Perceived Deprivation in Active Duty Military Nurse Anesthetists

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There is a shortage of military Certified Registered Nurse Anesthetists (CRNAs). Relative deprivation is a perception of unfairness due to discrepancies between what one has and what one could or should have that is dependent on feelings (subjective data) and facts (objective data). Feelings of relative deprivation could contribute to the military CRNA shortage. The purposes of this study were to measure relative deprivation in active-duty military CRNAs and explore variables that correlate with relative deprivation.

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. Data were analyzed using descriptive and inferential statistics.

Analysis of the data revealed a calculated response rate of 57.7%. There was no significant correlation (P < .05) between years as a CRNA, military pay, promotion opportunity, or scope of practice/autonomy and relative deprivation. Correlations of the psychological factors “wanting” and “deserving” with relative deprivation were significant (P < .001).

Further research is indicated to identify definitive factors that can be modified to improve feelings of deprivation as they relate to retention and recruitment of military CRNAs.

Keywords: Military nurse anesthetists, nurse anesthesia workforce, relative deprivation, retention.
and emotional factors and not simply on objective factors.\textsuperscript{6} Relative deprivation has been used in the social sciences to explain feelings that seem to contradict objective circumstances.

Crosby\textsuperscript{6} theorized that psychological preconditions lead to relative deprivation. Originally, 6 psychological preconditions (wanting; comparison other; deserving; past expectations; future expectations; and (no) self-blame) were attributed to the development of relative deprivation (Figure 1). Later studies revealed that “wanting” and “deserving” were the most relevant psychological preconditions leading to feelings of relative deprivation. Wanting is defined as a desire for some object or opportunity. Deserving is defined as a feeling of entitlement to an object or opportunity.\textsuperscript{6} In essence, people will experience deprivation when they feel there is a discrepancy between their actual and desired outcomes and when they feel a discrepancy between their actual outcomes and the outcomes they feel they deserve. Feelings of relative deprivation influence job satisfaction that may impact military CRNAs’ intent to remain on active duty. Therefore, the ultimate manifestation of relative deprivation in military CRNAs would be their leaving the military.

Literature was reviewed on the topics of relative deprivation and job satisfaction. Stouffer et al\textsuperscript{7} introduced the concept of relative deprivation in a 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. Developing theorists used factors in a variety of combinations in different populations. Crosby\textsuperscript{6} studied working women and found that they had lower status positions and made less money than their male counterparts. Despite these disadvantages, women seemed more content with their jobs.\textsuperscript{6} Fallacaro and Wu\textsuperscript{8} tested Crosby’s theory of relative deprivation using all 6 psychological preconditions as they related to job satisfaction among civilian nurse anesthetists in New York State. They included comparative demographic data of gender, education, and autonomy. The results revealed that the psychological preconditions of wanting and deserving contributed more to feelings of relative deprivation than the demographic variables and that Crosby’s theory was supported in their study.\textsuperscript{8} The key to understanding relative deprivation is realizing that “people’s reactions to objective circumstances depend on their subjective comparisons.”\textsuperscript{5}

Job satisfaction was examined as it relates to the general population of nurses, military nurses, nurse anesthetists, and military nurse anesthetists. Factors influencing retention of military nurse anesthetists were found to include scope of practice; pay and compensation; promotion opportunities; number of hours worked per week; deployments; and frequency of moves.\textsuperscript{8,11} Factors drawing CRNAs to the civilian sector are thought to be the ever-increasing compensation packages. The “pay-promotion-practice policies triad” was identified as essential to recruitment and retention of military CRNAs. Based on the review of the literature, the independent variables selected to examine in this study were wanting, deserving, relative deprivation, pay, promotion, scope of practice, and years as a CRNA.

The purposes of the study were to measure feelings of relative deprivation in active-duty military nurse anesthetists, to explore which factors correlate with relative deprivation, and to validate or refute the Crosby theory of relative deprivation in active-duty military CRNAs.

Materials and Methods

This study incorporated a descriptive, correlational design using original data collection from a 34-question self-administered survey. The demographic information obtained included age, gender, marital status, and if there were children living at home. The military service information obtained included rank, branch of service, years of active-duty service, retirement eligibility, and deployment information. Questions and scales relating to wanting, deserving, and relative deprivation were those developed by Crosby and were used with consent. The independent variables were the antecedent factors of years as a CRNA, pay, promotion, and scope of practice and the psychological factors of wanting and deserving. The dependent variable was relative deprivation.

Prior psychometric testing indicated that wanting and deserving are crucial preconditions of relative deprivation. This was confirmed by the Cronbach $\alpha$ scores ob-
Reliability for determining relative deprivation was found to be .78.8

The study was approved by the Virginia Commonwealth University Institutional Review Board (No. 6005). The surveys were distributed via the US Postal Service to 435 active-duty Army, Navy, and Air Force CRNAs. Prospective subjects were selected from the membership of the American Association of Nurse Anesthetists. Three mailings were conducted. Surveys were answered by completing the hard-copy survey and returning it in the self-addressed, stamped envelope via US mail or by completing the survey on a secured website created for the study.

