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U.S. Army Nursing Readiness: A Field Administration of the Readiness Estimate and Deployability Index (READI) in the North Atlantic Regional Medical Command (NARMC)

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14. ABSTRACT

The purpose of this observational study was to use the Readiness Estimate and Deployability Index (READI) to estimate, compare and describe the states of deployment readiness in active and reserve component Army Nurse Corp (ANC) officers affiliated with the North Atlantic Regional Medical Command (NARMC). Army Nurses must be ready to provide nursing care indeployed environments that are characterized by austere and dangerous conditions, high patient variability, and limited technology. The READI is a 105-item survey that measures self-report of cognition, affect, perception of motor skills and physical functioning related to six dimensions of nursing readiness: clinical nursing competency, operational competency, survival skills, personal and psychological readiness, leadership and administrative support, and group integration and identification. In this study, a random sample of active (n = 188) Army Nurses who were assigned to the NARMC or reserve (n = 56) Army Nurses who are assigned to units that deploy to NARMC medical treatment facilities (MTFs) voluntarily responded to a mail administration of the READI. Comparative results of scaled and re-scaled items were depicted on specially developed and innovative graphic panoramic displays (GPDs) following the quantitative graphic principles outlined by Professor Edward Tufte of Yale University. Results revealed that active nurses reported slightly higher levels than reserve nurses in clinical nursing competencies, and operational competency, and significantly greater competency in survival skills. This study provides further evidence of the utility of depicting READI results in GPD format to identify training opportunities for both active duty and reserve component ANC officers. Future administrations of the READI are needed to measure nurse readiness before, during and after deployment, and in different cohorts of nurses.

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Abstract

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Introduction

Active duty and reserve component Army Nurse Corps (ANC) officers must be ready to provide nursing care in deployed environments that are characterized by austere and dangerous conditions, high patient variability, and limited technology. Typically however, active component Army Nurses learn and practice their nursing skills in specialized settings within fixed garrison facilities that have ample resources and sophisticated technology (Reineck, 1999). Reserve component Army Nurses practice their nursing skills in civilian facilities (Zadinsky, 1995), and train with their reserve unit for one weekend each month and during a two-week annual training. There is a need to develop and field a self-assessment instrument for Army nurses that defines and measures the skills, knowledge and attributes that contribute to nursing deployment readiness so that commanders and nurse leaders can identify readiness trends and training needs before, during and after deployment (Reineck, 1999).

Literature Review

Readiness has been described as a "dynamic concept with dimensions at the individual, group, and system levels, which together influence one's ability to accomplish the mission." (Reineck, 1999), and as the "ability to train, maintain, and sustain to meet mission goals" (Olsen, 1997). An initial review of the literature revealed several illuminating articles and congressional reports that identify limitations with current readiness reports and describe the skills, knowledge, and abilities related to caring for patients in a deployed environment.

Status of Resources and Training System (SORTS)

The Department of Defense (DoD) assesses readiness at the unit, joint force and strategic levels. Readiness on the unit level refers to "the ability of each unit to deliver the outputs for

which it was designed". The foundation of the DoD's unit readiness assessment is the Status of Resources and Training System (SORTS) (Gebicke, 1998).

In the SORTS, unit readiness is reported using a "C" rating system where units report on their overall readiness status as well as readiness related to personnel, equipment, and supplies on hand, equipment condition and training. More than nine thousand units DoD-wide report quarterly on their ability to undertake all, or part of their mission, using C1 to C4 ratings with C1 being fully mission capable and C4 being the least mission capable. Units that are undergoing major service-directed resource changes report as C5 (Gebicke, 1997).

Congressional Testimony Identifies Problems with SORTS

In a 1997 report to the Subcommittee on Military Readiness, for the Committee on National Security in the House of Representatives, the Director of Military Operations and Capabilities recommended that a more comprehensive readiness assessment be developed (Gebicke, 1997). Congress has concluded that the SORTS is limited in its ability to signal impending declines in readiness, accurately measure unit resources and training and lacks specific detail about deficiencies and corrective action. In SORTS, the commander makes a judgment about the unit's readiness to accomplish the mission. Officials in the DoD recognize that many factors impacting on readiness are difficult to measure objectively. Therefore, the subjective assessment of the commander is considered essential; in fact it is one of the strengths of the SORTS (Gebicke, 1998). However, the DoD and Congress are very concerned about the potential to inflate readiness assessments using the SORTS. These concerns are borne out of the results of several Congressional visits to field units where interviews with soldiers revealed serious readiness issues in units that were reporting high states of readiness (Gebicke, 1997).

A 1993 report to Congress by the DoD Inspector General on wartime medical problems stated that the DoD "could not ensure the deployability of medical personnel during contingencies". The report cites medical personnel assigned against incorrect skill areas, inadequate training in caring for combat and non-combat casualties, large numbers of nondeployable health care providers due to health problems, and a lack of training in soldier survival skills (Gebicke, 1996).

Skills, Knowledge and Abilities (SKAs) Related to Caring for Patients in a Deployed Environment

Many illustrative articles identified the SKAs related to caring for patients in a deployed environment. These SKAs can be categorized into clinical skills, survival skills, knowledge, abilities, and other factors bearing on readiness.

Once deployed, Army Nurses can expect to encounter complex emergencies, orthopedic and burn patients (Baker, 1990), as well as trauma cases and diseases and non-battle injuries (West & Clark 1995; Reineck 1999). Specific clinical skills in the literature include airway management, triage, interventions with chest tubes and intravenous catheters, hemorrhage control and emergency care (Haines & Weidenbach 1993; Baker 1990).

Survival skills are clearly identified as essential to readiness. Specific skills identified in the literature are military skills including campsite selection, communication, transportation, and map reading (Baker & Ryals, 1999), weapons training (Ekbad, 1990; Baker & Ryals 1999; Reineck 1999), personal defense and fieldcraft (West & Clark, 1995; Reineck 1999) and survival training (Griffiths, 1990; Ekbad 1990). Baker and Ryals (1999) cited knowledge of the chain of command and the Geneva Conventions as important to individual readiness. Abilities include medical evacuation, supply and logistics (Baker, 1999), multicultural care (West & Clark, 1995;

Reineck 1999) and hardiness to withstand physical and emotional stress (Sebesta, 1990; Haines & Weidenbach, 1993; West & Clark, 1995; Reineck, 1999). Other factors bearing on readiness include leader alertness, flexibility and availability (Reineck, 1999) and conflicts between family and military careers (Wynd & Ryan-Wegner, 1998).

