NURSE ANESTHETISTS

By Julie A. Pearson, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2006

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Problem: There is a shortage of military certified registered nurse anesthetists (CRNAs). The exodus from military service to civilian careers could be a result of relative deprivation (the discrepancy that one perceives between what one has and what one could or should have). Relative deprivation is a perception of unfairness dependent on feelings (subjective data) as well as facts (objective data).

Purpose: The purpose of this study was to measure relative deprivation in active duty military nurse anesthetists, to explore variables which correlate with relative deprivation, and to validate or refute the theory of relative deprivation in active duty military CRNAs. The study was based on research conducted by Crosby who theorized that wanting (a desire for some object or opportunity) and deserving (a feeling of entitlement to an object or opportunity) were the most relevant preconditions leading to relative deprivation. It

was hypothesized that antecedent factors (years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy) and psychological factors (wanting and deserving) correlate with relative deprivation. It was further hypothesized, based on the theory, that psychological factors would have more influence on relative deprivation than antecedent factors.

Study design: The descriptive, correlational study was conducted using a self-administered survey sent to 435 active duty Army, Navy and Air Force CRNAs. Surveys were distributed to subjects by mail and could be answered by mail or by secured website designed specifically for the conduct of this study.

Results: Response rate was 58% (n = 236). Data was analyzed using descriptive and inferential statistics. Analysis of the data revealed no significant correlation ($p < 0.05$) between years as a CRNA, military pay, promotion opportunity or scope of practice/autonomy and relative deprivation. Correlations of both psychological factors (wanting and deserving) with relative deprivation were significant with p-values < 0.001.

Conclusions: Further research is indicated to identify tangible factors which can be modified to improve feelings of deprivation as they relate to retention and recruitment of military CRNAs.

Key words: perceived deprivation, military nurse anesthetists, nursing shortage, nurse anesthesia manpower, recruitment, retention

CHAPTER 1: INTRODUCTION

There exists a shortage of military nurse anesthetists. This shortage could be the consequence of a more fundamental issue–the discontent of a significant portion of military nurse anesthetists. As a result, military nurse anesthetists leave active duty in favor of civilian positions (Defense Subcommittee Hearing, 2003). Discontent among the ranks of military nurse anesthetists and its impact on the active duty workforce has not been formally or extensively studied.

In peacetime, military operations other than war (MOOTW) and times of war, it is the duty of military health care professionals, including certified registered nurse anesthetists (CRNAs), to keep fighting forces mission-capable. Military nurse anesthetists have recently served and continue to serve, stateside and abroad, with the Army, Navy, Air Force, and Marines in support of Operations Iraqi Freedom (I & II) and Enduring Freedom, among other campaigns. Military nurse anesthetists provide life saving interventions as well as anesthetic management while patients receive needed diagnostic, therapeutic and surgical interventions, often for severe combat related injuries (Defense Subcommittee Hearing, 2003).

In addition to treating the fighting forces, military nurse anesthetists care for military beneficiaries across a wide range of ages and physical conditions. Services include neonatal resuscitation, labor analgesia services, anesthesia for active duty

members injured during training, as well as anesthetic care for retirees and other beneficiaries.

Background of the Problem

The Department of Defense relies heavily on nurse anesthetists to provide anesthesia care to its beneficiaries. According to the Navy Nurse Anesthesia Specialty Report, dated 01 July 2002, with "initiatives from the Birth Product Line and the addition of Tricare-Senior, the workload for anesthesia providers has increased." Evidence of the military services' reliance on CRNAs is the fact that 90% of the active duty Navy nurse anesthetists, 30 Air Force CRNAs and roughly 53% (113) of the Army CRNAs, a total of 364 CRNAs according to AANA (Bettin, 2004), were deployed during the spring of 2003. Without an adequate number of military nurse anesthetists the anesthesia needs of the Department of Defense may not be met.

A 1997 estimate indicated the Department of Defense needs included health care for 2.7 million service men and women on active duty as well as three million military dependents (Stoil, 1997). A more recent estimate of the number of beneficiaries, presented at the Navy Surgeon General's Conference for Specialty Leaders (September 22-24, 2003), put-that number at 8.5 million, equivalent to the populations of the Chicago and Baltimore metropolitan areas. For these increasing populations, military health care providers, including CRNAs, render care.

The shortage of military nurses, including military CRNAs, corresponds with the national shortage of civilian nurses, including CRNAs. Currently more than 30,000 nurse anesthetists practice in the United States (website of AANA, accessed March 23, 2005),

an increase from 25,238 in 1992 (website of American Nurses Association, accessed March 23, 2005). A workforce study, funded by the American Association of Nurse Anesthetists Foundation conducted in 2002 to quantify the status of manning in the nurse anesthesia community and to evaluate requirements for educational programs to maintain the pipeline of CRNAs to meet the demand of the health care community of the United States, revealed that while the number of CRNAs being educated is increasing, the influx is not enough to balance the number of retirees. Additionally, an anticipated shortage of doctoral-prepared CRNAs results in an expected failure to maintain faculty of the anesthesia programs. (Merwin, Stern & Jordan, 2006).

According to November 8, 2002 meeting minutes of the Federal Services Ad Hoc Committee of the American Association of Nurse Anesthetists:

> "In 1990, the U.S. Department of Health and Human Services published findings indicating a national shortage of almost 5400 nurse anesthetists… (N)urse anesthesia educational programs would need to produce between 1500 and 1800 graduates annually to meet societal nurse anesthesia demands…Nevertheless, only about 1000 nurse anesthesia students graduate annually."

While the number of CRNAs educated annually has increased over the past 14 years, a shortage remains. This shortage is magnified by competition between the civilian and military for nurse anesthetists. The shortage of military nurse anesthetists varies among the military services. While the Navy (130 billets allotted) enjoys an end strength of 95%, the Air Force and the Army shortage numbers create greater concern. Data from 2002 estimates the Air Force had 164 of 183 billets filled, for an end strength of 90% and the Army had 221 of 277

billets filled, for an end strength of 77%. These numbers correspond with the shortage of nurse anesthetists in the civilian sector, resulting in an extremely competitive job market and threatening to further deplete the ranks of veteran military nurse anesthetists.

Retaining veteran CRNAs is critical, and managing the influence of discontent pulling them from the ranks has received some attention. Factors influencing retention of military nurse anesthetists, as identified by the Tri-Service Working Group of Nurse Anesthesia Consultants, Specialty Advisors and Educators in 2001 (unpublished), include scope of practice; pay and compensation; promotion opportunities; number of hours worked/week; deployments; and frequency of moves. Often-cited factors drawing CRNAs to the civilian sector are the ever-increasing salaries, benefits and bonuses. Based on the 2002 AANA Practice Provider Survey the median annual income for a CRNA was approximately $119,960.00. By comparison, estimated annual income for a military CRNA at 0-3 (officer at the rank of Captain in the Army and Air Force or Lieutenant in the Navy) with 10 years of service, plus Incentive Specialty Pay ($6000-15000), earned $85,000-$94,000 in March 2003.

The issue of shortage is not a new one. A similar shortage of military nurse anesthetists existed in the late 1980's. A needs assessment for advanced practice nurses for the uniformed services was conducted in the early 1990s and published in 1994 (Levine & Monaghan, 1994). At that time the military services were authorized 148 more CRNAs than were on active duty. Additionally, attrition for 1993 included 97 CRNAs.

Simply creating additional billets has not solved the problem, and additional factors must be examined to slow the loss of Veteran CRNAs. While the literature reveals that select moderating factors such as pay and autonomy may contribute to military CRNA discontent or perceived deprivation, this research examines select psychological variables as well as other moderating factors as they relate to discontent or perceived deprivation.

Purpose of the Study

This study applies Crosby's (1982) Theory of Relative deprivation to gain insight into feelings of deprivation in active duty military CRNAs. Relative deprivation was selected as it has a history of being used "...to understand the processes of social identity and the responses to disadvantage..." (Walker & Smith, 2002). Findings from this study are used to validate or refute the Crosby theory in this population. Correlation of other factors, referred to as moderating factors, with relative deprivation in active duty military CRNAs are evaluated. This study explores variables which influence a sense of felt deprivation (discontentment) of active duty military CRNAs.

Relative deprivation is "the discrepancy that one perceives between what one has and what one could or should have..." (Colman, 2001). It is also defined as "a sense of grievance or sense of resentment that one has been unjustly deprived of some desired thing" (Fallacaro & Wu, 1997). Crosby's theory of relative deprivation, and a portion of the tool she devised, is used to evaluate the active duty military nurse anesthesia population. She theorizes that psychological preconditions lead to relative deprivation.

This study examines variables leading to feelings of deprivation among active duty military CRNAs.

Demographic variables of age, gender, marital status, and children living at home as well as military service information including rank, branch of service, years of active duty service, retirement eligibility, and deployment information were collected to fully and accurately describe the population. Antecedent factors include years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy are assessed as they relate to relative deprivation.

Theoretical Framework

The theoretical framework used in this study is Crosby's theory of relative deprivation. Relative deprivation in its beginnings was studied in disadvantaged populations. It has since been studied in advantaged populations, thus the potential applicability to the military nurse anesthesia population.

Crosby (1982) originally theorized that the psychological preconditions of wanting; comparison other; deserving; past expectations; future expectations; and (no) self-blame contributed to a feeling of relative deprivation. In later studies Crosby theorized that wanting and deserving were the most relevant psychological preconditions leading to relative deprivation. Figure 1 is a model depiction of Crosby's theory of relative deprivation.

Fallacaro and Wu (1997) tested Crosby's Theory of Relative deprivation, as developed in 1976, which included the six psychological preconditions (wanting, comparison other, deserving, past expectations, future expectations, and lack of self-

Figure 1: Crosby's Theory of Relative Deprivation

blame) as it related to job satisfaction among civilian nurse anesthetists in New York State. Included in their analysis were comparative demographic data: gender, education, and autonomy. The implication of this study suggest that psychological preconditions of wanting and deserving contributed more to relative deprivation than the demographic variables. Fallacaro and Wu conclude that wanting and deserving contribute to job satisfaction, and they are relative and not absolute. To date, how these preconditions are influenced and what the other significantly influential factors are have not been identified, quantified or prioritized.

Since CRNAs in the military are in a position to leave the military after their training obligation is completed, many do so, lured by the freedom and benefits that civilian life has to offer while maintaining a career in nurse anesthesia. If relative

deprivation is present in the military population and contributes to "job discontent" as it did in the civilian population of CRNAs study by Fallacaro and Wu, a reasonable concern follows that military CRNAs will choose to transition to civilian life.

Delineation of the Problem

Identifying factors that influence the feelings of deprivation and discontent among military nurse anesthetists is critical. Relative deprivation is a concept that has been linked to grievance and job satisfaction. Other antecedent factors, such as years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy, may influence relative deprivation thus these relationships will be examined. These antecedent factors are related to the background factors that Fallacaro & Wu (1997) asserted were unidentified.

Gender, education and job autonomy were the factors studied by Fallacaro & Wu (1997). These factors may vary among different populations. Education is not included in this study as graduate level education has been mandated by the American Association of Nurse Anesthetists since 1998. Gender, as a factor that cannot be modified, has been collected as a demographic in describing the population. Autonomy is an often-cited factor influencing job satisfaction and discontent in both the military and civilian communities and is included. It was also anticipated that there may have been discrepancy between the services. Follow-on studies may validate these links and extend the influence on retention of military CRNAs within the uniformed services.

Research Questions

The questions raised by the shortage of military nurse anesthetist are many. Most pressing are what factors influence the shortage. Once factors are identified workable solutions can be formulated. The questions addressed by this study focus on the psychological factors identified by Crosby and some antecedent factors recurring in the literature. Crosby and others have studied the factors which lead to development of relative deprivation. Wanting and deserving appear to be the psychological factors most responsible for relative deprivation. This study addresses the question of whether the psychological factors of wanting and deserving correlate with the development of relative deprivation in the population of active duty military nurse anesthetists. While speculation that other factors influence job satisfaction among active duty military CRNAs and efforts have been made to improve retention of these CRNAs, this study explores which antecedent factors influence relative deprivation. In addition to identifying if psychological and antecedent factors influence relative deprivation, it begs the question: which has the most influence?

Assumptions

The assumptions of this study include:

1. Active duty military CRNAs with higher relative deprivation scores are more discontent.
2. Feelings of discontent will influence a military nurse anesthetist to leave the military.

3. The number of military CRNA billets designated by the Department of Defense is adequate to meet the mission of the uniformed services.
4. The number of military CRNA billets designated by the Department of Defense is not in excess of the amount needed to meet the mission of the services.
5. Identifying the factors influencing the development of relative deprivation will assist in developing effective retention strategies for military nurse anesthetists.

Hypotheses

Hypothesis #1: Antecedent factors of years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy are related to feelings of relative deprivation in active duty military CRNAs.

Hypothesis #2: Psychological factors of wanting and deserving are related to relative deprivation in active duty military CRNAs.

Hypothesis #3: Relative deprivation is dependent on antecedent factors (years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy) and psychological factors (wanting and deserving) with the psychological factors having more influence on felt deprivation than the antecedent factors in active duty military CRNAs.

Figure 2 represents the hypotheses of this study with Hypothesis #1 represented by the circle labeled 'antecedent factors' with the arrow pointing to the cylinder labeled 'relative deprivation'. Hypothesis #2 is represented by the circle labeled 'psychological

factors' with the arrow pointing to the cylinder labeled 'relative deprivation'. And the entire model represents Hypothesis #3 with emphasis on the size of the arrows representing the amount of influence of the respective factors.

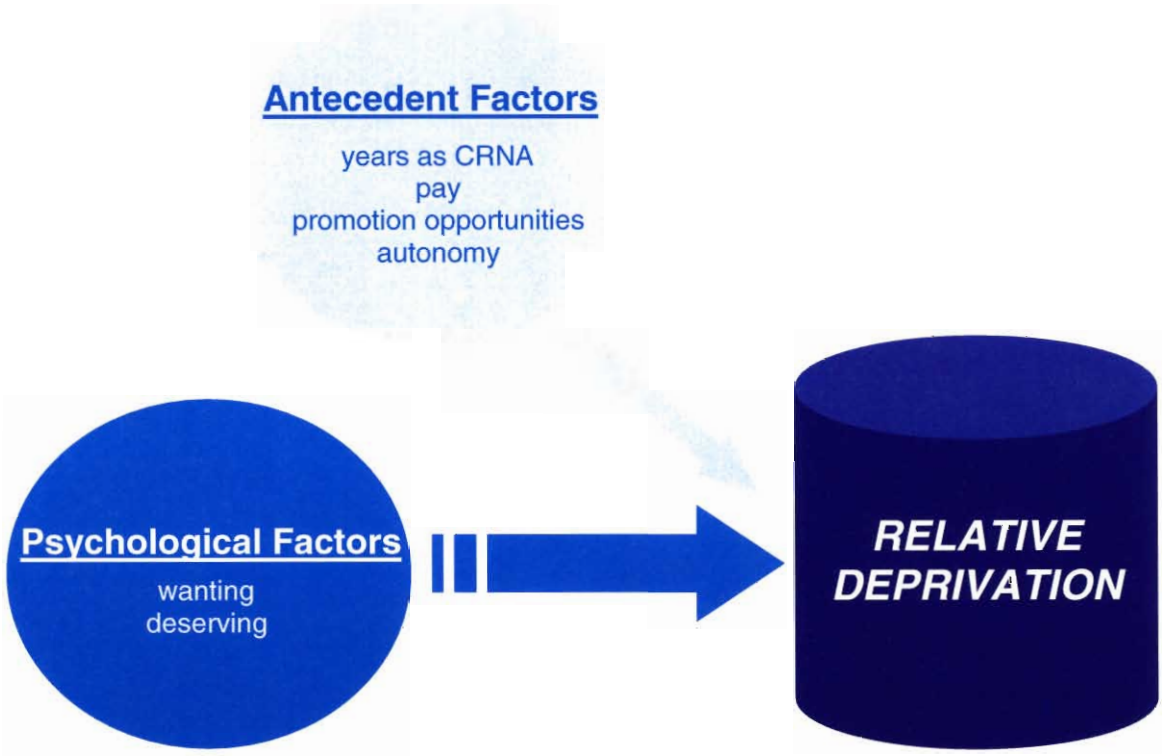

Figure 2: Conceptualization of Relationships Tested in this Study.

Importance of the Study

The utilization of CRNAs in the military is documented as early as the First World War (Bankert, 1993; Condon-Rall, 1995). The Department of Defense relies heavily on nurse anesthetists to provide anesthesia care to its active duty soldiers and their beneficiaries. Expansion in the number of beneficiaries and the mission of the Defense Department health care services in recent years, as well as the world situation

results in a need for more military nurse anesthetists. Examining factors affecting satisfaction and discontent provides information necessary to retain CRNAs in the military and perhaps recruitment more for Department of Defense needs.

While active duty military nurse anesthetists comprise less than 2% (500) of all nurse anesthetists in the United States (30,000), the American Association of Nurse Anesthetists (AANA) has repeatedly demonstrated that military nurse anesthetists are an integral component of the national organization. AANA was influential in obtaining authorization for specialty pay for military nurse anesthetists. The initial and continuing efforts of AANA have contributed to the authorization for an increase in pay with potential for further increases.