Results
Data were collected between October 2005 and January 2006. The calculated response rate was 57.7% (236/409). Of the questionnaires, approximately 20% were completed on the designated website and approximately 80% were returned via hard copy.

Demographics of the study group were compared with the population of military CRNAs to show that respondents represented the population (Table). Age, gender, and years as a CRNA were comparable. Salaries varied, and this variation could be due to a difference in time frame with increases in salaries and changes in specialty pay.

Military CRNAs were compared with the general population of CRNAs (see Table). The mean age of nonmilitary CRNAs was only slightly older, but there was a disparity in the percentage older than 55 years. There was an inversion in the female: male ratio between groups with men (~64%) outnumbering women (~36%) in the study group. The number of years as a CRNA was lower among military CRNAs. There were large discrepancies in pay between groups, with the study group’s mean salary of $102,397 compared with that of the general population CRNAs at $129,864.

There were 3 hypotheses proposed and tested in this study (Figure 2). Hypothesis 1 stated that 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. Independent variables were examined separately for relationship with relative deprivation scores. The Pearson product moment correlation was used to analyze the correlation of years as a CRNA and pay with relative deprivation. Analysis of variance was used to evaluate the correlation of autonomy with relative deprivation. An independent-sample t test was conducted to evaluate the correlation of promotion opportunities with relative deprivation scores. None of the antecedent variables were sig-

### Table. Group Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Study group (n = 236)</th>
<th>All military CRNAs (N = 410)</th>
<th>AANA practice profile (n = 15,936)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (range), y</td>
<td>42 (29-58)</td>
<td>44 (31-65)</td>
<td>48 (&lt;30 to &gt;65)</td>
</tr>
<tr>
<td>&gt; 55 y</td>
<td>2.5%</td>
<td>5.1%</td>
<td>27%</td>
</tr>
<tr>
<td>Gender, F/M, %</td>
<td>~36/~64</td>
<td>~36/~64</td>
<td>55.7/44.3</td>
</tr>
<tr>
<td>Years as CRNA</td>
<td>Mean, 7.6</td>
<td>Mean, 8.1</td>
<td>11-20 y, 24.5%; 21 y, 40.8%</td>
</tr>
<tr>
<td>Mean salary, $</td>
<td>102,397</td>
<td>Air Force (n = 58), 88,767%</td>
<td>Army (n = 85), 85,156; Navy (n = 70), 89,991</td>
</tr>
</tbody>
</table>

a Data obtained October 2005 to January 2006.
b Data provided January 2006.
c 2004 AANA Practice Profile Survey.
d n = 16,059.
e Triservice salary data obtained 2003.

Figure 2. Conceptualization of Relationships Tested in This Study
nificantly correlated with relative deprivation scores ($P < .05$). These findings did not support the first hypothesis.

Hypothesis 2 stated that the psychological factors of wanting and deserving are related to relative deprivation scores in active-duty military CRNAs. A Pearson product moment correlation was used to analyze the correlation of wanting with relative deprivation and the correlation of deserving with relative deprivation. Both were significantly correlated with relative deprivation scores at the significance level of $P < .001$. These analyses support the second hypothesis and support Crosby’s theory of relative deprivation in this population.

Hypothesis 3 stated that relative deprivation is dependent on the antecedent factors (years as a CRNA, pay, promotion opportunities, and scope of practice/autonomy) and the psychological factors (wanting and deserving) where the psychological factors have more influence on felt deprivation scores than the antecedent factors in active-duty military CRNAs. Based on the findings of hypotheses 1 and 2, the results of hypothesis 3 can be deduced. These were confirmed by a 2-step multiple regression analysis. As expected from the lack of support for hypothesis 1 (ie, 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 ($R^2 = .02$). When the psychological factors were added to the model, 45% of the variance was explained.

Service-specific information was also obtained and analyzed. Proportionally, approximately 28% of respondents were Air Force, 39% were Army, and 33% were Navy. This compares with data provided by the American Association of Nurse Anesthetists, which revealed consistent ratios of 28% Air Force, 44% Army, and 28% Navy, supporting that the sample was representative of the population of military CRNAs. Statistics related to gender, marital status, and children younger than 18 years living at home were consistent among the services.

Age distribution in the services showed a predominance of younger CRNAs in the Army, with Air Force CRNAs skewed to older ages up until age 54 years. Rank distribution showed a higher percentage of junior officers in the Army and Air Force and a conspicuous absence of senior officers (colonels, 0-6s) in the Air Force and 3 times as many senior officers (captains, 0-6s) as in the Army (colonels, 0-6s). Years of active-duty service were bell-shaped curves for all of the services, with the Army skewed a bit to the younger side, the Air Force more concentrated in the middle, and the Navy more spread out. Years as a CRNA were consistent among the services, with the majority of CRNAs having fewer than 9 years as a CRNA.

Annual salaries ranged from $54,000 to $165,000 with a mean of $102,397 and a standard deviation of $21,134. All services spread across the range. Self-reported satisfaction with current pay revealed that overall, about 11% were very unsatisfied, 6% were moderately unsatisfied, 25% were unsatisfied, 34% were satisfied, 19% were moderately satisfied, and 6% were very satisfied. Service-specific satisfaction showed similarities among the services with slightly less satisfaction within the Army and a spike for the Army in the very dissatisfied category (Figure 3).