These articles provided anecdotal evidence that active and reserve component Army Nurses need a broad repertoire of clinical and tactical skills and abilities as well as personal hardiness to perform well in the deployed environment. Work by Zadinsky (1995) described the difference in clinical practice settings that active and reserve component nurses face when deployed. Deployed nurses must be prepared to use general nursing skills on a wide variety of patients in clinical settings with lower levels of automation and specialized support services. A wartime clinical skill competency assessment of Army Nurses and Combat Medics, conducted by Zadinsky in the same work, revealed the need for additional training in field medical equipment.

The research into medical and nursing readiness has identified clinical and military skills as well as personal attributes that can be studied as variables when comparing readiness between groups of Army Nurses. However, the need to operationalize the concept of nursing readiness by developing and deploying an instrument that will measure inner preparation for deployment still exists.

Development of the READI:

To respond to the need to improve nursing readiness assessment, a three-phase research project on nursing readiness using a sequential triangulation design (Morse, 1991) that links qualitative, and psychometric testing, and descriptive and correlation work was developed (Reineck, 1999). The study was approved by the Tri-Service Nursing Research Program (#N98058), Uniformed Services University of the Health Sciences, Bethesda, MD, and the

Departments of Clinical Investigation (DCI) of Brook Army Medical Center (BAMC), Fort Sam Houston Texas, and Madigan Army Medical Center, Fort Lewis Washington. A grant for the research was administered through the Henry M. Jackson Foundation for the Advancement of Military Medicine (#600-068-64000-119). The BAMC Institutional Review Board approval numbers for phase I and II were C-96-83 and C-98-064e respectively.

In Phase I, 30 nursing personnel were selected, based on their deployed nursing experience, and invited to participate in one of three focus groups that explored the concept of nursing readiness. Recurring themes from the groups delineated six dimensions of nursing deployment readiness: 1) Clinical Nursing Competency, 2) Operational Competency, 3) Survival Skills, 4) Personal and Psychological Readiness, 5) Leadership and Administrative Support, and 6) Group Integration and Identification (Reineck, 1999).

In Phase II, the READI items were developed by asking subject matter experts in each of the six identified dimensions of individual readiness to draft items to assess self-report of readiness in those areas. Item writers were given training on how to write items and the use of scales and various response formats. The principal investigator refined the items for clarity and word choice. Validity for the items was estimated by content validity testing technique by an eight-member panel of nursing experts. The panel had an average of 16.43 years of nursing experience, and 7.64 years of dealing directly with readiness issues. Readiness issues had been taught by 86% of the panel and 60% were in a Forces Command unit or were assigned in the Professional Officer Filler System (PROFIS). The panel was ethnically diverse, with one African American, one Hispanic, one other, and five Caucasian members. Two of the members indicated that English was not their primary language. The panel rated each item in the READI on a scale from 1 (low) to 4 (high) for clarity, relevance and uniqueness. The mean ratings were 3.6 for

clarity, 3.6 for relevance, and 3.6 for uniqueness. All of the raters felt the READI was understandable. Seventy-one percent of the panel found the READI items to be representative and made suggestions for omitting items. Items were added and deleted based on the panel's recommendations and the changes incorporated into the first version of the READI instrument (Reineck & Connelly, 1999). The READI was refined based on the results of internal consistency and test-retest reliabilities from a pilot test on a sample (n=31) of Army Nurses in the continental U.S. In particular, the word comfortable was replaced with the word competent on many of the items. The product of this effort was a revised, 105-item READI that measures self-report of cognition, affect, perception of psychomotor skills, and physical functioning related to the six dimensions of nursing readiness delineated in Phase I.

The revised READI was administered to three small samples of Army Nurses (n=27/34/32) representing both Table of Distribution and Allowances (TDA) and Table of Organization and Equipment (TOE) units. The major commands represented included U.S. Army Medical Command (55%), U.S. Army Forces Command (16%), U.S. Army European Command (20%), Eighth U.S. Army (3%), and the U.S. Army Reserve (1%) and other (4%). Captains made up the majority of respondents (79%), but ranks ranged from second lieutenant to colonel. Sixty-one percent were female which is comparable to the gender representation of the ANC. Seventy-six percent of the were Caucasian and with the remainder equally split at 12% for African American and 12% for all other ethnic groups. Respondents represented all Areas of Concentration in the Army Nurse Corps and had an average of 5.55 years of experience as a nurse. A little over one-third (34%) had been previously deployed as a nurse. Relaibility results from the combined sample (n = 93) ranged from .72 to .94 (Reineck, Finstuen, Connelly, & Murdock, in press). Comparative results from these trials were presented at the Association of Military Surgeons

of the United States, Karen A. Reider 13th Annual Nursing Research Poster Session (Reineck, et al., 2000). Internal reliability results (.74 to .95) from an administration of the READI to active duty (n = 118) and reserve (n = 53) nurses attending the Officer Basic Course at Ft. Sam Houston, TX, indicated that the READI item responses were stable and reliable when administered to junior ranking ANC populations (Kovats, Morris, Reineck, & Finstuen, in press).

Research Questions

1. Can the READI be used to describe and compare the nursing deployment readiness status, (as defined by the READI items), in active and reserve component nurses in the NARMC?
2. Are there differences in READI item scores between active and reserve component Army Nurses in the NARMC?

Research Objective

The objective of this research was to administer the READI to a large and diverse population of Army Nurses affiliated with an Army regional medical command and to compare descriptive results between active and reserve component groups using graphic panoramic displays (GPDs).

Method

Permission to conduct this study was obtained from the Chief Nurses for the U.S. Army Medical Command, and the U.S. Army Reserve Command. A research protocol for this study was submitted to the Walter Reed Army Medical Center Institutional Review Board (WRAMC IRB) through the Department of Clinical Investigations at Walter Reed Army Medical Center. The protocol for this study was approved by the WRAMC IRB on 18 January 2001, and assigned work unit number 01-75002. A random selection of 425 active component nurses out from the the population of nurses assigned to MTFs in the NARMC (N = 536), and 250 reserve component nurses from the population of nurses in troop program units that deploy to an MTF

in the NARMC (N = 320) were invited to participate in the study. Data collection was conducted using a modified three-mailing procedure (Dillman, 1978). The names and units of nurses in the target populations were obtained through active and reserve component points of contact in the NARMC. Initial packets containing a READI survey, invitation letter, return envelope, and a post card to decline participation were sent to nurses in care of their units. Potential subjects were informed in the invitation letter about the nature of the study, and that participation was voluntary and confidential. Nurses who returned their surveys were sent an acknowledgment post card thanking them for their participation. Two weeks after the initial packet, a reminder card was sent to all non-respondents. Two weeks later a second packet was sent with a follow-up letter re-inviting participation and again informing the nurses that participation was voluntary and confidential. A tracking log was maintained under secure conditions and used to track response rate. Once a survey was received the name of the participant was removed from the mailing list to ensure confidentiality and anonymity.