Limitations of the Study

Some limitations of this study were inherent in the population. The number of CRNAs in the military was relatively small. They were mobile and difficult to track. Access to information was limited. The uniqueness of this population did not lend results to generalization but does make it that much more important to conduct the study as this population cannot be generalized to. Military CRNAs are unique to other nurses, other CRNAs, other military nurses, other military officers, other military anesthesia providers and must be studied separately. The vastness of influences and complexity of factors threaten internal validity. The contentment of the population as represented by relative deprivation scores was likely influenced by the current world events and may not be representative of what it will be like when the world situation is different. An additional limitation may be that the population and sample were based on military CRNAs who

were members of AANA which is not a requirement however over 90% of the nurse anesthetists in the United States are members of AANA.

Definitions

Definitions of the concepts included in this study are as follows:

Active duty— "full-time duty in the active military service of the United States." (Joint Publication 1-02, 2001)

Antecedent factors— years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy.

Autonomy/scope of practice— providing full scope of anesthetics (general, regional and monitored anesthesia care) and services (labor analgesia, emergency airway management and respiratory care consultation) without supervision or medical direction by an anesthesiologist. The credentialing and privileging processes in the various services addressing supervision/medical direction, regional anesthesia, and status as licensed independent providers (LIP). "[T]he amount of job-related independence, initiative, and freedom either permitted or required in daily work activities" (Stamps & Piedmonte, 1986).

Beneficiaries— family members and other dependents of a service member entitled to health care benefits.

Billets— the number of available positions (similar to FTEs) for CRNAs.

Certified Registered Nurse Anesthetist— a registered nurse with advanced education and training in the provision of anesthesia certified or recertified by the American Association of Nurse Anesthetists.

Civilian— a person who is not a member of the uniformed services.

Comparison other— a person sees that others have some object or opportunity (Crosby, 1982).

Critical skills retention bonus (CSRB) — included in the FY02 Defense Authorization Bill provided CRNAs a $10,000 bonus in exchange for an additional year of service after their training obligation.

Demographics— age, gender, marital status, children living at home.

Deployments— when a service member is sent away from their permanent duty station, usually overseas and usually for a period of weeks to months, to perform duties.

Deserving— feeling of entitlement to an object or opportunity (Crosby, 1982).

Discontent— dissatisfaction, resentment, grievance, deprivation.

End of obligated service— when a service member has served out the time owed for government service either due to education obligation or service contract.

End strength— the number of service members designated by the Department of Defense to be an appropriate number to fulfill the mission of the individual service (Army, Navy, Air Force) and/or the Department of Defense.

Future expectations— thought that an object or opportunity will be attainable in the future (Crosby, 1982).

Grievance— a complaint about a (real or imaginary) wrong that causes resentment and is grounds for action (http://www.thefreedictionary.com/grievance).

Incentive specialty pay (ISP) — additional pay that a military CRNA receives after successful completion of the national certification exam.

Intent to accept another set of orders— plan of CRNA to accept assignment to another duty station that obligates them for a minimum amount of additional service time.

Military (aka: uniformed, armed) services— Air Force, Army, Navy and Marine Corps. (The Marine Corps is a part of the Department of the Navy and medical care for the Marines is provided by the Navy.)

Military operations other than war (MOOTW) — military missions, such as humanitarian missions, combating terrorism, military exercises with other countries that are intended to promote peace.

Military service information— rank, branch of service, years of active duty service, retirement eligibility, deployments.

(No) self blame— lack of personal responsibility for lack of object or opportunity. Refraining from blaming oneself for failure to possess an object or opportunity (Crosby, 1982).

Past expectations— thought that on object or opportunity was attainable in the past (Crosby, 1982).

Pay— salary; including base pay, Basic Allowance for Quarters (BAQ), Variable Housing Allowance (VHA), Incentive Specialty Pay (ISP), certification pay (CSRB) which collectively determine how much a military CRNA is paid each month.

Promotion opportunities— the number of years in service required before a CRNA is eligible for promotion to the next rank, the number and percentage of CRNAs promoted versus those who are not selected for promotion. (This may vary between/among the services).

Preconditions— wanting, comparison other, deserving, past expectations, future expectations and no self-blame (Crosby, 1982).

Retention — a military member elects to stay in the military beyond their current obligation, until retirement eligible or beyond.

Relative deprivation— "…feelings of grievance depend(ing) on cognitive and emotional factors and not simply on objective factors" (Crosby, 1982).

Retirement eligibility— time at which an active duty member of the military services may leave the service without further obligation and draw their retirement pay.

Wanting— desire for some object or opportunity (Crosby, 1982).

Years as a CRNA— the number of years since completion of nurse anesthesia education that one has been credentialed to provide nurse anesthesia services.

Outline of Remaining Chapters

Chapter 1 provided the background and delineation of the problem; the purpose and importance of the study; an introduction to the theoretical framework; research

questions and hypotheses; assumptions and limitations of the study; and definitions of key terms. The remaining chapters of this dissertation document expand the scope of this problem and this study. The review of the literature in Chapter 2 provides an explanation of the theoretical framework emphasizing the construct of relative deprivation including factors that influence the development and consequences of its occurrence. Additionally, literature regarding job satisfaction among nurses, nurse anesthetists and military nurse anesthetists is summarized. Chapter 3 provides details of the methodology utilized to evaluate the factors impacting development of relative deprivation among active duty military nurse anesthetists in the Army, Navy and Air Force. Chapter 4 specifies the analyses of the data collected related to the demographics of the participants and the hypotheses regarding relative deprivation. It also provides an evaluation of how these results relate the theory, review of the literature and results of this study. Chapter 5 provides a summary of the previous chapters along with conclusions regarding the hypotheses of this study, recommendations for utilization of these findings, as well as indications for additional research.

CHAPTER 2: LITERATURE REVIEW

Chapter two provides an explanation of the theoretical framework used for this study and a review of the relevant literature. This review emphasizes the concept of relative deprivation and job satisfaction/grievance, as operationalized by intent to stay, as well as factors that may influence relative deprivation and job satisfaction/grievance, specifically in the population designated in this study, active duty military nurse anesthetists.

Conceptual Framework – Relative Deprivation

The concept of relative deprivation provides the theoretical framework for this dissertation. Relative deprivation is "…feelings of grievance depend(ing) on cognitive and emotional factors and not simply on objective factors"(Crosby, 1982). It has been used in many of the social sciences to explain feelings that appear to contradict circumstances.

Stouffer introduced the concept of relative deprivation (Stouffer et al., 1949) in his study of soldiers during World War II to explain apparent paradoxical relationships between feelings of satisfaction or grievance and the soldiers' positions and conditions in the Army. "Davis was the first theorist to develop a formal theory of relative deprivation.… The necessary determinants of felt deprivation according to Davis, are that

the individual who lacks X must (a) perceive that a similar other has X; (b) wants X; and (c) feels entitled to X. Lacking any one of these elements, deprivation does not occur" (Crosby, 1976). Interestingly, this formal interpretation of the theory of relative deprivation was prompted by a study conducted by the National Opinion Research Center that examined "factors affecting the career decisions of graduate students in the traditional arts and sciences (Davis, 1959). Davis set forth assumptions, to be confirmed or rejected, with the intent that these assumptions were not universal but may vary among and between populations with specific limitations based on discrete circumstances and situations.

Runciman (1966) added to the theory "that the individual must think it is feasible to obtain X." Crosby (1976) observed that a fifth determinant of relative deprivation, lack of personal responsibility, was adopted from Patchen (1961)who had emphasized that the aspirations, satisfactions and self-evaluations one possesses were determined by comparison with others and not by an objective status.

Gurr (1969) explained relative deprivation as the research phrase used to explain the "frustration" or "discontent" which explains civil strife leading to rebellion. He defined deprivation as "a discrepancy between people's expectations about the goods and conditions of life to which they are justifiably entitled, on the one hand, and on the other, their value capabilities—the degree to which they think they can attain those goods and conditions." He explained that "[t]he greater the deprivation an individual perceives relative to his expectations, the greater his discontent; the more widespread and intense is discontent among members of a society, the more likely and severe is civil strife."

Relative deprivation can be explained as the feeling of grievance that develops in people who lack an object or opportunity that they want, they see that others have, they feel entitled to, they think was/is attainable, they think may not be attainable in the future, and they do not blame themselves for not possessing (Crosby, 1976). This grievance has been interpreted as a perception of resentment when a disparity exists between actual and desired objects or opportunities and when the disparity continues between actual objects or opportunities and those earned (Fallacaro & Wu, 1997). The concept of relative deprivation was initially used to look at individuals or groups who were in unfortunate circumstances, but it has since been expanded to look at more advantaged individuals and/or groups.

Both components of relative deprivation, relativity and deprivation are crucial to the understanding and study of the concept. The "relative" aspect is that which accounts for the deprivation not being an absolute consequence but an outcome compared to some other standard. The "deprivation" is a deficiency, real or perceived, of material or psychological assets (Crosby, 1982). That the explanation of the paradoxes lies in the persons or groups to which one compares oneself became evident as early as Stouffer's study. That "people's reactions to objective circumstances depend on their subjective comparisons" (Walker & Smith, 2002) are crucial to understanding relative deprivation.

Crosby (1982) stated that the five existing models of relative deprivation all include the theme that identity and reality of one's situation is based on the references one draws. Of the varying aspects of these models of relative deprivation, not all the models assemble these pieces in the same manner. The various aspects to be reviewed

include paradoxical feelings as compared to circumstances; social and temporal comparisons; advantaged and disadvantaged reference groups; fraternal (group) and egoistic (personal) deprivation; deprivation on behalf of others; collective behavior; cognitive and affective relative deprivation; factors, preconditions and antecedents; social identity and self-esteem; and responses and consequences. While not all are relevant to each model or this particular study, it is important to mention them in order to better understand the scope of relative deprivation.

Paradox

Paradox is the existing circumstance which results in a feeling or action which is contradictory to that which would logically be expected. Typically this is a disadvantaged circumstance that does not result in either depressed feelings or degenerate behavior. Examples of these paradoxes include the following:

During World War II, African American soldiers stationed in the south were more satisfied than those stationed in the north. This was attributed to the Army providing better living conditions to the African American soldiers' in the south compared to civilian African Americans living in the south; while the living conditions of African American soldiers living in the north were worse than civilian African Americans living in the north (Stouffer et al., 1949). This was further described in the context of American society as it existed at that time, with the dichotomous variables of race (black/white), region of origin (north/south), camp location (north/south), and preference of camp location (north/south) being reanalyzed using a modified multiple regression (Goodman,

1972). Another paradox noted by Stouffer et al. (1949) revealed military policemen (MPs) had slower promotion rates than aircorpsmen but were more satisfied.

Crosby (1982) studied working women and found that they had lower status positions and made less money than their male counterparts. Despite these disadvantages, women seemed content with their jobs.

Smith (1993) provided a distinction between stereotypes and prejudice, linking stereotypes to beliefs and prejudice to attitudes. Walker and Smith (2002) used this distinction to explain the paradox of how positive stereotypes of Asian Americans could lead to prejudice through negative attitudes.

Social and Temporal Comparisons

The social and temporal comparisons that people draw differ. Smith and Leach (2004) defined social comparison as "comparison experiences when people think of themselves (or those with whom they compare) as group members rather than as individuals". Bakkum (2001) distinguished the differences between social and temporal comparisons in his study of young Romanians. The social comparison was drawn between Romanians and others in the European Union; whereas, the temporal comparison was drawn between Romania at the time of the study and that of the country years before.

The timing of riots in the 1960s as described by Miller, Bolce, & Halligan (1977), Davies (1962, 1969, and 1974) and Gurr (1969) offered differing opinions. However, the essence of all opinions supported the common theme of relative deprivation resulting in the hypothesis that revolution occurs when "the gap between what people want and what

they get quickly widens and becomes intolerable" (Davies, 1962). This phenomenon was described by all research teams whether termed relative deprivation, the J-curve theory, or progressive deprivation (Crosby, 1976).

Reference Groups

As mentioned previously, relative deprivation traditionally has been used to look at disadvantaged groups—predominantly women and racial minorities. These disadvantaged groups were compared to overall society by researchers but not necessarily by the groups themselves. Tyler and Lind (2002) detailed how disadvantaged groups were treated; the reactions they received from others; and the resulting consequences extend from feelings of inequality to militant actions. Leach (2002) examined the other side of the equation by studying advantaged groups and found that reactions ranged from acknowledging advantage, to minimizing advantage, to taking for granted the advantage. The groups in these studies included those defined by race, nationality, and social class; however, advantaged groups often did not identify themselves with members of a privileged group until this advantage becomes unstable or threatened.

Fraternal vs. Egoistic Deprivation

Personal deprivation within groups, called fraternal deprivation, has been extensively studied. Runciman (1966), attributed with the introduction of this concept, looked at when and why grievance did or did not occur in groups of unequal class, status and power. He found that inequality generally resulted in grievance "when an individual feels his group is disadvantaged relative to another group" (Crosby, 1982).

In contrast, Crosby's (1976) model of egoistical relative deprivation focused on the individuals' comparison of themselves to others in their own group. Her model combined those determinants mentioned previously as established by Davis (1959), Runciman (1966) and Patchen (1961). Crosby explained relative deprivation as a feeling of "resentment about failure to possess something (X) only when [one] sees that similar others possess X, [one] wants X, [one] feels entitled to possess X, [one] thinks that possession of X is feasible, and [one] does not blame [one]self for [t]his failure to possess X." These preconditions were labeled and specified as comparison other, wanting, deserving, past expectations, future expectations, and no self-blame (Crosby, 1976).

Comparison other occurs when a person sees that others have some object or opportunity. Wanting exists when one desires some object or opportunity. Deserving comes from a feeling of entitlement to an object or opportunity. Past expectations results in a belief that an object or opportunity was attainable in the past. Future expectations originate from the thought that an object or opportunity will be attainable in the future. No self-blame takes place when one refrains from blaming oneself for failure to possess an object or opportunity. This model was updated after further study by Crosby (1982), noting that wanting and deserving were the most essential of the preconditions.

Crosby (1982) used a series of three methods (regression analysis, constellation approach and extreme scorers) to validate the theory. The first method utilized a two-step hierarchical multiple regression analysis to determine if the psychological factors explain the variance in the level of deprivation beyond that explained by the

demographics. The second method used dichotomized scores for the preconditions. The respondents were divided into groups considered to have wanting (constellation group), or not (remainder). The test was then to determine if mean deprivation score of the constellation group was higher than the remainder. The third method used two groups consisting of the "most deprived" (highest relative deprivation scores) individuals and the "least deprived" (lowest scores). Conclusions from these tests were that relative deprivation theory appeared correct, however the models varied. This led to the proposal of wanting and deserving as the essential preconditions to relative deprivation.

The current study was based on Crosby's preceding outlined model. Ten years ago researchers used Crosby's theory to evaluate grievance and gratification among nurse anesthetists in the state of New York (Fallacaro & Wu, 1997). The study suggested that relative deprivation contributed to "job discontent" by CRNAs. These researchers pointed out that "antecedent factors" influencing job discontent had not been identified. To date, these factors have not been identified, quantified or prioritized in the population of nurse anesthetists, civilian or military.

The other aspects of the relative deprivation theory that do not relate to this study include deprivation on behalf of others, collective behavior, and cognitive and affective relative deprivation. As evidenced in the above descriptions, many of components of relative deprivation overlap and are interlinked. Noted by Davis' (1959) initial formal interpretation of the theory of relative deprivation, the circumstances or specific combination of circumstances may be the determinant of whether a person experienced relative deprivation.

Studying relative deprivation and applying this theory to various populations becomes important in identifying factors, preconditions and antecedents that influence the development of relative deprivation, the responses to relative deprivation and the consequences on the individuals and society.

Other Related Theories

Other theories related to relative deprivation and used to study the same or similar phenomena include social identity theory (SIT), social comparison theory, distributive justice theory, self-categorization theory, and attribution theory.

Job Satisfaction in Nursing

A study (Ma, Samuels, & Alexander, 2003) that examined factors that influence nurses' job satisfaction showed a distinct similarity to the theory of relative deprivation. The authors referred to Robbins' (1986) statement that "job satisfaction can be defined as the difference between the amount of rewards workers receive and the amount they believe they should receive".

As has occurred various times over the past several decades, a severe nursing shortage exists. The opinions of nurses collected in a national survey conducted December 2000 to January 2001 by the American Nurses Association examined this problem. Compounding factors revealed that many were discouraged by the working conditions and would retire or choose to work in another field if conditions and compensation did not improve (http://www.nursingworld.org/pressrel/2001/pr0206.htm).

Much of the work on job satisfaction among nurses in the past thirty years has been conducted using the Index of Work Satisfaction (IWS), a tool developed beginning

in the 1970s by Stamps and co-investigators Piedmont, Slavitt and Haase (Stamps, 1997). The latest version (1997) examines the factors of pay, autonomy, task requirements, organizational policies, interaction, and professional status as they relate to satisfaction.