An overwhelming majority (~91%) of respondents reported a high degree of or total autonomy. Fewer than 1% of the study respondents stated that there was no autonomy (Figure 4). Approximately 80% reported that they were moderately or very satisfied with practice. This finding was consistent among the services (Figure 5).

When asked about promotion opportunities, approximately 19% stated that they had been passed over for promotion at some time during their military career; approximately 81% had not been passed over. This finding was consistent among the services. Despite this finding, there was less satisfaction with promotion in the Air Force (Figure 6).
Service-specific deployment statistics (Figure 7 and Figure 8) show more Air Force CRNAs who were deployed fewer times for shorter durations. Of the respondents, about 60% stated that they had been deployed to a combat zone. When queried about satisfaction with deployment requirements since January 2003, the CRNAs were predominantly satisfied with deployment requirements with a trend in the Air Force to be more satisfied than in the other services and CRNAs in the Army to be less satisfied than in the other services (Figure 9). This trend reversely parallels the number of months deployed.

At the time of the next set of orders, approximately 52% of study respondents would be eligible for retirement; about 48% would not be eligible, and about 16% of the total sample would still have education obligations. This trend was consistent among the services, with close to 50% being eligible for retirement and 10% to 20% having a remaining education obligation. Retirement eligibility at the time of the next set of orders by percentage in the individual services showed similar trends among the services (Figure 10).

Of the respondents, approximately 37% stated that at the time of their next set of orders they intend to retire. Another 14% did not intend to accept another set of orders; they are not eligible for retirement and plan release from active duty. Still another 24% do not have an educational commitment and plan to accept another set of orders; 15% have an education obligation and will accept another set of orders; and 10% were undecided about whether they would accept another set of orders. Intentions by percentage in the individual services showed that more than 30% of CRNAs in each of the services plan to retire at the time of the next set of orders. The differences seem to be that the Air Force had a higher percentage of CRNAs who will accept orders and do not owe time. The Army had a higher percentage of CRNAs who will leave active duty and are not eligible for retirement. The
Navy had the lowest percentage of CRNAs who will leave active duty and are not eligible for retirement (Figure 11).

Discussion
This study revealed that years as a CRNA, pay, promotion opportunities, and scope of practice did not significantly influence feelings of relative deprivation in active-duty CRNAs. However, the psychological variables of wanting and deserving influenced felt deprivation. These results validated Crosby's relative deprivation theory in the population of military CRNAs.

Some limitations of this study were inherent in the population, such as the relatively small number of CRNAs in the military; their mobility (making them difficult to track); current world events contributing to a high operations tempo; several natural disasters during the data collection period, including a tsunami and 2 hurricanes, which accounted for additional mobility to provide humanitarian support; restriction by the Department of Defense and the individual services, resulting in limited access; and the complex and dynamic factors influencing deprivation and satisfaction. An additional limitation was the failure to control for the deployment status of the respondents.

It is recommended that policy and program alternatives 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 should be closely evaluated because there was some dissatisfaction in these areas. The existence of a clear correlation with wanting and deserving indicates that the influence these factors have on recruitment and retention must be closely considered and examined.

Further research is indicated to identify tangible factors that can be modified to improve feelings of deprivation as they relate to retention and recruitment of military CRNAs. It is also recommended that a better experimental design be incorporated, one that is random and prospective and that controls for potential confounding variables such as deployment status. Military CRNA perceptions of frustrated wants and violated entitlements increase feelings of grievance, decrease feelings of gratification, and can influence intent to stay in the military. More precise instruments need to be developed and tested to measure the effects of psychological variables such as wanting and deserving on CRNA satisfaction and intent to stay on active duty.

Problems with recruitment and retention that are affecting the population currently may not be realized for several years; therefore, the services need to be proactive in directing the development of strategies addressing entitlements and expectations that may prove of benefit early in the recruitment of military CRNAs because these can influence later feelings of frustrated wants or violated entitlements. Despite these issues, there remain CRNAs who choose to serve their country in the military.
are realized by these dedicated people may also hold crucial information for recruitment and retention.

This study affirms that there is competition with the civilian sector for CRNAs. The military must address the issues that would lure CRNAs to the civilian community. At present, the distinguishing factors are salary and deployments. Salary issues can be 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. An ironic possibility may be that due to the complexity of the issues (for example, family obligations), some military CRNAs may leave active duty even if they are relatively satisfied with their jobs as military CRNAs.

The impact of this situation may reach the civilian CRNA community and not just by the addition of former military CRNAs into the job market. The need created by the number of active-duty CRNAs leaving the services may result in a larger number of reserve CRNAs being recalled to active duty. This would certainly be disruptive to the schedules of civilian institutions employing these military reserve CRNAs and would result in a loss of the “corporate knowledge” they provide. While these CRNAs would return to their civilian jobs on completion of their reserve commitment, a system that is already experiencing a great demand for CRNAs would be additionally stressed.

REFERENCES


AUTHORS

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