Analysis and Statistical Data Graphing Procedures

Data from the returned surveys were entered into the Statistical Package for the Social Sciences data analysis program (SPSS version 10.0) using a double verification method. Mean variable ratings were used to replace missing data. Demographic data were tallied for each demographic category. Mean scores and standard deviations were computed for each 1 – 5 scaled item. To facilitate depiction of results in GPD format, dichotomous non-demographic data and 1 – 3 point scaled items were re-scaled based on response to a 1-5 point scale. Mean rating values for all scaled and rescaled items and standard deviations for 1 – 5 scaled items were depicted in a series of GPDs for the six READI sections. Each GPD rating scale was augmented

with a Red (1-2 not ready), Amber (2-4 moderately ready), Green (4-5 most ready) scale to facilitate understanding of the results in military operational terms. Standard deviations are not meaningful for rescaled items and were not reported. The sample size for leadership and administration and group identification and integration was reduced to (n = 70, 39) and (n = 91, 34) respectively to ensure case-wise integrity and account for "not applicable" responses.

Results

Response Rates:

The modified Dillman mailing procedure (Dillman, 1978) produced a 44% response rate for the active duty nurses (n = 188), but only 22% for the reservists (n = 56). Thirty active component nurses and nine reserve component nurses returned post cards declining participation in the study. Twenty-three initial survey packets sent to active component nurses were returned as undeliverable. Thirty-five packets were returned as undeliverable from one unit in the reserve group. The overall response rate for both nurse groups combined was 36%.

Demographic Data:

Subject demographic data are depicted in Table 1 at Appendix 1. The majorities (85%) of both groups were assigned to fixed (TDA) facilities. Seven percent of the reserve nurses identified their assigned units as field units (TO&E). Nineteen active component nurses identified their units as TO&E and seven marked that they were assigned to a Forces Command unit. Both groups had the same percentage of captains (26%), lieutenant colonels (17%) and colonels (5%). There were a greater percentage of lieutenants represented in the active component (11% active compared to 5% reserve) and a greater percentage of majors in the reserve component (35% to 21%). The gender mix between groups varied by 10% with a greater percentage female nurses in the reserve group (78%) than in the active group (68%). The majority of active and reserve nurses identified themselves as white (75% and 58% respectively),

however, African Americans were represented twice as much in the reserve group (26% compared to 13% for active).

A broad range of nursing Areas of Concentration (AOC) was represented by the groups. Every nursing category was represented in the active duty group and only Nurse Midwife and Emergency Nurse were not represented in the reserves. The majority of nurses were Medical Surgical (38% active and 48% reserve) or Perioperative (11% active and 16% reserve) Nurses.

Over 44% of the active component nurses reported having past deployment experience compared to 23% in the reserve component group. Forty-five percent (n = 84) of the active component group reported being currently in a PROFIS position. Reserve component nurses reported twice as many years of mean nursing experience, 16.7 years compared to 8.4 years for the active component.

Item descriptive statistics and Graphic Panoramic Displays (GPDs)

Descriptive statistics, augmented with GPDs, are presented in Figures 1 through 8 at Appendix 2. Mean ratings for all scaled and rescaled READI items for both groups and standard deviations for 1-5 scaled items are presented in each figure. The GPD at the top of each figure graphically depicts large amounts of multi-dimensional information. The unique GPD concept for READI results was developed by this author (see Reineck et al., in press; Kovats et al., in press) resulting from a data graphics workshop conducted in Austin, Texas, January 2000, by Professor Edward Tufte of Yale University. According to Tufte (1983, 1990, and 1997), the effective depiction of quantitative data in graphic form requires adherence to two principles: dimensionality and resolution. The principle of dimensionality is incorporated in GPD by the vertical axis competency rating scale for each READI item along the horizontal axis. Ratings describe the degree of readiness in the dimension of individual items on the vertical axis on a 1

(not ready) to 5 (most ready) scale. This scale is 'layered' with an operational Red-Amber-Green scale that transforms the information into military operational terms to aid understanding and corrective action by commanders and subordinates. Consecutive items, numbered along the horizontal axis, add the dimension of readiness comparability, and build an overall readiness profile of individuals and groups. Interpolation, or trace lines, link data points between items and add to the amount of information displayed on each GPD, incorporating the principle of resolution. Depicting data in GPD format facilitates rapid understanding of how individuals and groups compare on READI items, discrete domains of readiness, and on overall readiness.

Clinical Nursing Competency

Ratings for both groups were nearly identical for (k = 17 items) in Figure 1. Rating profiles for active nurses were generally about .2 scale points higher than reserve nurses. Both groups reported moderate (Amber) ratings for competence in documenting in the field environment and competence in performing ACLS protocols. Both groups are most ready (Green) in IV skills, describing the life-saving ABC (airway, breathing, and circulation) principles, instituting standing orders and recognizing the correct response to a shock scenario. Recency of providing direct nursing care and experience practicing triage are also in the most ready (Green) zone. Ratings between groups were slightly more disparate in Figure 2., with rating profiles for active nurses between .4 and .5 scale points higher for competence in caring for patients with ballistic missile injuries and recognition of tension pneumothorax. Both groups reported moderate or low moderate (Amber) ratings for caring for patients with nuclear, biological and chemical (NBC) injuries and ballistic missile injuries, and use of the field ventilator. Both groups reported most ready (Green) ratings for airway management, listing components of a physical exam, and performing a complete nursing assessment and interpreting abnormal findings.

Operational Competency

As depicted in Figure 3, the rating profiles pattern for both groups are nearly identical. Reserve ratings were slightly lower on every item except reporting unlawful acts or conduct. Active component nurses rated .6 to .8 scale points higher than reserve nurses on knowledge questions related to the mode of operation of suction equipment on a litter and in an ambulance. Ratings for operational competency were in the low to moderate (Amber) or not ready (Red) zone for all items. Both groups reported high ratings for reporting unlawful acts or conduct.

Survival Skills

As shown in Figure 4, there was a .4 to .9 scaled point difference between groups for survival skill items. Active component nurses rated themselves in the high moderate (Amber) range on every item except familiarity with Army communication equipment. Reservists rated themselves in the low moderate (Amber) range for familiarity with the 9mm pistol, maintaining their weapon, and Army communications equipment. Both groups had high ratings for performing their duties under adverse conditions.