Research into job satisfaction among nurses actually dates back to 1940 in a study conducted by Nahm. She found that the factors most influencing satisfaction among nurses included "interest in work; general adjustment of the individual; relationships with superior officers; family and social relationships; hours of work; income and opportunities to advance and attain ambitions" (Nahm, 1940, pg 1392). Shortly before Nahm's study, the Carnegie Foundation had funded studies to identify levels of job satisfaction and associated factors. Teachers and other adults, employed and unemployed, related the following as major factors in job satisfaction: "the way an individual reacts to unpleasant situations; the facility with which he adjusts himself to other persons; his relative status in the social and economic group with which he identifies himself; the nature of the work in relation to his abilities; interests and preparation of the worker; security; and loyalty" (Nahm, 1940, pg 1389). These factors were considered to influence social, political, industrial and educational problems in addition to work related satisfaction (Nahm, 1940).

Since that time researchers have continued to investigate aspects of job satisfaction and grievance among nurses with an interest in how it influences recruitment and retention. The impetus of these investigations has been to identify those factors influencing the shortage in an attempt to develop evidence-based strategies, policies and

practices to build and maintain the nursing work force (Buchan, 2002 & 1999). The issue of manpower in nursing, however, is more convoluted than supply and demand. The calculation of the equation is an integrated product of the current situation and predicted future of the health care system, the personnel and consumers within that system, and the services provided. These circumstances are a combination of demographics, epidemiology, economics and industrial engineering (O'Brien-Pallas, et al, 2001). When considering the impact of job satisfaction Ma, Samuels, & Alexander (2003) point out that absence of satisfaction may influence a nurse to leave his/her current place of employment or leave the profession altogether.

In keeping with the purpose of this study, the literature reviewed focuses on factors as they relate to job satisfaction and retention. In relating the literature to the specific population, research pertaining to nurses (in general), military nurses, nurse anesthetists and military nurse anesthetists is reviewed. First, those related to nurses in general is evaluated. As the military and the nurse anesthesia populations may differ, they are then assessed separately. Finally, the literature which addresses the population of military nurse anesthetists is reviewed.

Nurses- General Population

Literature reveals that the problem of nursing shortages reaches beyond the borders of the United States, and much of the published literature regarding job satisfaction among nurses is international, with a significant amount coming from the United Kingdom (Buchan, 2002, 1999). Based on the study conducted by Nahm, 60% of nurses had a high degree of satisfaction; 20% were dissatisfied; and the remaining

20%, while not "dissatisfied", had "failed to attain what might be considered an optimum occupational adjustment" (Nahm, 1940).

Multiple factors relating to satisfaction have been studied in a variety of settings and subpopulations of the nursing work force. These factors include the following: gender, race/ethnicity, level of education/ qualifications, marital status, children, employment, age, income, hours of work/schedules, autonomy, relationships with supervisors, interest in work, family and social relationships, professional status, opportunities for advancement, pensions, and geographic location. Training, as it contributed to promotions and rewarding clinical experiences, was found to have a positive effect on recruitment among intensive care nurses and new graduates (Ambrose, 2002; Durkin, 2002; Buchan, 2002 & 1999). In addition to looking at the individual factors, Roberts, Jones & Lynn (2004) correlated intent to stay with job satisfaction and the importance that nurses place on the particular factors.

The "Index of Work Satisfaction (IWS)", developed by Stamps and Piedmonte, was intended not only to measure the level of satisfaction among nurses, but also to gather information for use in improving levels of satisfaction. The initial scale was designed in 1972, with further revisions in 1985 and 1997. Even after thirty years of validation, analysis and revision Stamps states that "[d]eveloping a statistically valid and reliable measurement tool is not a process that is ever complete,…". For this study, factors from the IWS identifying the complexity of such an undertaking and the many factors that effect satisfaction fall into three categories: the demographics and personality of the nurse; the specific job; and the organization (Stamps, 1997).

In more recent studies (Tovey & Adams, 1999 and Roberts, Jones & Lynn, 2004) other traditional instrument tools, such as the McClosky-Mueller (1990) Satisfaction Scale (MMSS) and Munro's (1983) use of Herzberg's dual-factor theory were used to evaluate nurse satisfaction have been called to question. The current validity and reliability of these instruments becomes suspect as the role of nurses and the organizational structure of health care continues to evolve.

Newman and Naylor (2002) studied nurses using a framework of satisfaction, quality, and the retention chain. One interesting interpretation of their findings identified 57% as "core loyals", 12% intending to leave and the remaining 31% sensitive to working conditions and pay. [Note that the percentage of "core loyals" is similar to the percentage with a high degree of satisfaction in the Nahm (1940) study.] This information could be further used to identify what factors create "core loyals", what factors comprise those intending to leave, and/or what factors may sway the 31% sensitive to influence.

Military Nurses

The literature examining job satisfaction among military nurses is much more limited than that of the general nursing population. Some studies have focused on factors similar to those in the general nurse population, such as race (Kocher & Thomas, 1994); family status (Kocher & Thomas, 1994); autonomy (Patrician, 2001 and Allgood, et al, 2000); job/work (Janelli & Jarmuz, 1987 and Kocher & Thomas, 1994); professional achievement; salary (Janelli & Jarmuz, 1987; Allgood, et al, 2000); working conditions (Janelli & Jarmuz, 1987); and location (Kocher & Thomas, 1994). Some factors studied

are unique to the military population, such as being valued (Patrician, 2001); control over resources to provide patient care (Patrician, 2001); authority (Patrician, 2001); military life (Kocher & Thomas, 1994); and assignment stability (Kocher & Thomas, 1994). Janelli and Jarmuz (1987) found that "motivational factors", such as job content and professional achievement, were more important with regard to satisfaction than "hygiene factors", such as salary and working conditions. Houlihan (2001) examined the role of nurse practitioners in humanitarian and peace keeping missions and found a discrepancy between how the nurses themselves and their physician counterparts viewed the independence of the nurses' roles in these situations. A related study by Carbone and Cigrang (2001) looked at Air Force military training instructors, not nurses, and found that job satisfaction related significantly to number of years of military service and age, but not to marital status, children or number of months on the job.

A point highlighted by Allgood, et al (2000) in a study of nurses (professional and non-professional) in an Army military treatment facility (MTF) was low expectations. This directly relates to the theory of relative deprivation. While all of the previous studies look at how factors effect satisfaction, it is the theory of relative deprivation that emphasizes not only how the participants view the factors that affect themselves, but also how this compares to others.

Each spring the Nurse Corps chiefs (senior nurse leaders in the Army, Navy and Air Force) provide a testimony before the Senate Appropriations Committee, subcommittee on Defense regarding the state of the nurse corps in their respective service. In the 2003 testimony, it was cited that the Air Force Nurse Corps had the

poorest promotion rate among Air Force officers and was identified as a major source of dissatisfaction among Air Force nurses. Nurses who voluntarily separated revealed staffing, frequent moves, and work conditions as the primary reasons for leaving (Brannon, 2003). At the same testimony, leaders confirmed that 400 reserve Navy nurses were recalled to active duty to support the war, and that 89 of 141 active duty Navy CRNAs were deployed. They further acknowledged that "counter initiatives to these dissatisfiers" were needed (Lescavage, 2003). The Army was noted to have had a deficit of 229 nurses in FY 2002. Expanded recruiting and scholarship programs attempted to address this. Further, company grade (junior) nurses in the Army were known to leave the service due to quality of life, work schedules and compensation; however, sponsored education programs, improved practice environment, mentoring relationships and ensuring equitable workload were implemented to deal with this attrition. A three prong approach to recruit and retain Army nurses focused on financial incentives, educational opportunities and benefits (Bester, 2003). All the corps chiefs acknowledged the committee for support and approval of the increased pay through the Critical Skills Retention Bonus (CSRB), Incentive Specialty Pay for CRNAs and the Nurse Accession Bonuses for which the committee had previously appropriated funding.

On March 10, 2005, in a news release by AANA, Major General Gale Pollock, Chief of the Army Nurse Corps, announced an increase in incentive specialty pay (ISP) for Army CRNAs. Army CRNAs currently serving under obligation for their anesthesia education have had their bonus pay increased from six to fifteen thousand dollars. As of this writing this applies only to Army CRNAs. Another recent change was the increase

in ISP for all military CRNAs not under obligation. They can now choose from a one to four year contract with the specialty pay ($15,000-40,000) based on the length of commitment (AANA website, 2005).

Nurse Anesthetists

As stated earlier, it is a challenge to predict manpower needs, particularly in relating to the CRNA community (Cromwell et al., 1991). The most recently released study (Merwin, Stern & Jordan, 2006) looks at the supply and demand equilibrium as opposed to job vacancies to evaluate and predict the need for CRNAs. The essence of the study concludes that the demand for CRNAs will increase over the next several years. Four published studies over the past 23 years have specifically examined job satisfaction as it relates to the CRNA population (Table 1). The primary factors studied include age, gender, education, autonomy, positive CRNA/surgeon relationships, MDA support, pay, working conditions, opportunity to improve professional skills, opportunity to meet professional goals, ability to practice anesthesia as trained, regional anesthesia, quality of life and sufficient time away from work.

Autonomy stands out as the one factor common to three of the four studies. Pay and regional anesthesia were other non-demographic factors examined in two of the studies. In a related study, Jordan (1991) addressed the financial lure of CRNA faculty away from education to more lucrative clinical positions. This can be likened to the lure, financial and other, of military CRNAs from the services to more lucrative civilian positions.

Table 1: Factors Relating to CRNA Job Satisfaction

	Thompson 1981	Brown, Chase & Freeborn 1987	Weedlun-Dairin & Cuddeford 1994	Fallacaro & Wu 1997
• Autonomy	**X**		**X**	**X**
• Pay, Regional anesthesia	**X**	**X**		
• Age		**X**		**X**
• Gender		**X**		**X**
• MDA support, Working conditions	**X**			
• Education				**X**
• Positive CRNA/surgeon relationships, • Opportunity to improve professional skills & goals, • Ability to practice anesthesia as trained, • Quality of life, Sufficient time away from work			**X**	

The theory of relative deprivation as utilized by Fallacaro and Wu (1997) explored factors effecting job satisfaction in CRNAs, and emphasized factors that delineate those CRNAs practicing in rural settings. They proposed that further study was warranted regarding the factors that draw CRNAs to rural areas to insure adequate distribution of CRNAs to meet national anesthesia care needs (Weedlun-Dairian & Cuddeford, 1994; Fallacaro, 1997) as "CRNAs are the sole anesthesia providers in approximately two thirds of all rural hospitals in the United States, enabling these healthcare facilities to offer obstetrical, surgical, and trauma stabilization services. In

some states, CRNAs are the sole providers in nearly 100% of the rural hospitals" (AANA website, 2005).

Military Nurse Anesthetists

No published studies were found in the literature that examines job satisfaction among military CRNAs, though at least three are unpublished. Two of the unpublished non-AANA surveys were conducted on Air Force CRNAs—one was conducted on CRNAs on active duty (Chaney, 1991), and the other was on CRNAs who had left active duty before reaching retirement eligibility (Martino, 1990). Determinants of satisfaction common to both populations were autonomy, pay, promotion, and professional status (Martino, 1990; Chaney, 1991). Factors unique to those on active duty were the importance of interactions, task requirements, and organizational policies. Autonomy was the most important to the CRNAs on active duty (Chaney, 1991). Those CRNAs who had left the Air Force stated that pay, promotion, lack of respect, overwork, location of assignments, and family separation, with pay ranking as the most important reason they chose to leave (Martino, 1990).

On 6 April, 1989 Peggy Mc Fadden, past president of the AANA, represented AANA before the Senate Appropriations Subcommittee on Defense regarding the fiscal year 1990 Defense appropriations bill. Her statement emphasized the "Pay-Promotion-Practice Policies Triad" as essential to recruitment and retention of military CRNAs.

Chapter Summary

This chapter has provided a review of the literature as it relates to the theoretical framework of relative deprivation and the shortage of military nurse anesthetists. There

is a shortage of military nurse anesthetists that has been related to discontent. The exodus from military service to civilian careers could be a result of relative deprivation (the discrepancy that one perceives between what one has and what one could or should have).

The intent was to provide the foundation for understanding the rationale and approach to this study. This literature review examines how evaluation of the extent to which demographics and military service antecedent factors (independent variables) influence relative deprivation and how relative deprivation (dependent variable) influences intent to stay. This study was intended to provide a foundation for future assessments of the state of satisfaction, recruitment, and retention among military nurse anesthetists.

CHAPTER 3: METHODS

This inquiry identified factors contributing to perceived deprivation among active duty military nurse anesthetists. Perceived deprivation has been shown to influence feelings of grievance, job discontent, and declining retention among nurse anesthetists. Chapter three provides a detailed description of the study design, instrument, subject selection, data collection and recording, and procedures employed for data analysis.

Institutional Review Board Approval

Prior to data collection the study was reviewed by the Virginia Commonwealth University (VCU) Institutional Review Board (IRB) and was approved by exempt review (VCU IRB # 6005) on August 17, 2005. This study met exemption category 2 as it involved a survey and data was recorded such that subjects were not individually identifiable. A copy of the IRB approval letter is at Appendix A.

Research Design

A descriptive, correlational design using original data collection was used to examine study hypotheses. Crosby's (1982) theory of relative deprivation provided the theoretical framework to guide hypothesis testing. Portions of Crosby's scale (1982), those questions measuring wanting, deserving and relative deprivation, along with additional questions, were used as the data collection instrument.

The theory of relative deprivation was utilized to assess job satisfaction. Relative deprivation is defined as "...feelings of grievance depend(ing) on cognitive and emotional factors and not simply on objective factors". Crosby (1982) originally theorized that the psychological preconditions of wanting; comparison other; deserving; past expectations; future expectations; and (no) self-blame contributed to a feeling of relative deprivation. In later studies, Crosby theorized that wanting and deserving were the most relevant psychological preconditions leading to relative deprivation.

The variables examined were antecedent factors, psychological factors and relative deprivation. Antecedent factors included number of years as a CRNA by self report, pay measured by annual salary, promotion opportunities measured by self-report of ever having been passed over for promotion, and scope of practice measured by self-report of degree of autonomy in anesthesia care decision making (classified as total autonomy, high degree of autonomy, average degree of autonomy, low degree of autonomy, or no autonomy). Psychological factors included wanting measured using four questions whose coding and scores were combined to arrive at a wanting score and deserving measured using three questions whose coding and scores were combined to arrive at a deserving score. The dependent variable was relative deprivation measured using four questions whose coding and scores were combined to arrive at a relative deprivation score.

Pearson's product-moment correlation coefficient was used to test the hypothesized relationships between the antecedent factors, years as a CRNA and pay, and relative deprivation. This test was also used to test the hypothesized relationships

between the psychological factors, wanting and deserving, and relative deprivation. An independent-samples t-test was used to examine the hypothesized relationship between promotion opportunities and relative deprivation. Analysis of Variance (ANOVA) was used to test the hypothesized relationship between scope of practice and relative deprivation. Multiple regression analysis was used to compare the hypothesized relationships between the antecedent factors and the psychological factors and their association with relative deprivation.

The design was intended to provide information about the population of active duty CRNAs at various stages of their careers (Burns & Grove, 2005). This was of particular importance in this study as factors effecting satisfaction may vary as may the level of relative deprivation. For all military CRNAs, the world situation, and thus their jobs, are much different than prior to September 11, 2001, Operations Iraqi Freedom, Enduring Freedom, Noble Eagle and other ongoing missions.

Instrument

The instrument for the present study contained a total of 34 questions. The survey consisted of questions that measure years as a CRNA, annual salary, promotion opportunities and autonomy, as well as questions that quantify feelings of wanting, deserving, and relative deprivation. The questions and scales related to wanting, deserving and relative deprivation were those used by Crosby (1982) to evaluate these aspects as they relate to one's job, and were a portion of the questions used to evaluate other aspects of the relative deprivation theory. The original scoring criteria were employed for this study. Permission to use the questions and scales was granted from the

original author (Appendix B). Additionally, demographic and military service information was collected.

Scores for wanting, deserving and relative deprivation were calculated (details in variables section). Relative deprivation was measured using four questions, possible scores range between 1 and 30, with higher scores representing a stronger feeling of deprivation. The wanting scale was measured by four questions and the deserving scale was measured by three questions. Possible scores for the wanting scale could range between 3 and 20 with higher scores representing stronger wanting. Possible scores for the deserving scale could range between 3 and 13 with higher scores representing a stronger feeling of deserving. Prior psychometric testing indicated wanting and deserving are crucial preconditions of relative deprivation. This was confirmed by the Cronbach's alpha scores obtained by Fallacaro (1993) of 0.81 for wanting and 0.74 for deserving. Reliability of relative deprivation scale was assessed using Cronbach's alpha (Fallacaro, 1993), the most widely used and most suitable measure of internal consistency (de Vaus, 2002). Reliability for determining relative deprivation was found to be 0.78 (Fallacaro & Wu, 1997) reflecting that the combination of questions used to calculate relative deprivation all measure relative deprivation (Polit & Hungler, 1999).

A non-identifying identification (ID) number was included to ensure that participants did not complete the survey more than once and as a check that non-qualified subjects did not complete the survey by accessing the electronic version. Demographic information including age, gender, marital status, children under 18 living at home, years as a CRNA, pay and scope of practice was collected; along with military service

information including rank, branch of service, years of active duty service, promotion opportunities, retirement eligibility, and deployment information. Data relating to years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy were examined as the antecedent factors of relative deprivation as well as to describe the participants.

The 124 question survey used by Crosby (1984) gathered demographic information along with information about jobs, family life, marriage and general questions. The population included employed men, employed women, and housewives in the town of Newton, Massachusetts, a suburb of Boston. The sample was found to be representative of the population of the United States population in many aspects, with the exception of median family income, which was found to be higher in the sample studied by Crosby (1982).

The survey utilized by Fallacaro and Wu (1997) gathered data using a two part instrument consisting of 54 questions. Part one was comprised of 18 questions about demographic information including age, gender, marital status, children living with you, education level, educational preparation to become a CRNA, years as a CRNA, primary employer, place of employment, employment status (full-time, part-time, other), hours/week worked, annual salary, supervising physician, degree of medical supervision, degree of independent decision making, input into anesthesia department policies, performance of regional anesthesia, central line placement. Part two of the instrument included 36 questions from Crosby's tool to determine deprivation score, dissatisfaction, the psychological preconditions of wanting, comparison others, deserving, past

expectations, future expectations and no self-blame. The population studied by Fallacaro and Wu (1997) was all CRNAs actively practicing in New York State.

It was estimated that subjects would spend less than 20 minutes to complete the survey for the current study. This was established by having a test group of ten CRNAs take the survey. The time to take the survey ranged from 8-13 minutes.

Procedures

Sample Selection

Prospective subjects were selected from membership of the American Association of Nurse Anesthetists (AANA). AANA was instructed to select all nurse anesthetists who met the following inclusion criteria.

1. Active membership in AANA;
2. On active duty in Army, Navy or Air Force;
3. Had passed the certification examination; and
4. Hold current credentials as a nurse anesthetist.

This information is gathered annually using the membership survey sent to all AANA members. Based on information from the AANA database, 435 nurse anesthetists met the inclusion criteria. Three sets of mailing labels for these nurse anesthetists were mailed to the investigator.

Recruitment was accomplished via mail using the address labels provided by AANA. A detailed letter (Appendix C) was mailed to prospective subjects on October 6, 2005. It described the research and invited the addressees to participate in the study by completing the enclosed, self-administered survey (Appendix D). In an effort to increase

the response rate, a postcard reminder (Appendix E) was mailed one week later (October 13, 2005). Finally, a second copy of the survey and cover letter (Appendix F) were mailed to non-responders on November 3, 2005. The investigator collected data for four months from the initial mailing.

An additional strategy to increase participation was the provision for participants to answer the survey online. The Georgetown University Information Services division known as KeyBridge was utilized to allow online participation. KeyForm, a customized product of KeyBridge, was utilized. The product allowed the survey to be reproduced such that participants could securely access the survey (KeyBridge website, 2003). The survey response rate is discussed in Chapter 4.

The surveys had non-identifying ID numbers ranging from 1009-1444 (N = 435) to ensure that participants did not complete the survey more than once and serve as a check of qualification for those answering electronically. Three sets of mailing packets were collated prior to affixing labels. Each packet, containing mailing one (letter and survey), mailing two (postcard) and mailing three (follow-up letter and survey), had the same non-identifying ID number. The collated packet system assured that the subject received the same number with each mailing. To protect confidentiality, addresses were obtained as self-peel labels which were placed on arbitrary packets; numbers did not follow sequentially with names or addresses so that there was never a list linking subject identity and non-identifying ID number.

Data Collection and Recording

In order to submit the survey via hard copy, the subject completed the hard copy survey received in the mail, placed it in the stamped, addressed return envelope and returned it via the United States Postal Service (USPS). In order to submit the survey electronically, the subject accessed the website (http://keyform.georgetown.edu/form.cfm?FormID=973) designated in the letters (Appendices C and F) and postcard (Appendix E), filled in the non-identifying ID number, and completed the survey as directed on the website.

The research team maintained confidentiality of records for those collected via hard copy and online (via KeyForm). For all of the surveys that were completed, individual data was stored with a non-identifying ID number. This number was placed on the surveys that were sent out and was consistent for the first and second surveys, as well as the postcards, for each potential participant. For the surveys that were completed online this non-identifying ID number was elicited on the survey completed by the participant. Access to data files that contain identifying information was secured with a filing system that was restricted to authorized project staff only, essentially the principal investigator. For the surveys that were completed online, all information in the survey was gathered online via a ColdFusion interface to an MS Access database. This database resided on a server under the control of Georgetown University Information Services and was housed in a dedicated server room with 24 hour security. The server was protected by all standard University firewalls. Access to this database online was available only to the administrator of the survey and any Georgetown employee she designated, as well as members of the Internet Development Group, the developer of the database and

ColdFusion interface. All access was via a unique Georgetown identifier (NetID) and password, known only to the individual. All Georgetown University employees were governed by the Information Security Policy (http://www.georgetown.edu/policy/technology/security.htm) and Georgetown University Computer Systems Acceptable Use Policy (http://www.georgetown.edu/policy/technology/acceptuse.htm). Specifically, server administrators such as the employees of the Internet Development Group were governed by the Guidelines for Systems and Network Administrators (http://www.georgetown.edu/policy/technology/guidelines.htm).

Analysis Plan

Descriptive and inferential statistics were used to analyze the data collected. Descriptive statistics were used to depict the demographics of the sample studied. Inferential statistics were used to evaluate correlations of antecedent and psychological factors with relative deprivation. Prior to analysis, the variables were screened. For this correlational model, the independent variables (IVs) were the antecedent factors of years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy and the psychological factors of wanting and deserving. The dependent variable (DV) was relative deprivation. Categorization, measure, coding and level of measurement for all variables are presented Table 2. An expanded version of the data collected is presented in Appendix G.

Table 2: Variables

Category	Measure	Coding	Level of measurement
Demographic Independent variable	Years as a CRNA	##	Interval
Demographic Independent variable	Pay	######	Ratio
Practice/ Autonomy Independent variable	Scope of practice	5 = Total autonomy 4 = High degree of autonomy 3 = Average degree of autonomy 2 = Low degree of autonomy 1 = No autonomy	Ordinal
Military service information Independent variable	Promotion	1 = Yes 2 = No	Nominal
Psychological factor Independent variable	Wanting (scores)	27 is scored inversely where a respondent's choice of 1 is scored with a 10 and a choice of 10 is scored with a 1. The total scores for questions 25 & 26 are summed together and added to inverse scores of 27 to give a total wanting score. The wanting scores may range from 3-20 with the higher scores representing stronger wanting.	Interval
Psychological factor Independent variable	Deserving (scores)	The mean score of the six components of question 30 is added to the raw scores of questions 28 & 29 to give a total deserving score. The deserving scores may range from 3-13 with the higher scores representing stronger deserving.	Interval
Relative deprivation Dependent variable	Relative deprivation (scores)	The mean score of the seven components of question 33 are added to the scores for 31, 32 & 34 to give a total deprivation score. The deprivation scores may range from 1-30 with the higher scores representing stronger felt deprivation.	Interval

Independent Variables

Antecedent Factors

Years as a CRNA, pay, promotion, and scope of practice/autonomy were the antecedent factors that were utilized as independent variables. A variety of factors have been studied about job satisfaction among nurse anesthetists (Thompson, 1981; Brown, Chase & Freeborn, 1987; Weedlun-Dairin & Cuddeford, 1994; Fallacaro & Wu, 1997). There were two unpublished studies specifically examining military CRNAs. Determinants of satisfaction included autonomy, pay, promotion, professional status, the importance of interactions, task requirements, organizational policies, lack of respect, overwork, location of assignments, and family separation were identified as being influential (Martino, 1990; Chaney, 1991). The "Pay-Promotion-Practice Policies Triad" has been identified as essential to recruitment and retention of military CRNAs.

Years as a CRNA was chosen as an independent variable as the incentive specialty bonus paid to military nurse anesthetists may be tied to their years as a CRNA and obligated service for training. It was a self-reported interval level variable.

Pay has been identified in previous studies and fit the "Pay-Promotion-Practice Policies Triad". It was assessed examining self-reported annual salary, and is a ratio level variable.

Promotion, also identified in previous studies, fit the "Pay-Promotion-Practice Policies Triad" and was self-reported. It was assessed examining reported history of promotion when eligible (ever passed over for promotion), a nominal level variable.

Scope of practice, as represented by autonomy, was identified in previous studies and fit the "Pay-Promotion-Practice Policies Triad" and was self-reported. It was assessed examining a five level description of degree of autonomy, as an ordinal level variable.

Psychological Factors

Wanting and deserving were the two psychological factors that were independent variables. They were both interval level variables. Wanting and deserving had been identified by Crosby (1982) and confirmed by Fallacaro and Wu (1997) to be the most relevant preconditions leading to relative deprivation.

Wanting occurs when there is a desire for some object or opportunity (Crosby, 1982). It was evaluated based on previously established and tested questions. There were four questions whose coding and scores were combined to arrive at a wanting score. The questions and scoring to calculate wanting are presented in Table 3.

Table 3: Wanting Questions

Question number	Question	Scoring
24	Ideally, what is the ONE thing you want most as a military nurse anesthetist?	Fill in blank. Not scored.
25	How close does your present job come to actually giving you the thing you listed in question 24?	Very close = 1 Somewhat close = 2 Not very close = 3 Not at all close = 4
26	During the past month, how often have you felt that you wanted more from your job than you are getting from it now?	Never = 1 Not very often = 2 Once a week = 3 A couple of times a week = 4 At least once each day = 5 Constantly = 6
27	Thinking about your job right now, and taking everything into account, how much does your job fulfill your wants? Give the job a score between 1 (if it fails totally) and 10 (if it succeeds absolutely) by circling the ONE appropriate number below.	Scored inversely where a respondent's choice of 1 was scored with a 10, 2 as 9, 3 as 8, 4 as 7, 5 as 6, 6 as 5, 7 as 4, 8 as 3, 9 as 2 and a choice of 10 was scored with a 1.

Question 24 was a fill in the blank and not scored. The total scores for 25-26 were summed together and added to inverse scores of question 27 to give a total wanting score. The wanting scores could range from 3-20 with the higher scores representing stronger wanting.

Deserving occurs when there is a feeling of entitlement to an object or opportunity (Crosby, 1982). It was evaluated based on previously established and tested questions. There were three questions whose coding and scores were combined to arrive at a deserving score. The questions and scoring to calculate deserving are presented in Table 4.

Table 4: Deserving Questions

Question number	Question	Scoring
28	In view of your training and abilities, is your present job as good as it ought to be?	Definitely = 1 Probably = 2 I'm not sure = 3 Probably not = 4 Definitely not = 5
29	Would you say that your pay and fringe benefits are:	Better than you deserve = 1 What you deserve = 2 Slightly less than you deserve = 3 Much less than you deserve = 4
30	Rate each of the following aspects of your job: Number of Hours, Chances for Advancement, Challenge, Respect & Prestige, Job Security, and General Work Conditions)	Calculate the mean score. Better than I deserve = 1 What I deserve = 2 Slightly less than I deserve = 3 Much less than you deserve = 4

The mean score of the six components of question 30 were added to the raw scores of questions 28 & 29 to give a total deserving score. The deserving scores could range from 3-13 with the higher scores representing a stronger sense of deserving.

Dependent Variable

The dependent variable in this study was relative deprivation. It was an interval level variable. Relative deprivation has been utilized in many of the social sciences to explain feelings which appear to contradict circumstances and has been linked to grievance and job discontent. It was thus chosen as the theoretical model to evaluate the population of military CRNAs. Identification and analysis of the factors that influence relative deprivation among military CRNAs was important to address during this time of critical shortage of CRNAs. Relative deprivation was evaluated based on previously established and tested questions. There were four questions, whose coding and scores were combined to arrive at a relative deprivation score. The questions and scoring to calculate relative deprivation are presented in Table 5. The scores for the relative deprivation questions were summed together to give a total deprivation score. The deprivation scores could range from 1-30 with the higher scores representing stronger felt deprivation.

Analyses

Descriptive statistics were used to depict the study group with regard to age, gender, marital status, children, pay, years as a CRNA, scope of practice, rank, branch of service, years of active duty service, retirement eligibility and deployment information.

Inferential statistical analyses focused on measurement of the independent and dependent variables and correlation of the variables with emphasis on the individual hypotheses. Several tests were utilized to test Hypothesis #1 (Antecedent factors of years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy are

Table 5: Relative Deprivation Questions

Question number	Question	Scoring
31	Think for a second about the last two days at work. Which of the following emotions (38 listed) did you feel at any time during the last two day while at work? (please circle ALL that apply)	Resentful and Deprived = 3 Anger, Bitter, and Infuriated = 2 Annoyed = 1 Grateful = –2 Any other options = 0
32	Within the LAST YEAR, how often have you felt that work is a gratifying experience?	Almost all the time = 1 Every day = 2 A couple of times a week = 3 About once a week = 4 About once a month = 5 Only once or twice/year = 6 Almost never or never = 7
33	Within the last year in your current position, how often have you felt some sense of grievance concerning each of these aspects of your job? Pay and Fringe Benefits, Number of Hours, Chances for Advancement, Challenge, Respect & Prestige, Job Security, and General Work Conditions (circle the one number which best applies)	Never = 1 Seldom = 2 Occasionally = 3 Frequently = 4 Always = 5
34	Regarding people (other than your co-workers) who you come in contact with on your job, within the last month have other people let you down?	Never = 1 Hardly ever = 2 Sometimes = 3 Fairly often = 4 Very frequently = 5

related to feelings of relative deprivation in active duty military CRNAs). The relationship of each individual antecedent factor with relative deprivation was examined. Pearson's product-moment correlation coefficient was utilized to investigate the individual relationships of 'years as a CRNA' and 'pay' with relative deprivation. Pearson's product-moment correlation coefficient is a parametric test used to determine the relationship between two variables. Assumptions for this statistic were: interval measurement of variables, normal distribution of at least one variable, independence of observational pairs and homoscedasticity, indicating equal variance (Burns & Grove,

2005). These assumptions were analyzed once the data was collected. Results provided information about the strength and direction of the relationship with a range of -1 to +1. A relationship of 0.1 - 0.29 is weak, 0.3 – 0.5 is moderate and above 0.5 is strong (Burns & Grove, 2005).

An independent-samples *t*-test was used to examine the hypothesized relationship between promotion opportunities and relative deprivation. The independent-samples *t*-test is a parametric assessment used to examine whether means for two independent groups are significantly different from each other. For this analysis the two independent groups were considered to be those CRNAs who had been passed over for promotion and those CRNAs who had not been passed over for promotion. Assumptions for this statistic were: test variable is normally distributed in each of the two groups (with a large sample the assumption may be violated), variances of the normally distributed test variable for the groups are equal (all compute an approximate *t* test that does not assume equal variance), all observations within each sample are independent (Green, Salkind & Akey, 2000) and the dependent variable is measured at the interval level. This test allows for reliance of results with violation of one of the assumptions (Burns & Grove, 2005). These assumptions were analyzed once the data was collected. Significance of the *t* statistic depends on the degrees of freedom. A *p* value was determined and compared with the significance level (Burns & Grove, 2005).

Analysis of Variance (ANOVA) was used to test the hypothesized relationship between scope of practice and relative deprivation. ANOVA is a parametric test used to determine differences among two or more groups by comparing the variability between

the groups and with the variability within the groups (Burns & Grove, 2005; Munro, 1997; Polit and Hungler, 1999). Group membership, considered to be the category of satisfaction one has related to scope of practice was used as one of the variables and relative deprivation as the other. Assumptions for ANOVA were: homogeneity of variance, independence of observations, normal distribution of the populations and interval level data (Burns & Grove, 2005; Polit, 1996). These assumptions were analyzed once the data are collected.

Pearson's product-moment correlation coefficient was also utilized to examine the relationships of relative deprivation and each psychological factor (wanting and deserving) to test Hypothesis #2 (Psychological factors of wanting and deserving are related to relative deprivation in active duty military CRNAs). The calculated scores of the variables wanting, deserving and relative deprivation were used.

Multiple regression analysis was utilized to examine Hypothesis #3 (Relative deprivation is dependent upon antecedent factors [years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy] and psychological factors [wanting and deserving] with the psychological factors having more influence on felt deprivation than the antecedent factors in active duty military CRNAs.) Multiple regression is a parametric test used to estimate the value of a dependent variable base on the value of more than one independent variable. Assumptions for multiple regression analysis were: multivariate normality (distribution is symmetrical), linearity (straight line relationship between two variables), homoscedasticity (variability in scores for one continuous

variable is roughly the same at all values of another continuous variable), and multicollinearity (correlation of variables) (Polit, 1996; Burns & Grove, 2005).