Personal and Psychological Readiness

Personal and psychological readiness ratings are shown in Figures 5 and 6. Both groups were in the moderate (Amber) to most ready (Green) zone in all areas. Both groups had high ratings in pending legal matters, having a family care plan if required, and continuity in family support if deployed and moderately high ratings for accessing emotional support while deployed, and accessing mental health services when deployed. Active component nurses had higher scores on their APFT, more recent dental exams, and had fewer physical profiles than the reserve nurse group. Active nurses had less family, financial and other stress than reservists did but reservists

rated the quality of their current family support system as higher than the active group. Both groups had equal moderate ratings (Amber) for the amount of stress at work.

Leadership and Administrative Support

Leadership and administrative support ratings are shown in Figure 7. All ratings were in the moderate (Amber) range with reserve nurse respondents (n = 39) rating their leadership between .2 and .4 scale points higher than the active nurse respondents (n = 70). The highest ratings were for the deployment leader's acceptance of responsibility for tough training item. The active group rated their first line leaders .4 scale points lower than the reserve group for keeping them informed.

Group Identification and Integration

Group identification and integration ratings are shown in Figure 8. Ratings for reserve component nurses (n = 34) are stable at the high moderate (Amber) range. Ratings for active component respondents (n = 91) were in the low moderate (Amber) range but significantly lower for items measuring days trained with deployment unit, familiarity with their deployment unit's mission, vision and values, and their individual role/duty in their deployment unit.

Discussion and Conclusions

In 1990, U.S. Air Force Reserve Lieutenant Colonel Donald Sebesta wrote about his experience as a Chief of Surgery in the Republic of Vietnam in 1969 in Military Medicine. Dr. Sebseta predicted that that in future wars "many personnel will die during the early days [of combat] as lessons are relearned" (Sebesta, 1990). Developing and fielding the READI will allow Army Nurses to assess their own deployment readiness using a valid and reliable instrument. The READI will provide the command with a detailed profile of how nurses rate they're own deployment readiness, thereby reducing the potential for disparity between

reported and perceived readiness, and identify training opportunities for corrective action before readiness declines and lives are lost as lessons are relearned.

This study contributes to the body of work by Reineck, Finstuen, Connelly and Murdock (in press), and Kovats, Morris, Reineck, and Finstuen (in press) supporting the on-going development and fielding of a valid, reliable, and standardized instrument for assessing ANC readiness. This was the first successful mass-mail administration of the READI to active duty and reserve component nurses affiliated with a single Army regional medical command and achieved the largest combined sample of any previous administration (n = 244). The strengths of this study were its approval by the WRAMC IRB, the random selection of nurses, high response rate by active component nurses using the modified three-mailing procedure, and its emphasis on maintaining subject voluntariness and confidentiality. The greatest research challenge in completing the study was working with the reserve mail system.

Depicting results in GPD format facilitates rapid understanding of results in operational terms. Unit commanders, nurse leaders, operations personnel and nurse trainers and educators can quickly assess individual and group readiness, identify deficits and strengths, and make personnel decisions and develop training plans. The READI can improve nurse deployment readiness in a variety of ways. Groups of nurses from different sections, units, or regions can be compared and their readiness ratings matched with mission-specific casualty care projections to find the best fit between mission requirements and nursing personnel. Individual nurses can be evaluated for suitability for specific missions when small forward-deployed teams are being created to respond to worldwide crisis contingencies. New nurses assigned to PROFIS positions, field or reserve units can be assessed for their readiness level and training needs when they arrive in a unit compared with their other unit cohorts and reassessed over time against unit, regional,

and MEDCOM-wide READI benchmark ratings. Over time, commanders, nurse leaders, unit historians and others can plot changes in readiness as the history of unit training exercises and deployments unfolds. Data from multiple READI administrations can be evaluated to be used to build a profile of Army Nurse skills that can aid in recruitment and ensure that elected officials and policy makers are aware of the value of Army Nurses in contributing to a responsive, competent ready Army medical force. Future administrations are needed to compare readiness ratings for nurses in different ranks and AOCs and in a cohort of deployed nurses before during and after deployment.

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Appendix 1

Table 1

Descriptive Statistics of Demographic Variables
Administration of the Readiness (R.E.A.D.I.) Instrument

Variables	Active Duty n	Active Duty percent	Reserve Component n	Reserve Component percent
Military Background				
Type unit *				
Fixed (TDA)	160	85.1	48	85.8
Field (TO&E)	19	10.1	4	7.1
Unknown	9	4.8	4	7.1
Assignment				
Medical Command	181	96.3	-	-
Forces Command	7	3.7	-	-
US Army - Europe	-	-	-	-
8th Army – Korea	-	-	-	-
US Army Reserve	-	-	56	100.0
Other	-	-	-	-
Military Rank				
2nd Lieutenant	21	11.2	3	5.4
1st Lieutenant	34	18.1	5	8.9
Captain	50	26.7	15	26.8
Major	40	21.3	20	35.7
Lieutenant Colonel	33	17.6	10	17.9

Table 1 – continued

Variables	Active Duty n	Active Duty percent	Reserve Component n	Reserve Component percent
Colonel	10	5.3	3	5.4
Gender				
Female	129	68.6	44	78.6
Male	59	31.4	12	21.4
Ethnicity				
White	141	75.0	33	58.9
Black	26	13.8	15	26.8
Asian	10	5.3	3	5.4
Other	11	5.9	5	8.9
Nursing background				
Medical Surgical	72	38.3	27	48.2
Nurse Anesthetist	12	6.4	1	1.8
Critical Care Nurse	33	17.6	3	5.4
Nurse Practitioner	8	4.3	3	5.4
Emergency Nurse	8	4.3	-	-
Perioperative Nurse	22	11.7	9	16.1
Psychiatric Nurse	9	4.8	3	5.4
OB GYN	9	4.8	2	3.6
Nurse Midwife	6	3.2	-	-
Community Health Nurse	9	4.8	3	5.4
Other	-	-	1	1.8
Has deployed in Area of Concentration (AOC)	84	44.7	13	23.2