In order to determine violation of assumptions data screening utilizing residual analyses were conducted. (Burns & Grove, 2005; Tabachnick, 1996). Correlations between variables in the forms of multicollinearity (variables highly correlated) and/or singularity (variables are redundant, combination of two or more of the other variables) were all less than $r = 0.5$ (George & Mallery, 2006). A two step multiple regression analysis was conducted. First, the four antecedent factor scores were entered into the regression equation as model number one. In the second step, the two psychological factor scores were entered into the equation as model number two. A comparison of the amount of variance resulting from the two models was examined to determine the strength of influence of the various factors, validating, or not, the theory of relative deprivation.

Summary

The groundwork of the design, execution and analysis of relative deprivation in active duty military nurse anesthetists was set forth in this chapter. The descriptive, correlational study was conducted using a self-administered survey sent to 435 active duty Army, Navy and Air Force CRNAs.

The instrument was described along with distribution and scoring. The questionnaire incorporated questions eliciting demographic and military service information, as well as questions quantifying feelings of wanting, deserving, and relative deprivation. Antecedent factors (years as a CRNA, pay, promotion opportunities, scope

of practice/autonomy) and psychological factors (wanting and deserving) were measured and examined to determine their relationship to relative deprivation.

Surveys were distributed to subjects by mail and could be answered by mail or by secured website. It was hypothesized that antecedent factors (years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy) and psychological factors (wanting and deserving) correlate with relative deprivation. It was further hypothesized, based on the theory, that psychological factors would have more influence on relative deprivation than antecedent factors.

CHAPTER 4: RESULTS

This chapter presents the findings of the data collected. Correlation of years as a CRNA, pay, promotion, scope of practice, wanting and deserving with relative deprivation in active duty military CRNAs was evaluated. Response rate and characteristics of the sample are presented. The objective of this study was to explore variables which influence perceived deprivation of active duty military CRNAs.

Response Rate

Utilizing the population of 435 active duty CRNAs, accepting a margin of error of 5% with a confidence level of 95%, a sample size of 205 was estimated to be needed for adequate analysis (Raosoft, 2004). The value of the standard error, nature of the alternative hypothesis, size of significance criterion (α) and sample size may be provided by the researcher or estimated from prior studies (Gerald, 1991; Polit & Hungler, 1999). Since this population of active duty CRNAs has not been formally studied, the standard margin of error of 5% and confidence level of 95% have been chosen resulting in a sample size feasible to achieve with a population of this size and the expected return rate. In addition, representativeness protected against response rate bias. This is true even if the response rate was low, as the survey was adapted for a homogeneous group (Ma, Samuels, & Alexander, 2003). Representativeness provides that the elements of the sample analyzed match the characteristics of the population (Polit & Hungler, 1999).

Demographics (gender, age, years as a CRNA) of the entire population of active duty CRNAs were obtained to confirm the representativeness of the participants. Estimation of effect size is a challenge as there are few studies of this population to draw from and none that match the population exactly. As the population is of limited size (less than 450) the entire population was pursued to minimize risk of erroneous estimation of effect size (Burns & Grove, 2005; Polit & Hungler, 1999).

A current and ongoing challenge of sampling this population was the frequency of relocation. This was compounded by the world situation at the time of data collection, primarily the ongoing military campaigns in Afghanistan, Iraq and elsewhere; as military CRNAs were deployed for periods of weeks to many months, in addition to regularly scheduled transfers. Additional events which affected participants were hurricanes Katrina and Rita and the December 2005 tsunami in Indonesia. Military CRNAs deployed for tsunami and hurricane relief efforts and some were displaced due to hurricane damage to the bases where they were stationed. (Note: Information from one such CRNA indicated that the first mailing was received seven weeks after it was mailed at a site where she had been relocated.)

It was anticipated that a sufficient number of interested participants would respond to the survey as a result of using a variation of Dillman's (1974) approach to increasing mail questionnaire response rates with several reminders, in combination with facilitating online response capability. Of the surveys, received about 20% were completed on the designated website with the remaining 80% being returned via hard copy.

Two hundred thirty six usable surveys were received for an overall response rate of 54%. Twenty six of the 435 (5.9 %) respondents stated that they were no longer on active duty. Therefore, it could be assumed that 5.9 % of all surveys mailed went to CRNAs no longer on active duty. This would change the population to a total of 409 and thus the true response rate to 58% (236/409). Surveys and postcards were sent to all 435 addresses with the first two mailings. One hundred seventy nine had been returned or addressees had communicated that they were not part of the inclusion criteria by the time of the third mailing. Surveys with these IDs were eliminated so that 256 surveys and letters were sent out with the third mailing.

This compares with the response rate of 41.3% for the 1995 study of New York CRNAs conducted by Fallacaro and Wu (1997). The response rate was projected to be at least 50% based on the research of Dillman and extrapolated assumptions. The survey strategy incorporated mailed questionnaires with repeated reminders and the option of answering the survey electronically. This approach addressed the changes in society and the targeted population, utilizing the internet and access to computers, which have provided evolution in survey research methods (Dillman, Christenson, Carpenter, & Brooks, 1974; Schaefer & Dillman, 1997; Dillman, Totota & Bowker, 1998, Polit & Beck, 2004). Many respondents had access to computers at work and at home which they use on a regular basis. This was considered to have enhanced the estimated response rate.

The first response was received electronically the day after the first mailing. By the day of the second mailing, 15 electronic survey responses and 19 hard copy survey

responses had been received. Two phone messages were received by the primary investigator at the phone number listed in the cover letter with notification that the recipients had retired from the military. Two emails were received by the primary investigator requesting clarification. Responses to the inquiries were sent electronically. Following explanation, the recipients were satisfied with the answers provided and stated that they would complete or had completed the survey. The last survey received and included in the data analysis was received on January 28, 2006. Of note, postage rates had increased by this time and the respondent added additional postage to the stamped self-addressed envelope that was sent with the survey.

By the day of the third mailing, a total of 39 electronic survey responses and 140 hard copy survey responses had been received for a response rate of 41% if using n = 435 or 44% if using n = 409 considering the number who had communicated that they were not part of the inclusion criteria. It is difficult to estimate the impact of the second and third mailings as it took several weeks for the mailings to reach the recipients who were deployed or had been relocated. Several were returned stating that the recipient was deployed or were unable to be forwarded successfully. Based on the postmarks on the envelopes, twenty eight were received from addresses designated as APO (Army Post Office) or FPO (Fleet Post Office). Some of these were regular overseas bases, while some were deployed units. At least one was from an aircraft carrier but it was unclear if this ship was in port or underway.

Analysis

Descriptive and inferential statistics were used to analyze the data collected. The data were analyzed using SPSS® 14.0 for Windows (SPSS Inc., Chicago, IL, 2005).

Characteristics of the Sample

Demographics

Descriptive statistics were used to illustrate the demographics of the sample studied. Demographic data (age, gender, marital status, children under 18 were living at home, years as a CRNA, and annual salary) were used to describe the sample of respondents. Demographics of the sample were compared with those available for the population of military CRNAs, obtained from the AANA data base of January 2006 (N = 410), and the general population of all CRNAs, provided by the 2004 AANA Practice Profile Survey (n = 15,936), for age, gender, years as a CRNA and salary.

When age of the sample was analyzed it was noted that sample ages (n = 236) ranged from 29 to 58 years old with a mean of 42 years old and standard deviation of 5.65. Two and one half percent of the sample was older than 55 years old. This age distribution compared with that reported to the AANA for active duty military CRNAs (N = 410). Age ranged from 31- 65 years old, with a mean of 44. Five percent of the group was over 55 years old. The age distribution in the sample was consistent with that of the population of military CRNAs. This age distribution was compared with the overall age distribution that AANA reported in 2004 for the general population of CRNAs in the U.S. (n = 15,936- number who answered the survey) with a range of less

than 30 to over 65 years old and a mean of 48 years old; however, the percentage of CRNAs over 55 contrasted at 27%.

Gender composition of the sample revealed that 36% (n = 86) of the sample population were female and 64% (n = 150) were male. The gender distribution was consistent with the overall distribution reported to the AANA for active duty military CRNAs with reported distributions ratios of 36% (n = 148) female and 64% (n = 262) male. The gender distribution in the sample was consistent with that of the population of all military CRNAs. However, this gender distribution was inconsistent with the overall distribution that AANA reported in 2004 for the general population of CRNAs in the U.S. with a reverse gender distribution comprised of 55.7% (n = 8843) female and 44.3% (n = 7032) male.

When years as a CRNA (antecedent factor) of the sample were analyzed it was noted that the mean of the sample population was 7.6 years with a range from 1 to 31 and standard deviation of 5.1. It was determined to be normally distributed. This longevity in the profession was inconsistent with that AANA reported in 2004 for all the practicing CRNAs in the U.S. with 24.6% being a CRNA for 11-20 years and 40.8% being a CRNA for 21 or more years. However, the longevity was found to be consistent with the overall distribution reported to the AANA for active duty military CRNAs with a mean of 8.1 years. The years as a CRNA distribution in the sample were consistent with that of the population of military CRNAs.

Annual salary (antecedent factor) of the sample was analyzed. The range was from $54,000 to $165,000 with a mean of $102,397 and standard deviation of $21,134. It

was determined to be normally distributed. This salary was inconsistent with the salary reported to the AANA for active duty military CRNAs (mean of $87,726) and that for all the practicing CRNAs in the U.S. (mean of $129,864). Despite the apparent discrepancy in salaries for the sample and all military CRNAs, the sample was assumed to be representative based on previous consistencies. The reason for the discrepancy was likely the two year difference between when the salary data was collected, as there had been various bonuses, cost of living increases during that time and combat pay for those deployed to combat zones. Of interest, the data gathered from the sample with regard to self-reported satisfaction with current pay; 11% were very unsatisfied, 6% were moderately unsatisfied, 25% were unsatisfied; 34% were satisfied; 19% were moderately satisfied and 6% were very satisfied.

Table 6 is a comparison of the demographics of the study group compared to population of military CRNAs to show that respondents represented the population. Age, gender and years as CRNA were comparable. Salaries varied and this could be due to difference in time frame (2003 vs. 2005) with increase in salaries and change in specialty pay over the course of time. Military CRNAs were compared to the general population of CRNAs to demonstrate the necessity of studying military CRNAs as a distinct entity. The mean age of the general population of CRNAs was only slightly higher but there was a significantly greater percentage over 55 years old. There was an inversion of the female:male ratio. There were distinct discrepancies in years as a CRNA and pay. This demonstrates that the sample represented the intended population of military CRNAs which is distinct from the general population of CRNAs.

Table 6: Group Comparisons

	Study group (n = 236)*	All military CRNAs** (N = 410)	AANA practice profile**** (n = 15,936)
Age	mean = 42 range 29-58 2.5% >55	mean = 44 range 31-65 5.1% >55	mean = 48 range <30 - >65 27% >55
Gender	36% female 64% male	36% female 64% male	55.7% female 44.3% male
Years as CRNA	mean = 7.6	mean = 8.1	(n = 16,059) 24.5% 11-20 yrs 40.8% 21 or more yrs
Salary	mean = $102,397	Air Force (n = 58) $88,767*** Army (n = 85) $85,156 Navy (n = 70) $89,991	mean = $129,864

*data collected October 2005 – January 2006
**data provided January 2006
***Triservice salary data collected 2003
****2004 AANA Practice Profile Survey

Additional demographic data included information about marital status and children. Results of the study respondents revealed that 80% were married, 12% single, 6.5% divorced, 1% separated and less than 1% was widowed. Sixty percent had children under 18 years of age living at home, 40% did not. There was no information regarding marital status or children available for comparison for the populations of military CRNAs or CRNAs at large.

Military Specific Demographics

Military specific demographic data (branch of service, years of active duty service, rank, number of deployments since January 2003, total number of months deployed since January 2003 and if deployed to a combat zone since January 2003) were

used to describe military aspects of the sample of respondents. Proportionally 28% of respondents were Air Force, 39% were Army and 33% were Navy. This compares with data provided by AANA which revealed consistent ratios of 28% Air Force, 44% Army and 28% Navy, again supporting that the sample was representative of the population of military CRNAs.

Years of active duty military service of the survey respondents ranged from one year to more than 26 years with 3% having less than 5 years; 13% having 6-10 years; 26% having 11-15 years; 44% having 16-20 years; 11% having 21-25 years; and 3% having more than 26 years.

Proportionally, 20% of respondents were 0-3s (Captain in Air Force or Army, Lieutenant in Navy); 48% were 0-4s (Major in Air Force or Army, Lieutenant Commander in Navy); 25% were 0-5s (Lieutenant Colonel in Air Force or Army, Commander in Navy); 6% were 0-6s (Colonel in Air Force or Army, Captain in Navy); and less than 1% was >0-6 (General in Air Force or Army, Admiral in Navy).

Twenty seven percent of respondents had not been deployed; 42% had been deployed once; 20% had been deployed twice; 11% had been deployed three or more times since January 2003 (data was collected October 2005-January 2006). Proportionally, during the period stated, 27% had not been deployed; 25% had been deployed for five months or less; 30% had been deployed for 6-10 months; 12% had been deployed for 11-15 months; and 6% had been deployed for 16-20 months. Sixty percent of the respondents had been deployed to a combat zone. One could then surmise from previously presented data that there was an additional 10% who had been deployed to

non-combat zones. The number of months deployed varied by service with the Army representing the group with the most people deployed for the most months and the Air Force having the least number people deployed and for the shortest amount of time.

When queried about satisfaction with deployment requirements since January 2003; 12% were very unsatisfied; 6% were moderately unsatisfied; 16% were unsatisfied; 45% were satisfied; 7% were moderately satisfied; 8% were very satisfied and 6% did not respond. Some of the members of the sample that did not respond to this question were some who had not been deployed. It was intended that they too would answer this question to state whether or not it was satisfying to them to not be deployed. Dividing the deployment satisfaction into separate services, the majority show predominance at the satisfied level with a trend of the Air Force to be more satisfied than the other services and the Army to be less satisfied than the other services. This trend reversely parallels the amount of months deployed.

Practice and Career Demographics

Additional information gathered to provide background of the sample included details about scope of practice/autonomy, promotion opportunities, retirement eligibility, change in practice, and intent with regard to next set of orders. The degree of autonomy (antecedent factor) was determined using an ordinal level of measurement with an overwhelming majority (91%) reporting a high degree or total autonomy. Less than 1% of the study respondents stated that there was no autonomy, 1% rated the degree of autonomy as low, 8% rated it as average, 59% rated it as high, and 32% rated their anesthetic decision making as total autonomy. Satisfaction with practice autonomy was

also evaluated with less than 1% expressing than they were very unsatisfied or moderately unsatisfied, 2% expressed that they were unsatisfied, 17% expressed satisfaction, 22% moderate satisfaction and 58% expressed that they were very satisfied.

When queried if there had been a change in practice since January 2003, 30% said yes, 54% said no and 16% were undecided. Of those that answered that practice had changed, 12% stated that it had not had an impact on their job satisfaction, 20% stated that they were less satisfied, 4% were more satisfied, 12% were undecided.

When asked about promotion opportunities (antecedent factor) using a nominal level of measurement, 19% stated that they had been passed over for promotion some time during their military career. Eighty one percent had not been passed over. Proportionally 13% expressed that they were very unsatisfied with promotion opportunities; 3% were moderately unsatisfied; 15% were unsatisfied; 27% expressed satisfaction; 23% were moderately satisfied; and 19% were very satisfied with promotion opportunities.

At the time of the next set of orders 52% of study respondents are retirement eligible. Forty eight percent are not retirement eligible with 16% of the total sample having remaining education obligation. This trend was consistent among the services with close to 50% being retirement eligible and 10-20% having a remaining education obligation.

Thirty seven percent stated that at the time of their next set of orders they intend to retire. Fourteen percent did not intend to accept another set of orders; they are not retirement eligible and plan release from active duty. Twenty four percent do not have an

educational commitment and plan to accept another set of orders. Fifteen percent have an education obligation and will accept another set of orders. Ten percent were undecided whether they would accept another set of orders. These trends were similar among the services with the bulk of respondents planning to retire. The differences appear to be that the Air Force had a higher percentage that will accept orders and do not owe time. The Army had a higher percentage that will leave active duty that are not retirement eligible. The Navy has the lowest percentage that will leave active duty who are not retirement eligible. Table 7 provides these results in tabular format.