Table 1 – continued Variables	Active Duty	Reserve Component
Total years nursing experience **		
Mean (years)	8.4	16.7
Standard Deviation	7.8	9.5

n = 188 active duty and 56 reserve component U.S. Army nurses

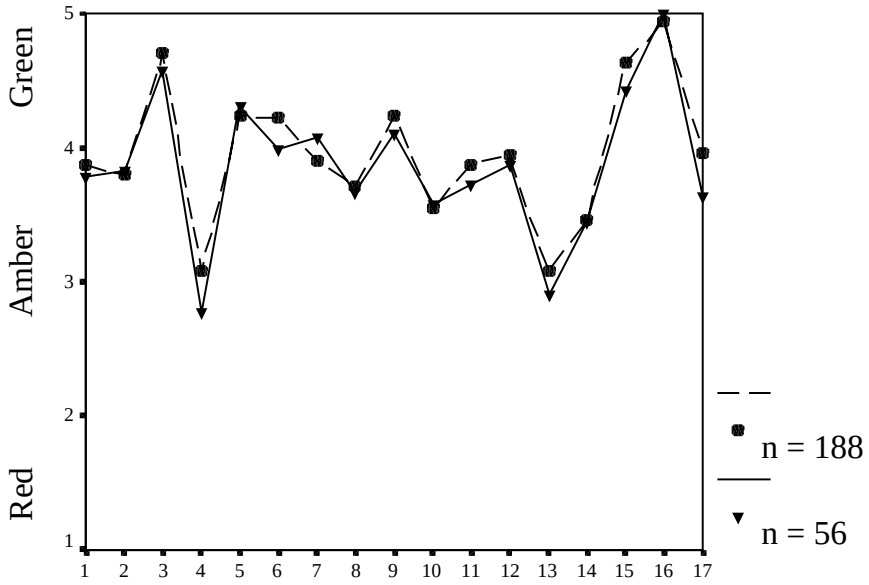
Note:* Types of Units: TDA=Table of Distributions/Allowance (fixed facilities),

TO&E = Table of Organization and Equipment (field type units)

** Total years include both civilian and military experience

Appendix 2

Section One: Clinical Nursing Competencies

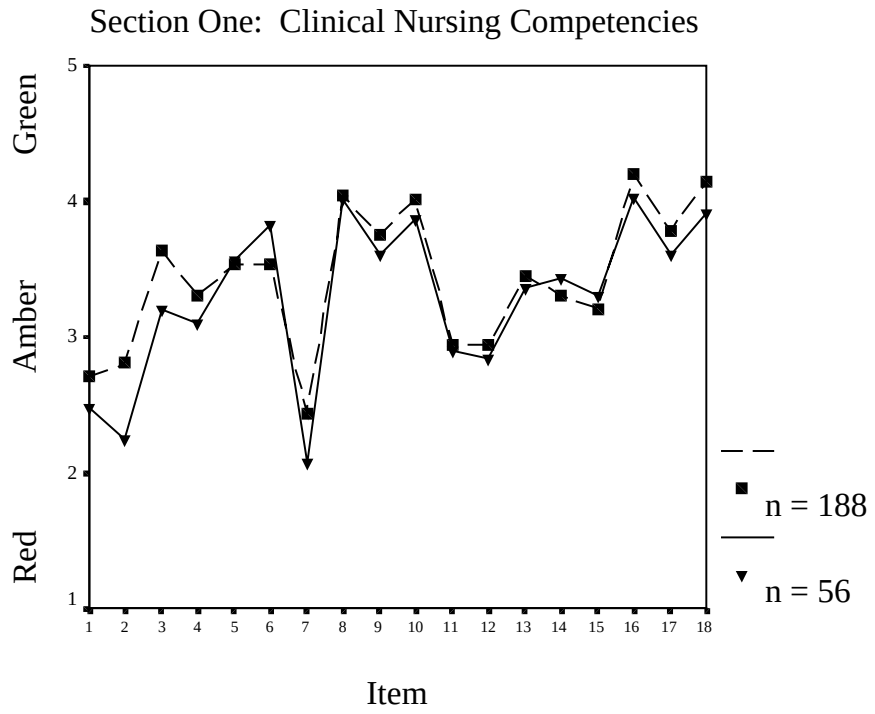


Section one: Clinical nursing competence (k=17 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
1 - Familiar with the different types of shock	3.9	1.0	3.8	1.1
2 - Competence in caring for hemorrhagic shock	3.8	1.0	3.8	1.0
3 – Correct response to shock scenario	4.7	-	4.6	-
4 - Competence in documenting in field environment	3.1	1.2	2.8	1.4
5 – Last time provided direct patient care	4.2	-	4.3	-
6 – Types of triage experience	4.2	-	4.0	-
7 - Competence in IV drip calculations	3.9	1.1	4.1	1.0
8 – Last time reconstituted, calculated, administered IV medication	3.8	-	3.7	-

Figure 1. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported clinical nursing competency (Items 1 through 8 of 17 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.

Section one: Clinical nursing competence (k=17 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
9 – Competence in instituting standing orders	4.2	1.0	4.1	0.9
10 – Competence in code/emergency situation	3.5	-	3.6	-
11 - Understands and calculates body surface area burn patient	3.9	0.9	3.7	0.9
12 - Competence in deciding which patient is seen first	3.9	0.8	3.9	0.8
13 - Competence in performing ACLS protocol	3.1	1.4	2.9	1.4
14 - Competence in caring for life threatening injuries	3.5	1.1	3.5	1.0
15 – Competence in IV skills	4.6	-	4.4	-
16 – Able to describe in detail the life-saving ABC principles	4.9	-	5.0	-
17 – Competence in assessing multiple trauma patient	4.0	-	3.6	-

Figure 1 cont. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported clinical nursing competence (Items 9 through 17 of 17 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.

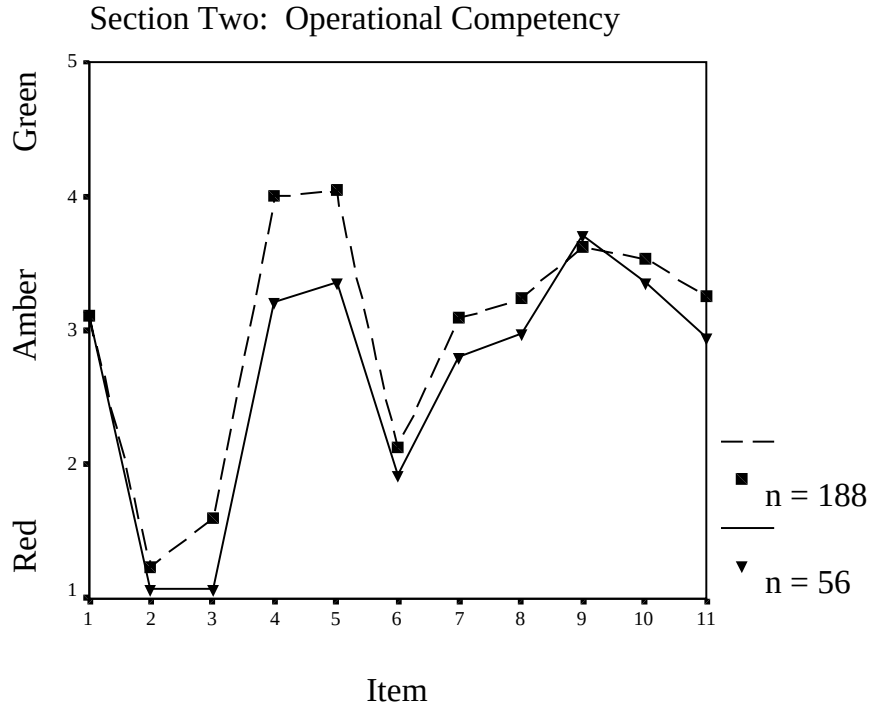


Section one: Clinical nursing competence cont. (k=18 items)	Active (n = 188)		Reserves (n = 56)	
	Mean	S.D.	Mean	S.D.
1 - Competence in caring for patient with NBC injuries	2.7	1.0	2.5	1.0
2 - Competence in caring for patient with ballistic missile injuries	2.8	1.2	2.3	1.3
3 - Competence in recognition of tension pneumothorax	3.6	1.1	3.2	1.3
4 - Competence in providing fluid resuscitation of burn patient	3.3	1.2	3.1	1.3
5 - Competence in using universal blood donor protocol	3.5	1.3	3.6	1.2
6 – Competence in caring for patients with disease and non-battle injury	3.5	1.1	3.8	0.9
7 - Competence in using a field ventilator	2.4	1.4	2.1	3.1
8 - Competence in airway management	4.0	1.0	4.0	1.0
9 - Competence in implementing triage categories	3.8	1.0	3.6	1.0

Figure 2. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported clinical nursing competency (Items 1 through 9 of 18 items).

Section one: Clinical nursing competence cont. (k=18 items)	Active (n = 188)		Reserves (n = 56)	
	Mean	S.D.	Mean	S.D.
10 - Competence in assuming clinical team leadership	4.0	0.9	3.9	1.0
11 - Competence in caring for refugees	2.9	1.2	2.9	1.3
12 - Competence in providing antepartum and postpartum care	2.9	1.3	2.8	1.3
13 - Competence in field infection control	3.5	1.1	3.4	1.2
14 - Competence in orthopedic nursing	3.3	1.2	3.4	1.1
15 - Competence in neurological nursing	3.2	1.1	3.3	1.1
16 - Able to identify components of physical exam	4.2	1.0	4.0	1.0
17 - Able to list five examination techniques to perform physical exam	3.8	1.3	3.6	1.1
18 - Able to perform complete nursing assessment and interpret abnormal findings	4.1	1.0	3.9	1.1

Figure 2 cont. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported clinical nursing competence (Items 10 through 18 of 18 items).

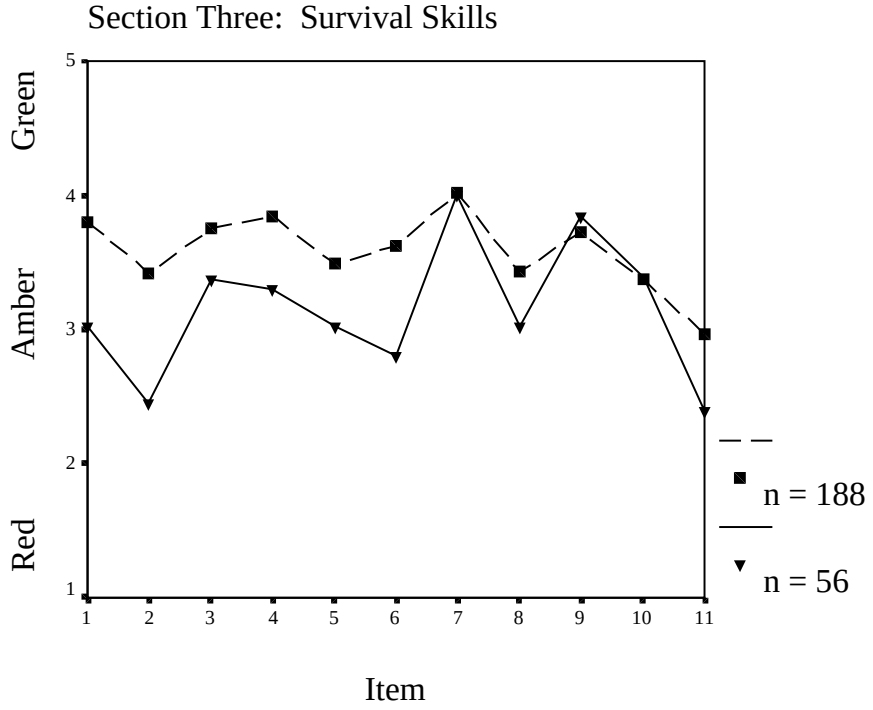


Section two: Operational competence (k=11 items)	Active (n = 188) Mean	S.D.	Reserves (n = 56) Mean	S.D.
1 - Competence in obtaining 12-lead EKG given scenario	3.1	1.5	3.1	1.6
2 - Correct answer to suction apparatus on internal battery pack	1.2	-	1.1	-
3 - Correct answer to how long to recharge internal battery pack	1.6	-	1.1	-
4 - Correct answer to mode of operation for suction apparatus in field environment	4.0	-	3.2	-
5 - Correct answer to mode of operation for suction apparatus in ambulance	4.0	-	3.4	-
6 - Correct answer to mode of electrical power for suction apparatus on litter	2.1	-	1.9	-

Figure 3. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported operational competence (Items 1 through 6 of 11 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.

Section two: Operational Competence cont. (k=11 items)	Active (n = 188)		Reserves (n = 56)	
	Mean	S.D.	Mean	S.D
7 - Competence in evacuation procedures	3.1	1.1	2.8	1.0
8 - Competence in echelon of care operations	3.2	1.1	3.0	0.9
9 - Competence in reporting unlawful act or conduct	3.6	1.1	3.7	1.2
10 - Competence in field sanitation and hygiene	3.5	1.0	3.4	1.1
11 - Competence in DEPMEDS setup	3.3	1.2	2.9	1.3

Figure 3 cont.. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported operational competence (Items 7 through 11 of 11 items).