Table 7: Retirement Eligibility and Intent with Next Set of Orders

	Air Force n = 67	Army n = 91	Navy n = 78	Total N = 236
Retirement Eligible	54% n = 36	45% n = 41	58% n = 45	52% n = 122
Not eligible, remaining obligation	10% n = 7	21% n = 19	15% n = 12	16% n = 38
Not retirement eligible	36% n = 24	34% n = 31	27% n = 21	32% n = 76
Retire	42% n = 28	36% n = 33	33% n = 26	37% n = 87
Leave AD, not retirement eligible	10% n = 7	23% n = 21	6% n = 5	14% n = 33
Undecided	5% n = 3	11% n = 9	16% n = 12	10% n = 24
Accept orders, do not owe education time	36% n = 24	12% n = 11	28% n = 22	24% n = 57
Accept orders, owe education time	7% n = 5	19% n = 17	17% n = 13	15% n = 35

Details of Study Variables

The prevalence in study respondents of the psychological factors of wanting and deserving and the concept of relative deprivation were as follows:

Wanting is a desire for some object or opportunity (Crosby, 1982). Wanting scores could and did range from 3 to 20 with a mean of 10 and standard deviation of 3.9. The scores were determined to be normally distributed. Ten percent had scores of 5 or less, indicating not much wanting; 41% scores 6-10; 37% had scores 11-15; and 12% had scores 16-20, indicating much wanting. Table 8 provides a comparison of the wanting scores of the separate services.

Table 8: Wanting Scores

Wanting scores	Air Force n = 66	Army n = 91	Navy n = 78	Total n = 235
<5	14% n = 9	11% n = 10	6% n = 5	10% n = 24
6 - 10	33% n = 22	37% n = 34	51% n = 40	41% n = 96
11 - 15	45% n = 30	34% n = 31	33% n = 26	37% n = 87
16 - 20	8% n = 5	18% n = 16	9% n = 7	12% n = 28

Deserving is a feeling of entitlement to an object or opportunity (Crosby, 1982). Deserving scores could range from 3 to 13. The sample deserving scores ranged from 4.67 to 12.67 with a mean of 8.21 and standard deviation of 1.79. Deserving scores were determined to be normally distributed. Six percent of study respondents had scores of 5 or less, indicating not much deserving; 52% had scores 6-8; 38% had scores 9-11; 4% had scores of 12 or 13 indicating much deserving. Deserving scores are extremely

consistent across the services. Table 9 provides a comparison of the deserving scores of the separate services.

Table 9: Deserving Scores

Deserving scores	Air Force n = 67	Army n = 91	Navy n = 78	Total n = 236
<5	6% n = 4	4% n = 3	8% n = 6	6% n = 13
6 - 8	55% n = 37	52% n = 47	50% n = 39	52% n = 123
9 - 11	34% n = 23	41% n = 37	38% n = 30	38% n = 90
12 - 13	4% n = 3	4% n = 4	4% n = 3	4% n = 10

Relative deprivation is a "...feeling of grievance depend(ing) on cognitive and emotional factors and not simply on objective factors"(Crosby, 1982). Relative deprivation scores could range from 1 to 30. Sample relative deprivation scores ranged from 3 to 25 with a mean of 9.85 and standard deviation of 1.79. Relative deprivation was determined to be normally distributed. Thirteen percent of study respondents had scores of 5 of less, indicating least deprivation. Fifty percent had scores 6-10. Twenty nine percent had scores 11-15. Six percent had scores 16-20. Two percent had scores 21-25, indicating most deprivation. Relative deprivation scores appear to be relatively consistent across the services. This is demonstrated in Table 10.

The scores for the psychological variables scores and relative deprivation were compared. Wanting scores ranged from 3 to 20 with a mean of 10.4. This compares with range of wanting scores Crosby collected when testing the relative deprivation theory using attitudes toward one's job (Crosby, 1982) with a mean of 9.40. Those individuals

Table 10: Relative Deprivation Scores

Relative deprivation scores	Air Force n = 67	Army n = 91	Navy n = 78	Total n = 236
<5	16% n = 11	9% n = 8	14% n = 11	13% n = 30
6 - 10	48% n = 32	51% n = 46	51% n = 40	50% n = 118
11 - 15	30% n = 20	32% n = 29	24% n = 19	29% n = 68
16 - 20	4% n = 3	8% n = 7	6% n = 5	6% n = 15
21 - 25	1% n = 1	0% n = 1	4% n = 3	2% n = 5

who were most deprived had mean wanting scores of 12.61. Those who were the least deprived had mean wanting scores of 5.96.

Deserving scores ranged from 3 to 13 with a mean of 8.2. This compares with range of deserving scores Crosby collected (Crosby, 1982) with a mean of 7.40. Those individuals who were most deprived had means deserving scores of 8.63. Those who were the least deprived had wanting scores of 5.90.

Deprivation scores ranged from 1 to 30 with a mean of 9.9. This compares with range of deprivation scores Crosby collected (Crosby, 1982) with a mean of 9.21. Those individuals who were most deprived had mean deprivation scores of 17.17. Those who were the least deprived had wanting scores of 3.05. The synopsis of wanting, deserving and relative deprivation scores and comparison to those found in Crosby's (1982) study are presented in Table 11.

Table 11: Comparison of Scores

	Possible Range	Sample Range	Sample Mean Scores	Crosby Mean Scores	Crosby Most Deprived	Crosby Least Deprived
Wanting	3 - 20	3 - 20	10.4	9.40	12.61	5.96
Deserving	3 - 13	4.7 – 12.7	8.2	7.40	8.63	5.90
Relative deprivation	1 - 30	3 - 25	9.9	9.21	17.17	3.05

Hypothesis Testing

Inferential statistics were used to evaluate correlations of antecedent factors and psychological factors with relative deprivation. The variables examined in the three hypotheses included years as a CRNA, pay, promotion opportunities, scope of practice/autonomy, wanting, deserving and relative deprivation.

Data Screening

Prior to analysis, the variables years as a CRNA, pay, promotion opportunities, scope of practice/autonomy, wanting, deserving and relative deprivation were assessed for accuracy of entry, missing data, outliers, normality, linearity, homoscedasticity, multicollinearity, and singularity.

Accuracy of Data Entry

Accuracy of entry was evaluated using descriptive statistics to ascertain whether variable values were appropriate and reasonable. A visual inspection of the data sheet was also conducted. All data was entered into a computer by an assistant who recorded the data read by the primary investigator; the exception being those surveys that were answered electronically. The coding of hard copy and electronic surveys were matched. It was noted that for several variables the coding of the hard copy data was inconsistent

with that of the electronic entry due to case designation of the entries (n vs. N) or spelling out the answer instead of using a letter (N vs. No). These discrepancies were remedied by standardizing all of the coding.

Missing Data

Missing data was evaluated using a visual inspection of the data sheet. In addition to the 236 usable surveys received, there were an additional 26 respondents who communicated that they had retired or were no longer in the military. Seven surveys or postcards were returned as undeliverable by the post office. Five representatives of addressees contacted the principal investigator to state that the addressee was unable to complete the survey because they were deployed. However, there were surveys returned from deployed CRNAs as determined by the return addresses and notes on the surveys. Two addressees communicated that they worked in a military treatment facility but that they were not active duty. Two respondents did not include enough information to calculate the psychological factors and relative deprivation. All of the above were dropped from the study. Two respondents did not include marital status. These were included in the study. Nine did not include annual salary. These were included in the study with the average salary used for analysis. One did not include practice satisfaction; three did not answer the question about why they accepted their last set of orders; one did not answer the question regarding number of months deployed; and thirteen did not answer the question about deployment satisfaction. Two did not answer the question about the one thing they want most as a military nurse anesthetist. These were all

included in the study. Four did not answer questions regarding psychological factors. Average scores were substituted for these answers.

Outliers and Normality

Outliers and normality were evaluated using measures of skewness and kurtosis. Normality was also evaluated using *Q-Q* plots. The shapes of the distributions were inspected vice using formal inference tests (Tabachnick & Fidell, 1996). The scatter plot and histogram for years as a CRNA showed positive skewness and some positive kurtosis. Salary was relatively normally distributed but was a bit flattened. The results for promotion opportunities and autonomy do not lend themselves to this evaluation. Wanting, deserving and relative deprivation all appear to be normally distributed with a slight positive skewness.

Linearity and Homoscedasticity

Linearity and homoscedasticity were evaluated using scatter plots. Scatter plots for all of the variables with the independent variables as the x-axis were reviewed. As noted above promotion and autonomy do not lend themselves to this. Years as a CRNA and annual salary did not meet this criteria. Wanting and deserving both appeared to roughly meet these screening criteria.

Multicollinearity and Singularity:

Multicollinearity and singularity were evaluated using collinearity diagnostics. Based on collinearity diagnostics with relative deprivation as the dependent variable, multicollinearity and singularity were satisfactory for analysis.

Hypothesis 1

The first hypothesis stated that the antecedent factors of years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy were related to feelings of relative deprivation in active duty military CRNAs. This was examined by utilizing years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy individually as independent variables with relative deprivation as the dependent variable. Calculated relative deprivation scores, an interval level variable, ranged from 3 to 25 with a mean of 9.85 and standard deviation of 1.79.

Years as a CRNA were examined by self-report as an interval level variable. The range was from 1 to 31 years with a mean of 7.6 years and standard deviation of 5.1 years. Pay was examined by self-report of annual salary as a ratio level variable. The range of annual salary was from $54,000 to $165,000 with a mean of $102,397 and standard deviation of $21,134. Pearson's product moment correlation was utilized to analyze correlation of years as a CRNA and pay with relative deprivation. Correlation coefficients were computed. Neither years as a CRNA ($r = 0.056$, $p = 0.393$) nor pay ($r = -0.046$, $p = 0.493$) were statistically significant with $p < 0.05$ required for significance.

Promotion opportunities were examined by self-report of whether or not the subject had ever been passed over for promotion and was a nominal level variable. The question could be answered yes, the CRNA had at some point in their career been passed over for promotion or no, they had never been passed over for promotion. An independent-samples *t*-test was conducted to evaluate correlation of promotion opportunities with relative deprivation. It indicated that the 44 (19%) who had been

passed over for promotion had a mean relative deprivation score of 10.78, the 192 (81%) who had never been passed over for promotion had a mean relative deprivation score of 9.64, and the means did not differ significantly at the $p < 0.05$ level ($p = 0.334$). However the sample sizes were unequal (44 and 192), therefore the results of Levene's test for equal variances not assumed was used to state results. The test was not significant, $t\,(61.81) = 2.43$, $p = 0.102$ with $p < 0.05$ required for significance.

Scope of practice/autonomy was examined by self-report of the degree of autonomy the subject had in anesthesia care decision making at their military treatment facility as an ordinal level variable. An analysis of variance (ANOVA) was utilized to evaluate correlation of scope of practice/autonomy with relative deprivation. The independent variable, autonomy, included five levels: no autonomy (1%), low (1%), average (8%), high (59%), and total (32%) autonomy. The ANOVA was not significant, $F = 0.238$, $p = 0.917$ with $p < 0.05$ required for significance. The strength of relationship between autonomy and relative deprivation, as measured by partial eta squared ($\acute{\eta}^2$), was weak with autonomy accounting for only 4% of the variance of the dependent variable.

These analyses do not support the first hypothesis.

Hypothesis 2

The second hypothesis stated that the psychological factors of wanting and deserving were related to relative deprivation in active duty military CRNAs. This was examined by utilizing wanting and deserving individually as independent variables with relative deprivation as the dependent variable. Wanting, deserving and relative deprivation, all interval level variables, were represented by calculated scores. Wanting

scores ranged from 3 to 20 with a mean of 10 and standard deviation of 3.9. Deserving ranged from 4.67 to 12.67 with a mean of 8.21 and standard deviation of 1.79. Relative deprivation scores ranged from 3 to 25 with a mean of 9.85 and standard deviation of 1.79.

Pearson's product moment correlation was utilized to analyze correlation of wanting with relative deprivation and correlation of deserving with relative deprivation. Correlation coefficients were computed. Both wanting ($r = 0.614$, $p = 0.000$) and deserving ($r = 0.521$, $p = 0.000$) were significantly correlated with relative deprivation at a significance level $p < 0.001$. These analyses support the second hypothesis and supports Crosby's theory of relative deprivation in this population.

Hypothesis 3

The third hypothesis stated that relative deprivation is dependent upon antecedent factors (years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy) and psychological factors (wanting and deserving) with the psychological factors having more influence on felt deprivation than the antecedent factors in active duty military CRNAs. A two step multiple regression analysis was conducted. First, the four antecedent factor scores were entered into the regression equation as model number one. In the second step, the two psychological factor scores were entered into the equation as model number two. A comparison of the amount of variance resulting from the two models was examined to determine the strength of influence of the various factors, validating, or not, the theory of relative deprivation.

Both wanting (ß = 0.528) and deserving (ß = 0.570) were significantly associated with relative deprivation at a significance level of $p< 0.001$ after controlling for antecedent factors. As expected from the lack of support for hypothesis 1 (i.e., antecedent factors were not correlated with relative deprivation), the first step of the regression (with antecedent factors) explained only 2 % of the variance in relative deprivation (r^2=0.02). When the psychological factors were added to the model, a statistically significant 45 % of the variance in relative deprivation was explained. These analyses partially support the third hypothesis and are consistent with that borne out in the first two hypotheses.

Summary

Chapter four presented findings for the three hypotheses tested in this study. In addition, characteristics of the sample are detailed. The first hypothesis (Antecedent factors of years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy are related to feelings of relative deprivation in active duty military CRNAs) was not supported by the analyses conducted. Results did support the second hypothesis (Psychological factors of wanting and deserving are related to relative deprivation in active duty military CRNAs). With the stated results of the first two hypotheses, the third hypothesis (Relative deprivation is dependent upon antecedent factors [years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy] and psychological factors [wanting and deserving] with the psychological factors having more influence on felt deprivation than the antecedent factors in active duty military CRNAs) becomes essentially irrelevant. The analysis using multiple regression

reconfirms the findings in Hypotheses 1 and 2. The ramification of these findings are relevant to strategy, policy and practice for retention and recruitment of military nurse anesthetists. This is addressed in chapter five.

CHAPTER 5: CONCLUSIONS AND SUMMARY

Chapter 5 presents the findings, implications, theoretical considerations, limitations, conclusions and recommendations for future research regarding perceptions of deprivation among active duty military CRNAs. Findings and implications are presented by topic area. The theoretical considerations of relative deprivation are examined. Limitations of the study are reviewed and expanded as influenced by events which occurred through the course of the study. Recommendations for future research are proposed. Conclusions regarding policy and program alternatives that influence satisfaction and ultimately retention and recruitment of military CRNAs are suggested.

The purpose of this study was to determine the relationship between antecedent factors and psychological factors with relative deprivation. The study was based on research conducted by Crosby (1982) who theorized that wanting (a desire for some object or opportunity) and deserving (a feeling of entitlement to an object or opportunity) were the most relevant preconditions leading to relative deprivation.

Findings and Implications

The demographics of age, gender, years as a CRNA and salary of the sample were compared to those military CRNAs in the data base of AANA and the general population of CRNAs in the data base. Demographics of the population were provided to support the need for and potential impact of this study. Demographics of the sample were consistent with the population of military CRNAs but not the general population of

CRNAs. Military CRNAs tended to be younger with fewer in the extremes of age. There are a significantly higher percentage of older CRNAs in the general population, 27% over 55 years old. Gender specifics were also distinct for the military CRNAs with approximately one third of military CRNAs being female compared to over half of the general population of CRNAs being female. Years as a CRNA particularly split out the specificity of the military group with an average of 8 years compared to the general population, 24.5% at 11-20 years and 40.8% with 21 or more years as a CRNA. The consistency of the demographics between the sample and the demographics of military CRNAs provided in the AANA database demonstrates that the sample represented the intended population of military CRNAs. The disparity between the sample of this study and the general population of CRNAs shows that military CRNAs are a distinct sub-group. It is important that they be studied as a separate group to address service and group specific issues.

It was noted that 80% of the sample was married. Sixty percent stated that they had children under 18 living at home. This family situation is likely higher than that in the general population of CRNAs due to the age discrepancy of the groups. The family situation of military CRNAs may influence satisfaction and career choices, the transfers and deployments inherent in military lifestyle impact the family as well as the military member.

Years of active duty and rank information was collected as these provide information regarding how close/far one is to/from retirement. Specifically, 58% had sixteen or more years and were already retirement eligible or would be at the time of their

next set of orders. The majority, 48%, were 0-4s (Major in Air Force or Army, Lieutenant Commander in Navy). These factors influence pay and may influence or indicate career, longevity plans. The closer one gets to twenty years of active service the more likely they are to retire.

Deployment information was collected as this has been a factor that has been a drastic change in the past 3-5 years and has had a dramatic influence on the lives of military members. It is important to consider that, expect for those who have entered training in the last three to five years, the world situation and life as a military CRNA was very different when the remaining CRNAs joined and trained. The number and length of deployments effect family and personal life, not just for those who are married and have children but also for those who are not married and do not have any children. This situation was not a consideration when the majority of the military CRNAs joined the military and chose anesthesia, a "high impact, low density" (very specialized, highly utilized, small community) specialty. At a May 2006 meeting with the Senate Subcommittee on Defense, Major General Gale S. Pollock, NC, USA, Chief of the Army Nurse Corps, stated that nurses are willing to deploy to combat operations "but the duration … is wearing them out…They don't have any relief." (Basu, 2006)

Intent to stay did not appear to correlate with relative deprivation scores. As supported by the outcome of the hypotheses, satisfaction and intent to stay are very complex and not directly related to expected factors, such as pay, scope of practice and promotion. There appears to be much more subjective criteria, such as feelings and

perceptions, than objective factors, such as pay and benefits, as well as more complex interactions of other variables influencing intent to stay.