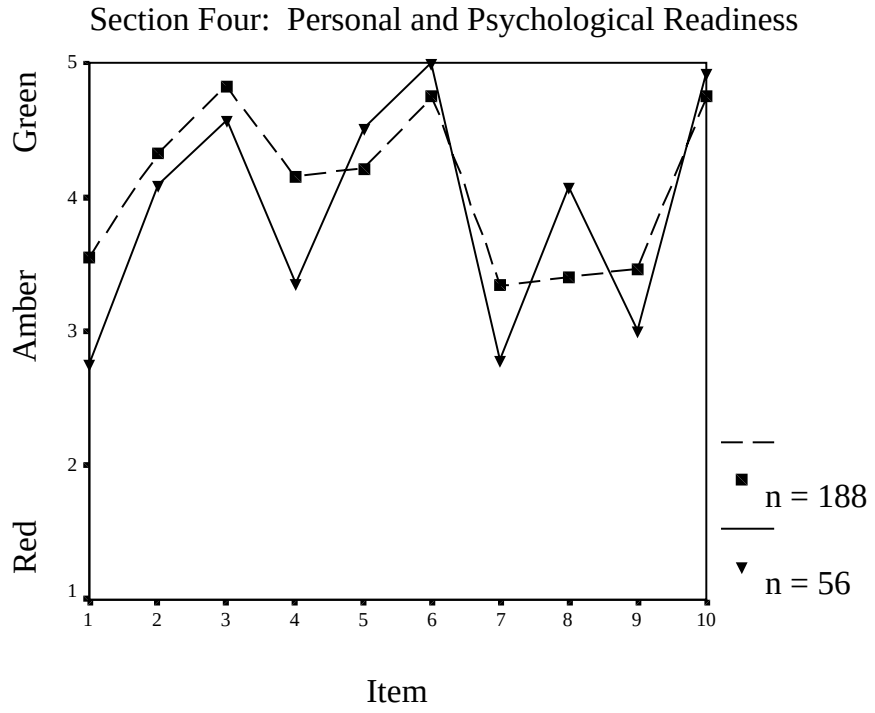


Section three: Survival skills (k=11 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
1 - Familiarity with M-16 rifle	3.8	1.1	3.0	1.2
2 - Familiarity with 9mm pistol	3.4	1.2	2.5	1.3
3 - Competence in defending self and patient if called to do so	3.8	1.1	3.4	1.2
4 - Competence and confidence in protecting self with mask/MOPP	3.9	1.0	3.3	1.1
5 - Competence in ability to navigate using a map and compass	3.5	1.2	3.0	1.2
6 - Competence in ability to maintain weapon in working order	3.6	1.3	2.8	1.4
7 - Competence in ability to perform duties in adverse conditions	4.0	1.0	4.0	1.1
8 - Competence in ability to decontaminate self and patient using decontamination equipment	3.4	1.1	3.0	1.2
9 - Familiarity with status under Geneva Conventions	3.7	1.1	3.8	1.2
10 - Competence in ability to resist enemy if captured	3.4	1.1	3.4	1.2

Figure 4. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported survival skills (Items 1-10 of 11 items).

Section three: Survival skills (k=11 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D
11- Familiarity with standard Army communication equipment	3.0	1.1	2.4	1.2

Figure 4 cont. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported survival skills (Item 11 of 11 items).

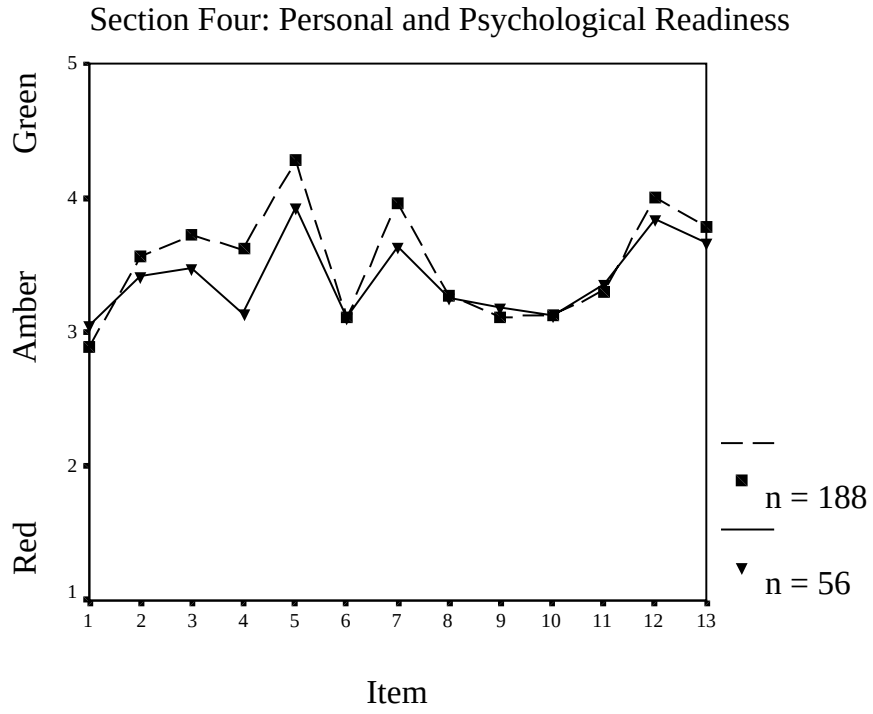


Section four: Personal and psychological readiness (k=10 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
1 – Last APFT score	3.5	-	2.8	-
2 – How long since last dental exam	4.3	-	4.1	-
3 - Has family care plan if indicated	4.8	-	4.6	-
4 - Does not have a physical profile	4.1	-	3.4	-
5 - Quality of current family support system	4.2	1.0	4.5	0.8
6 - Same family support will be available if deployed	4.7	-	5.0	-
7 - Previously separated from family for more than 6 months	3.3	-	2.8	-
8 - Have a current will	3.4	-	4.1	-

Figure 5. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported personal and psychological readiness (Items 1-8 of 10 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.

Section four: Personal and psychological readiness (k=10 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
9 - Have a current power of attorney	3.7	-	3.0	-
10 - Have no legal matters pending	4.7	-	4.9	-

Figure 5 cont. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported personal and psychological readiness (Item 9-10 of 10 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.



Section four: Personal and psychological readiness (k=13 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
1 – Amount of current stress at work	2.9	1.2	3.1	1.1
2 – Amount of current stress in family	3.6	1.1	3.4	1.1
3 - Amount of current stress in finances	3.7	1.2	3.5	1.0
4 - Amount of current stress in other areas	3.6	1.8	3.1	2.0
5 - Knows how to access emotional support while deployed	4.3	-	3.9	-
6 - Coping strategies for coping with stress	3.1	-	3.1	-
7 - Knows how to access mental health services when deployed	4.0	-	3.6	-
8 - Rate preparedness for death, dying, carnage	3.3	1.2	3.3	1.0
9 - Rate preparedness for own possible death	3.1	1.3	3.2	1.3

Figure 6. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported personal and psychological readiness (Items 1-9 of 13 items). Note: Standard deviations are not meaningful for rescaled items and are not reported.