The branch of service distribution was representative of the population as compared to the statistics provided by AANA. It was important that all services were represented as circumstances differ between the services. The Army is supplying the bulk of the personnel for current operations (CBO study, 2006). This is important when it comes to considering policy and programs of recruitment and retention. While comparison of the various services was not the focus of this study, analyses of the factors were examined for differentiation among the services. The comparisons of the services revealed the following distinctions:

The Army had more CRNAs over 39 years of age and had a higher percentage of males than the other services. The Army had more who had been CRNAs 2-4 years. There were more Army CRNAs who were very dissatisfied with pay. The Army had more junior CRNAs and a larger span with regard to years of active service. There were more junior Army CRNAs at the rank of 0-3 (Captain). The Army had been deployed for the longest periods of time. The Army was most dissatisfied with deployment. The Army had more who intended to release from active duty of those not yet eligible for retirement. The Army was the first of the services to grant multi-year bonuses and is the first, and currently only one, who offers full bonus to CRNAs with a remaining education obligation.

The Navy had more in the 35-39 year old age group and the most that were undecided what they would do at the time of the next set of orders. There is no specific

data presented, however speculation leads one to wonder if those undecided may be influenced by potential deployments and bonuses.

The Air Force had fewer CRNAs who had been CRNAs for more than 12 years. The Air Force had none in the categories of less than five years and over twenty-five years. There were no Air Force CRNAs above the rank of 0-5. Despite the fact that the distribution of years of active service was similar to other services, there were no Air Force CRNAs with more than 25 years of service, which there were in the other services. The Air Force had a higher amount of dissatisfaction with regard to promotion despite a similar pass over rate. The Air Force CRNAs had been deployed fewer times and for fewer months. Overall the wanting, deserving and relative deprivation scores were consistent among the services.

Wanting, the desire for some object or opportunity (Crosby, 1982), deserving, the feeling of entitlement to an object or opportunity (Crosby, 1982), and relative deprivation, "...feelings of grievance depend(ing) on cognitive and emotional factors and not simply on objective factors"(Crosby, 1982) were measured to test the theory of relative deprivation in military CRNAs. Wanting and deserving were correlated with relative deprivation, confirming the theory in this population. Of those participating in the study, 12.7% had relative deprivation scores correlating with those scores that Crosby identified as being in the least deprived group and less than 8% had scores correlating with those that Crosby identified as being in the most deprived group suggesting a proportionate number lacked grievance.

Years as a CRNA, pay, promotion opportunities and autonomy were measured to examine objective factors, referred to as antecedent factors, which may influence relative deprivation. Years as a CRNA were hypothesized to be correlated, positively or negatively, with relative deprivation. Military CRNAs with less years of service may have less relative deprivation due to enthusiasm for their new career. However, they may have more relative deprivation due to less pay or more time until career options available. Neither positive nor negative correlations were found.

Pay was hypothesized to correlate with relative deprivation. Pay for military CRNAs is based on a variety of factors such as rank, time in service, duty station, educational obligation, years of committed service, among others. This was important to examine as it has been cited in the literature and there is a discrepancy between civilian salaries, particularly among the junior ranks and those with fewer years of service. There is also limitation in compensation for additional hours worked. Military CRNAs do earn hazardous duty pay if deployed to a combat zone. It has been one approach used to influence recruitment and retention. Yet there was not a correlation with the actual salary. There was a correlation with the satisfaction with salary.

Promotion opportunities were hypothesized to correlate with relative deprivation. Promotions are based on time in current rank, education, collateral duties, demonstration of leadership, evaluations, among other things. As with pay, promotion opportunities did not correlate with relative deprivation but (dis)satisfaction with promotion did correlate. There were no CRNAs in the Air Force at the rank of 0-6. This leaves a void in leadership to the CRNAs of junior ranks and also does not provide much incentive to

aspire to promotion after the rank of Lieutenant Colonel. There is nothing apparent in the review of literature or in the data of this study to confirm this, however based on discussions with Air Force CRNAs the requirements to make rank and the duties of a CRNA appear to become mutually exclusive as one gets more senior.

Scope of practice/autonomy was hypothesized to correlate with relative deprivation. It has been standard of practice in the services that CRNAs were expected to practice autonomously. This is of particular importance at remote and small duty stations and in combat situations. There has been some variance regarding scope of practice among military CRNAs based on duty station and service. Thus, this is important to evaluate. There was no correlation between scope of practice and relative deprivation. Satisfaction with scope of practice did correlate.

The correlation of the satisfaction with pay, satisfaction with scope of practice and satisfaction with promotion with calculated relative deprivation scores supports the vetting of relative deprivation as a measure of job satisfaction. The failure of the antecedent factors (years as a CRNA, pay, promotion, and scope of practice) to correlate with relative deprivation presents the discrepancy between quantitative and qualitative aspects of satisfaction and the complexity of addressing the issue. Adding to this complexity are the complications created by the combination of the career as CRNA with a career as military officer.

Theoretical Considerations

Relative deprivation can be explained as the feeling of grievance that develops in people who lack an object or opportunity that they want, they see that others have, they

feel entitled to, they think was/is attainable, they think may not be attainable in the future, and they do not blame themselves for not possessing (Crosby, 1976). This grievance has been interpreted as a perception of resentment when a disparity exists between actual and desired objects or opportunities and when the disparity continues between actual objects or opportunities and those earned (Fallacaro & Wu, 1997). The concept of relative deprivation was initially used to look at individuals or groups who were in unfortunate circumstances, but it has since been expanded to look at more advantaged individuals and/or groups. It was those selected as the foundation for this study. The theory was supported in the sample studied. Both wanting and deserving were correlated with relative deprivation.

Limitations of the Study

The results of this study have added to the knowledge of satisfaction and contributing factors in the population of military nurse anesthetists. However the following limitations impact the reliability and ability to generalize the results.

The military community is a mobile one, often moving every three years. Current world events contributed to even more moves as evidenced by the reported number of times that CRNAs were mobilized, in addition to regular moves. There were also several natural disasters, tsunami and hurricanes, which accounted for additional mobility. The mobility of the population contributed to the inability of the investigator to reach potential participants.

The number of CRNAs in the military was relatively small, less than 450, compared to the population of more than 30,000 CRNAs in the United States. Contacting

the entire population was indicated. Access to information was limited. Each branch of the military is an individual entity and has its own requirements regarding access to personnel and information. Thus, contact information was gained through the national certifying organization. This was less direct and less current, resulting in at least a 5.9% discrepancy in the population.

The vastness of influences and complexity of factors, such as the number and timing of moves, the number and timing of deployments, family situations (marriage, children, parent… issues), and changing world situation, threaten internal validity. It is impossible to quantify or control for these factors.

An additional limitation may be that the population and sample were based on military CRNAs who were members of AANA which is not a requirement. However over 90% of the nurse anesthetists in the United States are members of AANA. Utilizing these numbers, the potentially missed participants would not significantly affect the results of this study.

The use of self-reported measures may limit the reliability of the findings. Based on the population studied, it is assumed that the measures are as accurate as can be expected.

Implications for Future Research

While this study provided information it also provided guidance for specifications of future research studies:

It would be important to study those CRNAs who were no longer on active duty, whether they retired or were released from active duty prior to retirement. Questioning

these individuals along with their counterparts who chose to stay would be particularly important.

A longitudinal study from the time of application to the military or anesthesia education through release from active duty/retirement and follow-up would provide information about perceived deprivation through the course of one's career. What would have to be carefully tracked here would be world events that may effect the population.

It may be best to start with focus groups to address some of the following questions:

- What factors drew military CRNAs to the profession of nurse anesthesia?
- What factors drew military CRNAs to a career in the military?
- What do military CRNAs like most about being a military CRNA?
- What do military CRNAs like least about being a military CRNA?
- What factors influence retention of nurse anesthetists following end of obligated service?
- What factors influence CRNAs to stay until active duty retirement eligibility?
- What factors influence CRNAs to stay beyond active duty retirement eligibility?

Conclusions

The purpose of this study was to determine the relationship between antecedent factors and psychological factors to relative deprivation. This study provided support for the complexity of tangible factors (facts vs. feelings) and satisfaction as represented by the concept of relative deprivation. Policy and program alternatives should support the level of autonomy currently practiced in the military services. This was the area where military CRNAs were consistently most satisfied. Pay and promotion programs need to be closely evaluated as there was some dissatisfaction in these areas. Despite a clear cut

correlation these are factors that are able to be manipulated to influence recruitment and retention. Problems with recruitment and retention that are effecting the population now may not be realized for several years so the services need to stay ahead of the curve. The ironic possibility is that due to the complexity of the issues involved some military CRNAs may leave active duty even if relatively satisfied with their job as a military CRNA.

Based on these analyses, in order to avoid discontent among active duty military nurse anesthetists, efforts should focus on the psychological factors wanting and deserving. The bottom line is that there is competition with the civilian sector. The choice to become and stay a military CRNA must address those issues which would lure CRNAs to the civilian community. At this time the predominating factors are salary and deployments. Salary issues are being addressed with increases in bonuses. The deployment issue may be a vicious cycle. If CRNAs leave the military due to frequency and length of deployments the frequency and length of deployments for those left behind will increase. Further research is indicated to identify other factors which can be modified to improve feelings of deprivation as they relate to retention and recruitment of military CRNAs.

"...sometimes...the better off one is, the worse off one feels..."
Faye J. Crosby (1982)

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Appendix A

VCU Institutional Review Board Approval

VCU Institutional Review Board Approval

MCV Campus

Office of Research Subjects Protection

Sanger Hall, 1-023
1101 East Marshall Street
P.O. Box 980568
Richmond, Virginia 23298-0568

804 828-0868
Fax: 804 827-1448
(TDD: 1-800-828-1120

DATE: August 17, 2005

TO: **Michael D. Fallacaro, CRNA, DNS**
Nurse Anesthesia
Box 980226

FROM: Ann Nichols-Casebolt, PhD
Chairperson, VCU IRB Panel B
Box 980568

RE: **VCU IRB #: 6805**
Title: Perceived Deprivation in Active Duty Military CRNAs

On August 15, 2005 the following research study ***qualified for exemption*** according to 45 CFR 46.101(b) Category 2. This approval reflects the revisions received in the Office of Research Subjects Protection on August 15, 2005. This approval includes the following items reviewed by this Panel:

PROTOCOL: Perceived Deprivation in Active Duty Military CRNAs
- Military CRNA Survey (received 08/15/05)

CONSENT/ASSENT:
Because the project is exempt from federal regulations, the procedures described in § 46.116 (Consent) and 46.117 (Documentation of Consent) are not applicable to your research study. Nevertheless, the Common Law of the Commonwealth of Virginia, as well as the canons of sound ethics require you to inform potential subjects of foreseeable risks and possible benefits (if any) associated with participation in your research study. Therefore potential subjects should be informed of foreseeable risks and possible benefits of participation in your research study. They should also be informed that they may refuse to participate in your research and they should understand that they might withdraw at any time without penalty. They should then be invited to provide verbal consent.

This process of informed decision-making should be documented along with other information associated with the study.

ADDITIONAL DOCUMENTS:
- Invitation Letter, version 08/16/2005 (received 08/15/05)
- Attachment C: Reminder Postcard (received 07/14/05)
- Reminder Letter, version 08/16/2005 (received 08/15/05)

This Institutional Review Board is in compliance with good clinical practices (GCP) as defined under the U.S. Food and Drug Administration (FDA) regulations and the International Conference on Harmonization (ICH) guidelines. Virginia Commonwealth University is approved by DHHS to conduct human subjects research under a Federal Wide Assurance #FWA00005287. **All correspondence related to this research study must include the IRB protocol number and the investigator's name(s) to assist us in locating your file.**

The Primary Reviewer assigned to your research study is Gayle Roux, RN, PhD. If you have any questions, please contact Dr. Roux at groux@vcu.edu or 828-0433; or you may contact Dana Andrews, IRB Coordinator, VCU Office of Research Subjects Protection, at dmandrews@vcu.edu or 828-3992.

Attachment – Terms of Approval

Appendix B

Permission from Dr. Crosby

Permission from Dr. Crosby

From:
Faye Crosby <fjcrosby@ucsc.edu>
To: Julie Pearson <japearso@mail2.vcu.edu>
Time: Sun, 1 Jun 2003 09:25:48 -0700
Subject: Re: Relative Deprivation tool

>of course you have my permission.

>of course you have my permission.

also - have you seen the work of Alexandra Corning? My I suggest
that you use her more extensive scale also? Alexndra and I have been
working (very slowly) on a project and we now a "group RD" version of
her "personal" or "egoistic" RD.

Good luck.
--
Professor Faye J Crosby
Psychology Department
University of California, Santa Cruz
Santa Cruz, CA 95064
tel 831 459 3568
FAX 831 459 3519

Appendix C

Letter, Mailing 1

Letter, Mailing 1

Dear Military Nurse Anesthetist--

You are invited to participate in a research study titled, "Perceived Deprivation in Active Duty Military CRNAs". The purpose of this study is to explore variables which influence perceptions of relative deprivation among Active Duty military CRNAs using the 'Theory of Relative Deprivation'. Funding for this research is being provided by the AANA Foundation. This study is NOT connected to or directed by your respective military service.

Your mailing address was obtained from the AANA. Your participation in this research, reading this introduction letter and completing the survey, will take approximately 20 minutes. The survey can be completed on the enclosed hardcopy and returned in the self-addressed stamped envelope or you can log on to http://keyform.georgetown.edu/form.cfm?FormID=973 and use this non-identifying ID number: _____ to register and complete the survey. The non-identifying ID number is to insure that participants do not complete the survey more than once and to prevent non-qualified subjects from answering electronically. Demographics and military service information are being collected to describe the respondent sample. The research may not help you personally but the results will assist my research on the factors effecting relative deprivation in Active Duty military nurse anesthetists.

In all publications and presentations of this research project, your anonymity will be protected as your identity is not traceable. The Institutional Review Boards of Virginia Commonwealth University, Richmond, VA and other Federal agencies who provide oversight for human subject protection have access to this research file in order to verify that your rights as a subject in this study have been safeguarded. The surveys contain no personal identifiers such as name, social security number, residence or duty station.

Your participation in this project is VOLUNTARY and your refusal to participate will involve no penalty or loss of benefits to which you are entitled. If you choose to participate, you are free to ask questions or to withdraw from the project at any time. You can stop answering the questions at any time. You do not have to answer any question you choose not to answer (although I encourage you to respond to all questions).

If you have any questions regarding this research project, you may contact me, Julie Pearson CRNA, PhD(c), at (703) 248-6906 or japearso@mail2.vcu.edu or Dr. Michael D. Fallacaro, chair of my research committee, at (804) 828-9808 or mdfallac@vcu.edu. If you have any questions about your rights as a participant in this study, you may contact: Office for Research Subjects Protection, Virginia Commonwealth University, 800 East Leigh Street, Suite 111, P.O. Box 980568, Richmond, VA 23298, Telephone: 804-828-0868

BY COMPLETING THE SURVEY, YOU WILLINGLY AGREE TO PARTICIPATE IN THE RESEARCH DESCRIBED ABOVE.

Thank you for your dedicated service,

Julie A. Pearson CRNA, PhD(c)

Appendix D

Survey

Survey

The purpose of this study is to explore variables which influence perceptions of relative deprivation among Active Duty military CRNAs. Funding for this research is being provided by the AANA Foundation.

This study is voluntary and NOT connected to or directed by your respective military service.

Your participation will assist my research about factors effecting relative deprivation in Active Duty military nurse anesthetists. Your participation will take approximately 20 minutes to answer the 34 questions.

Completion of the survey indicates your consent to participate.
THANK YOU.

Non-identifying ID numbers: _____

1. Age

_____*years*

2. Gender

Female
Male

3. Marital status

Married
Single
Separated
Divorced
Widowed

4. Children under 18 years of age living at home

Yes
No

5. Years as a CRNA

_____*years*

6. Annual salary (base pay, BAQ, VHA, specialty pay, certification pay, …)
[Total monthly <u>entitlement</u> on Defense Finance and Accounting Service Military Leave and Earnings Statement x 12 months, plus any lump sum payments]

$_____/year

7. Satisfaction with current pay:

Very satisfied
Moderately satisfied
Satisfied
Unsatisfied
Moderately unsatisfied
Very unsatisfied

8. How would you best describe the degree of autonomy you have in anesthesia care decision making at your military treatment facility?

Total autonomy
High degree of autonomy
Average degree of autonomy
Low degree of autonomy
No autonomy

9. Satisfaction with scope of practice/autonomy:

Very satisfied
Moderately satisfied
Satisfied
Unsatisfied
Moderately unsatisfied
Very unsatisfied

10. Years of Active Duty service

_____*years*

11. Branch of Service:

Air Force

Army

Navy

12. Rank:

2nd LT or ENS
1st LT or LTJG
CPT or LT
MAJ or LCDR
LTCOL or CDR
COL or CAPT
GEN or ADM

13. Have you ever been passed over for promotion?

Yes
No

14. Satisfaction with promotion opportunities:

Very satisfied
Moderately satisfied
Satisfied
Unsatisfied
Moderately unsatisfied
Very unsatisfied

15. Retirement eligibility: At the time of your NEXT set of orders, you will be:

Retirement eligible
Not retirement eligible, remaining education obligation
Not retirement eligible, completed education obligation

16. At the time of your LAST set of orders, you accepted orders because: (check all that apply)

You were NOT retirement eligible.
You had a remaining education obligation
You like being a military CRNA
You prefer the military practice environment
You like the people
You like the adventure
You did not want to deal with transition to civilian life

17. How many times have you been deployed since January 2003?

#_____deployments since January 2003

18. What is the total amount of time that you have been deployed since January 2003?

Deployed for total of _____months since January 2003

19. Satisfaction with deployment requirements since January 2003:

Very satisfied
Moderately satisfied
Satisfied
Unsatisfied
Moderately unsatisfied
Very unsatisfied

20. Have you been deployed to a combat zone since January 2003?

Yes
No

21. Have you noticed a change in military CRNA clinical practice since January 2003?

Yes
Undecided
No

22. If yes, has this had an impact on your job satisfaction?

Answered No to question 21.
Yes, more satisfied.
Yes, less satisfied.
Undecided.
No.

23. At the current time you intend to:

Accept another set of orders, owe time to military for education
Accept another set of orders, do not owe time to military for education
Undecided
Not accept another set of orders, release from active duty (not retirement eligible)
Not accept another set of orders, retire

24. Ideally, what is the ONE thing you want most as a military nurse anesthetist? (example- opportunity to serve country, equitable pay, time with family, opportunity to travel,…)

_____

_____

_____(fill in blank)

25. How close does your present job come to actually giving you the thing you listed in questions #24? (above)

Very close
Somewhat close
Not very close
Not at all close

26. During the past month, how often have you felt that you wanted more from your job than you are getting from it now?

Never
Not very often
Once a week
A couple of times a week
At least once each day
Constantly

27. Thinking about your job right now, and taking everything into account, how much does your job fulfill your wants? Give the job a score between 1 (if it fails totally) and 10 if it succeeds absolutely by circling the ONE appropriate number below.

1 2 3 4 5 6 7 8 9 10

28. In view of your training and abilities, is your present job as good as it ought to be?

Definitely
Probably
I'm not sure
Probably not
Definitely not

29. Would you say that your pay and fringe benefits are:

Better than you deserve
What you deserve
Slightly less than you deserve
Much less than you deserve

28. Rate EACH of the following aspects of your job:

Better than You Deserve	What You Deserve	Slightly Less than You Deserve	Much Less than You Deserve
Number of Hours			
[ ]	[ ]	[ ]	[ ]
Chances for Advancement			
[ ]	[ ]	[ ]	[ ]
Challenge			
[ ]	[ ]	[ ]	[ ]
Respect & Prestige			
[ ]	[ ]	[ ]	[ ]
Job Security			
[ ]	[ ]	[ ]	[ ]
General Work Conditions			
[ ]	[ ]	[ ]	[ ]

31. Think for a second about the last two days at work. Which of the following emotions did you feel at any time during the last two day while at work? (please circle ALL that apply)

1 Angry
2 Annoyed
3 Anxious
4 Ashamed
5 Bitter
6 Bored
7 Depressed
8 Deprived
9 Discouraged
10 Disgusted
11 Dislike
12 Dissatisfied
13 Distressed
14 Elated
15 Excited
16 Fearful
17 Frustrated
18 Grateful
19 Guilty
20 Happy
21 Hating
22 Hopeful
23 Indignant
24 Infuriated)
25 Joyous
26 Lonely
27 Loving
28 Proud
29 Relieved
30 Remorseful
31 Resentful
32 Sad
33 Satisfied
34 Self-Confident
35 Trusting
36 Unhappy
37 Upset
38 Worried

32. Within the LAST YEAR, how often have you felt that work is a gratifying experience?

Almost all the time
Every day
A couple of times a week
About once a week
About once a month
Only once or twice/year
Almost never or never

33. Within the last year in your current position, how often have you felt some sense of grievance concerning each of these aspects of your job? (rate EACH aspect)

	Never	**Seldom**	**Occasionally**	**Frequently**	**Always**
Pay & Fringe Benefits	☐	☐	☐	☐	☐
Number of Hours	☐	☐	☐	☐	☐
Chances for Advancement	☐	☐	☐	☐	☐
Challenge	☐	☐	☐	☐	☐
Respect & Prestige	☐	☐	☐	☐	☐
Job Security	☐	☐	☐	☐	☐
General Work Conditions	☐	☐	☐	☐	☐

34. Regarding people (other than your co-workers) who you come in contact with on your job, within the last month have other people let you down?

Never
Hardly ever
Sometimes
Fairly often
Very frequently

Appendix E

Postcard reminder, Mailing 2

Postcard reminder, Mailing 2

Dear Military Nurse Anesthetist--

Approximately one week ago a survey titled "Perceived Deprivation in Active Duty Military CRNAs" was mailed to you. If you have completed the survey, **THANK YOU!** If not, please do so by using the survey and return envelope sent previously, one that will arrive in two weeks or log on to http://keyform.georgetown.edu/form.cfm?FormID=973 and use this non-identifying ID number: _____. Your participation in this research, reading this introduction letter and completing the survey, will take approximately 20 minutes. Your contribution to this project would be greatly appreciated.

Thank you for your dedicated service,
Julie A. Pearson CRNA, PhD(c)

Appendix F

Cover letter, Mailing 3

Cover letter, Mailing 3

Dear Military Nurse Anesthetist--

Approximately three weeks ago a survey titled "Perceived Deprivation in Active Duty Military CRNAs" was mailed to you. If you have completed the survey, **THANK YOU!** If not, please do so by using the enclosed survey and return envelope or log on to http://keyform.georgetown.edu/form.cfm?FormID=973 and use this non-identifying ID number: _____. The non-identifying ID number is to insure that participants do not complete the survey more than once and to prevent non-qualified subjects from answering electronically. Demographics and military service information are being collected to describe the respondent sample.

The purpose of this study is to explore variables which influence perceptions of relative deprivation among Active Duty military CRNAs using the 'Theory of Relative Deprivation'. Funding for this research is being provided by the AANA Foundation. This study is NOT connected to or directed by your respective military service.

Your mailing address was obtained from the AANA. Your participation in this research, reading this introduction letter and completing the survey, will take approximately 20 minutes.

The research may or may not help you personally but the results will assist my investigation about the factors effecting relative deprivation in Active Duty military nurse anesthetists.

In all publications and presentations resulting from this research project, your anonymity will be protected as your identity is not traceable. The Institutional Review Boards of Virginia Commonwealth University, Richmond, VA and other Federal agencies who provide oversight for human subject protection have access to this research file in order to verify that your rights as a subject in this study have been safeguarded. The surveys contain no personal identifiers such as name, social security number, state of residence or duty station.

Your participation in this project is VOLUNTARY and your refusal to participate will involve no penalty or loss of benefits to which you are entitled. If you choose to participate, you are free to ask questions or to withdraw from the project at any time. You can stop answering the questions at any time. You do not have to answer any question you choose not to answer (although I encourage you to respond to all questions).

If you have any questions regarding this research project, you may contact me, Julie Pearson CRNA, PhD(c), at (703) 248-6906 or japearso@mail2.vcu.edu or Dr. Michael D. Fallacaro, chair of my research committee, at (804) 828-9808 or mdfallac@vcu.edu. If you have any questions about your rights as a participant in this study, you may contact: Office for Research Subjects Protection, Virginia Commonwealth University, 800 East Leigh Street, Suite 111, P.O. Box 980568, Richmond, VA 23298, Telephone: 804-828-0868

BY COMPLETING THE SURVEY, YOU WILLINGLY AGREE TO PARTICIPATE IN THE RESEARCH DESCRIBED ABOVE.

Thank you for your dedicated service,

Julie A. Pearson CRNA, PhD(c)

Appendix G

Data and Coding Criteria

Data and Coding Criteria

Q #	Category	Measure	VarName	Coding	Level of measurement
--		ID number	ID	---	
--		Date received	DATEC	##-MON-05	
1.	Demographic	Age	AGE	##	Interval
2.	Demographic	Gender	GENDERC	1 = Female 2 = Male	Nominal
3.	Demographic	Marital status	MARITALC	1 = Married 2 = Single 3 = Separated 4 = Divorced 5 = Widowed	Nominal
4.	Demographic	Children under 18 living at home	DEPENDC	1 = Yes 2 = No	Nominal
5.	Demographic Independent variable	Years as a CRNA	YRSCRNA	##	Interval
6.	Demographic Independent variable	Annual salary Pay	ANSALARY	######	Ratio
7.	Demographic	Pay satisfaction	PAYSAT	6 = Very satisfied 5 = Moderately satisfied 4 = Satisfied 3 = Unsatisfied 2 = Moderately unsatisfied 1 = Very unsatisfied	Ordinal
8.	Practice/ Autonomy Independent variable	Anesthesia care decisions Scope of practice	AUTONOM	5 = Total autonomy 4 = High degree of autonomy 3 = Average degree of autonomy 2 = Low degree of autonomy 1 = No autonomy	Ordinal
9.	Practice/ Autonomy	Practice/Autonomy satisfaction	PRACTSAT	6 = Very satisfied 5 = Moderately satisfied 4 = Satisfied 3 = Unsatisfied 2 = Moderately unsatisfied 1 = Very unsatisfied	Ordinal
10.	Military service information	Years Active Duty service	YRSAD	##	Interval

11.	Military service information	Branch of service	BRANCH	1 = Air Force 2 = Army 3 = Navy	Nominal
12.	Military service information	Rank	RANK	1 = 2nd LT or ENS 2 = 1st LT or LTJG 3 = CPT or LT 4 = MAJ or LCDR 5 = LTCOL or CDR 6 = COL or CAPT 7 = GEN or ADM	Ordinal
13.	Military service information Independent variable	Promotion	PASSPROM	1 = Yes 2 = No	Nominal
14.	Military service information	Promotion satisfaction	PROMOSAT	6 = Very satisfied 5 = Moderately satisfied 4 = Satisfied 3 = Unsatisfied 2 = Moderately unsatisfied 1 = Very unsatisfied	Ordinal
15.	Military service information	Retirement eligibility	RETIRELIG	1 = Retirement eligible 2 = Not retirement eligible, remaining education obligation 3 = Not retirement eligible, completed education obligation	Nominal
16.	Military service information	Accepted last set of orders	LASTORDS	1 = I have a remaining education obligation 2 = I like being a military CRNA 3 = I prefer military practice environment 4 = I like the people 5 = I like the adventure 6 = Did not want to deal with transition to civilian life	Nominal
17.	Military service information	Times deployed since January 2003	TMSDEPLO	#	Ratio
18.	Military service information	Months deployed since January 2003	MTHSDEPL	##	Ratio

19.	Military service information	Deployment satisfaction	DEPLSAT	6 = Very satisfied 5 = Moderately satisfied 4 = Satisfied 3 = Unsatisfied 2 = Moderately unsatisfied 1 = Very unsatisfied	Ordinal
20.	Military service information	Deployment in combat zone since January 2003	COMBAT	1 = Yes 2 = No	Nominal
21.	Military service information	Change in clinical practice	CHNGPRAC	1 = Yes 2 = Undecided 3 - No	Nominal
22.	Military service information	Impact on job satisfaction	CHNGSAT	5 = Answered no to #21 4 = Yes, more satisfied. 3 = Yes, less satisfied. 2 = Undecided. 1 = No	Nominal
23.	Military service information	Intent to stay	INTSTAY	5 = Accept another set of orders, owe time to military for education 4 = Accept another set of orders, do not owe time to military for education 3 = Undecided 2 = Not accept another set of orders, release from active duty (not retirement eligible) 1 = Not accept another set of orders, retire	Nominal
24.	Wanting question	ONE thing wanted		(Fill in blank)	
25.	Wanting question	Wanted object given	WANTGIVE	1 = Very close 2 = Somewhat close 3 = Not very close 4 = Not at all close	Ordinal

26.	Wanting question	Wanted more	WANTMORE	1 = Never 2 = Not very often 3 = Once a week 4 = A couple of times a week 5 = At least once each day 6 = Constantly	Ordinal
27.	Wanting question	Wants fulfilled	WANTFILL	10 pts for 1 = Fails totally 9 pts for 2 8 pts for 3 7 pts for 4 6 pts for 5 5 pts for 6 4 pts for 7 3 pts for 8 2 pts for 9 1 pt for 10 = Succeeds absolutely	Ordinal
24, 25, 26, 27.	Psychological factor Independent variable	Wanting (scores)	WANTING	27 is scored inversely where a respondent's choice of 1 is scored with a 10 and a choice of 10 is scored with a 1. The total scores for questions 25 & 26 are summed together and added to inverse scores of 27 to give a total wanting score. The wanting scores may range from 3-20 with the higher scores representing stronger wanting.	Interval
28.	Deserving question	As good as it gets	DSRVGOOD	1 = Definitely 2 = Probably 3 = I'm not sure 4 = Probably not 5 = Definitely not	Ordinal
29.	Deserving question	Pay and fringe as deserved	DSRVPAY	1 = Better than you deserve 2 = What you deserve 3 = Slightly less than you deserve 4 = Much less than you deserve	Ordinal

30.	Deserving question	Other aspects (hours, advancement, challenge, respect, security, conditions) as deserved	Q30	mean score of the six components Scored for each aspect. 1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q30 hours	DSRVHRS	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q30 chance advancement	DSRVADV	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q 30 Challenge	DSRVCHAL	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q 30 Respect & Prestige	DSRVRESP	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q 30 Job Security	DSRVJSEC	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal
		Q 30 General Work Conditions	DSRVCOND	1 = Better than I deserve 2 = What I deserve 3 = Slightly less than I deserve 4 = Much less than you deserve	Ordinal

28, 29, 30.	Psychological factor Independent variable	Deserving (scores)	DESERVING	The mean score of the six components of question 30 is added to the raw scores of questions 28 & 29 to give a total deserving score. The deserving scores may range from 3-13 with the higher scores representing stronger deserving.	Interval
31.	Relative deprivation question	Emotions during last two days while at work	EMOTIONS	Resentful = 3 Deprived = 3 Anger = 2 Bitter = 2 Infuriated = 2 Annoyed = 1 Grateful = –2 Any other options chosen will be scored with a 0.	Nominal
32.	Relative deprivation question	How often work was gratifying over last year	GRATIFY	1 = Almost all the time 2 = Every day 3 = A couple of times a week 4 = About once a week 5 = About once a month 6 = Only once or twice 7 = Almost never or never	Ordinal

33.	Relative deprivation question	Grievance concerning aspects (pay, hours, advancement, challenge, respect, security, conditions) of job	GRIEVE	mean score of the seven components Scored for each aspect. 1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 pay	GRVPAY	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 hours	GRVHRS	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 chance for advancement	GRVADV	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 challenge	GRVCHAL	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 respect and prestige	GRVRESP	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 job security	GRVJSEC	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
		Q 33 General work conditions	GRVCOND	1 = NEVER 2 = SELDOM 3= OCCASIONALLY 4 = FREQUENTLY 5 = ALWAYS	Ordinal
34.	Relative deprivation question	How often people on job, other than co-workers, let you down.	LETDOWN	1 = Never 2 = Hardly ever 3 = Sometimes 4 = Fairly often 5 = Very frequently	Ordinal

31, 32, 33, 34.	Relative deprivation Dependent variable	Relative Deprivation (scores)	RELDEP	The mean score of the seven components of question 33, are added to the scores for 31, 32 & 34 to give a total deprivation score. The deprivation scores may range from 1-30 with the higher scores representing stronger felt deprivation.	Interval

Vita

Julie Ann (Donahue) Pearson was born to Emma L. and Thomas J. Donahue on August 6, 1957 in Ottawa, Illinois. She is an American citizen. After earning a Bachelor of Science degree in Nursing from Rush University in Chicago, Illinois in 1980 she was commissioned an Ensign in the US Navy Nurse Corps. While assigned to the Navy Nurse Corps Anesthesia Program she earned a Bachelor of Science degree from George Washington University in Washington, DC, completing her clinical training as a nurse anesthetist at the Naval Medical Center, San Diego, California in 1987. She married Barry D. Pearson in Okinawa, Japan on March 5, 1991. Returning to Rush University, she completed a Master of Science degree in Nursing in 1993. Since leaving Navy active duty in 1994, she has continued in an active drilling status in the Navy Reserves assigned to units in Illinois (1994-1997) and Maryland (1997-2006) and has been promoted to the rank of Captain. Julie has held clinical positions in Illinois (1994-1997) and Washington, DC (1997-2006) and an academic appointment as an Assistant Professor at Georgetown University, Washington, DC (1997-2005). Julie is currently assigned as a Navy Reservist to the Operational Health Support Unit, Naval Hospital, Marine Corps Base, Camp Lejeune, North Carolina and is employed as a nurse anesthetist at Craven Regional Medical Center in New Bern, North Carolina.