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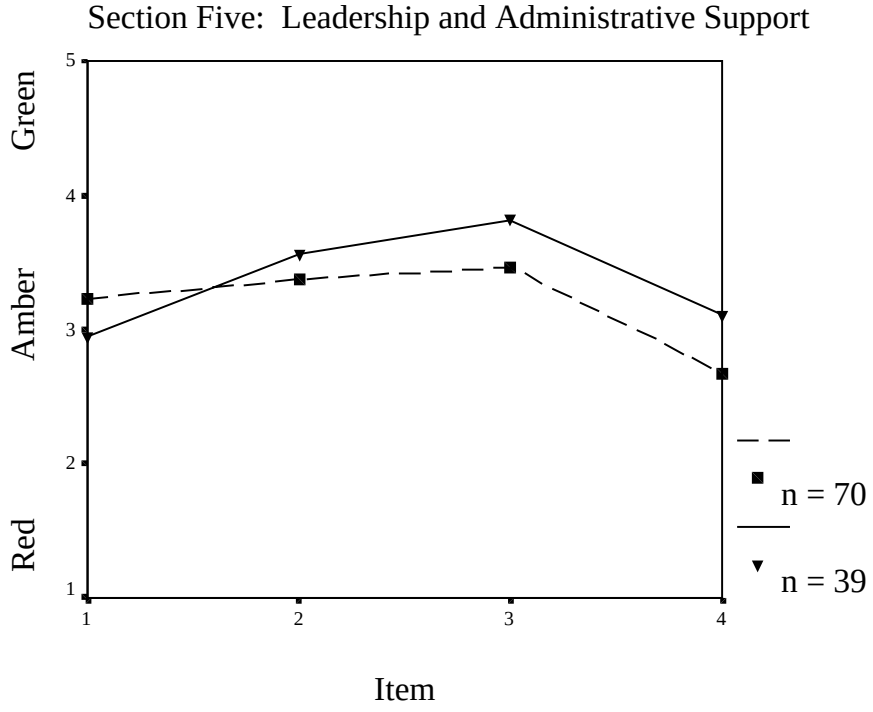
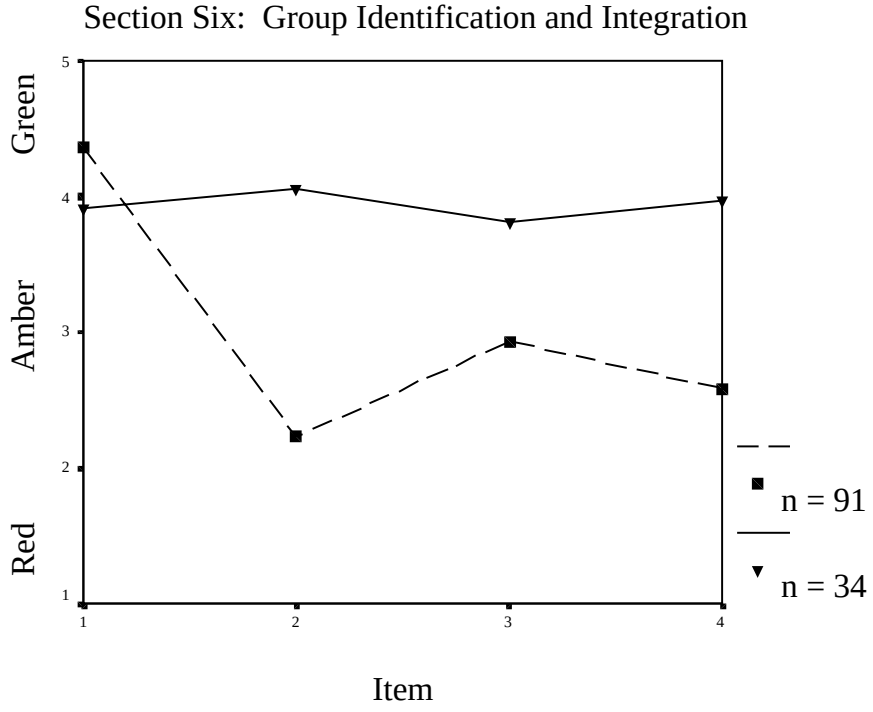
Section four: Personal and psychological readiness (k=13 items)	Active (n = 188)		Reserve (n = 56)	
	Mean	S.D.	Mean	S.D.
10 - Rate preparedness for battle stress	3.1	1.2	3.1	1.0
11 - Rate preparedness for weather extremes	3.3	1.2	3.4	1.0
12 - Rate preparedness for long hours	4.0	1.0	3.8	1.0
13 - Rate preparedness for lack of privacy	3.8	1.1	3.7	1.1

Figure 6 cont. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported personal and psychological readiness (Items 10-13 of 13 items).



Section Five: Leadership and administrative support (k=4 items)	Active (n = 70)		Reserve (n = 39)	
	Mean	S.D.	Mean	S.D.
1 - Understands set-up, functions and command structure of TO&E unit	3.2	1.1	2.9	1.1
2 - Rate deployment unit's first line leader's knowledge and concern for soldier's well being	3.3	-	3.6	-
3 - Rate deployment unit's first line leader's acceptance of responsibility for tough training	3.4	-	3.8	-
4 - Rate deployment unit's first line leader's ability to keep you informed	2.7	-	3.1	-

Figure 7. Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported leadership and administrative support (Items 1 - 4). Note: Standard deviations are not meaningful for rescaled items and are not reported.



Section Six: Group Identification/Integration (k=4 items)	Active (n = 91)		Reserve (n = 34)	
	Mean	S.D.	Mean	S.D.
1 - Rate ability to adjust to crowded coed sleeping quarters	4.3	1.1	3.9	1.1
2 - Number of days trained with deployment unit in last 12 months	2.2	-	4.0	-
3 - Familiarity with deployment unit's mission, vision and values	2.9	1.6	3.8	2.1
4 - Familiarity with role/duty assignment in deployment unit	2.6	1.7	4.0	2.2

Figure 8 Panoramic display depicting READI profiles and a statistical comparison of active duty and reserve nurses for self-reported group identification/integration (Items 1 – 4).
Note: Standard deviations are not meaningful for rescaled items and are not reported.