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U.S. Army Professional Filler System Nursing Personnel: Do They Possess Competency Needed for Deployment?

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The objective of this study was to identify the perceived readiness of U.S. Army Professional Filler System personnel in regard to nursing competency and readiness for deployment. A purposive sample of research participants (N = 131) from two military treatment facilities assigned to Great Plains Regional Medical Command responded to an electronic Readiness Estimate and Deployability Index (READI). The READI measures self-reported competencies in six dimensions of nursing readiness. Descriptive statistics and one-way analysis of variance were used to analyze the data. Although the research surveyed three levels of nursing skills (registered nurse, licensed practical nurse, and certified nursing assistant), the study results were noted to be quite parallel across the groups. Significant differences were noted throughout the six dimensions of the READI and between the two military treatment facilities in the dimensions of operational nursing competencies and personal and psychological readiness. Findings support the need for a structured core competency tool to provide succinct focused training to ensure deployment readiness.

Introduction

As early as the Revolutionary War, nurses have responded patriotically to care for troops in wartime situations. The need for educated health care providers to function in humanitarian missions, wartime, and military operations other than war (MOOTW) is well documented in the literature.[1-3] Professional Filler System (PROFIS) nursing personnel must maintain competency skills and functions critical to their individual roles in a deployed or field status. These nursing roles include critical care, preoperative/postoperative care, anesthesia care, radiology, laboratory, pharmacy, nursing/personnel management, emergency trauma management, and other diverse medical nursing roles, including the fields of pediatrics and obstetrics/gynecology. In the past, nursing personnel have relied on clinical experiences in a military treatment facility (MTF) to maintain their competency for deployment status. However, the differences between nursing skills in a MTF and in a deployment hospital have broadened. Nursing personnel now use skills during deployment that are not routinely practiced in a MTF. Several noted differences include specialized care in a fixed facility versus general nursing care in the combat setting, high technology versus low technology in a field environment, automated equipment versus manual equipment, and moderate to high diversity in care scenarios in the combat setting.[4,5]

Presently, core competency skills of PROFIS personnel have not been defined. The purpose of this research study was to identify the perceived readiness of U.S. Army PROFIS personnel for deployment with respect to nursing competency skills and to identify skills that were beyond those used routinely in a MTF by using an electronic version of the Readiness Estimate and Deployability Index (READI) and a core competency tool currently used in a MTF, for comparison.

Previous Related Works

The original READI is a paper-and-pencil questionnaire that measures six dimensions of individual readiness, i.e., (1) clinical nursing competency, (2) operational nursing competency, (3) soldier/survival skills, (4) personnel/physical/psychosocial stress, (5) leadership and administrative support, and (6) group integration and identification. In the development of the READI, subject matter experts in each of the identified areas developed questions for the initial READI survey. Validity for the items was estimated with content validity-testing techniques using eight content experts. The experts rated each individual item on a scale of 1 (low) to 4 (high). The mean ratings were 3.6 for clarity, 3.6 for relevance, and 3.6 for uniqueness. Changes to the questions were made on the basis of the recommendation of the subject matter experts and were incorporated into the initial version of the READI.[5,6] The READI was refined on the basis of results of internal consistency and test-retest reliabilities from a pilot test with a sample of 31 Army nurses. The test-retest reliabilities and internal consistency reliabilities for the six subscales were as follows. The nursing competency scale had 28 items (r = 0.71; α = 0.94). The operational nursing competency scale had six dichotomous unscaled items (r = 0.48). The soldier and survival skills scale had 10 items, which demonstrated the strongest psychometric results (r = 0.83; α = 0.91) among all of the scales. The personal/physical/psychosocial scale had eight heterogeneous items (r = 0.78; α = 0.73). The leadership and administrative support scale had four items (r = 0.69; α = 0.83). The group integration and identification scale had three dichotomous items (r = 0.69; α = 0.72).[6] The result of this testing was a revised, 105-item, survey tool that measures self-reports of cognition, affect, perception of psychomotor skills, and physical ability related to the six areas of nursing readiness. The READI was deemed to be a valid reliable tool to be used in the military population.

Theoretical Framework and Sampling Frame

The model of novice to expert described by Benner[7] equates well with the design of the questions used in the READI. Benner

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The competency conceptual foundation was previously awarded the Federal Nursing Service Essay Award, 2003. Information regarding the pilot study was presented at the Karen A. Rieder Nursing Research Poster Session during the 108th Annual Meeting of the Association of Military Surgeons of the United States, November 11, 2002, Louisville, KY. Information relating to competency skills was presented at the Nursing 2003 Symposium: April 13-16, 2003; Lake Buena Vista, FL; and at the Nursing Research Day, University of Tennessee; April 18, 2003; Chattanooga, TN.

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ses a five-tier format (novice, advanced beginner, competent, roficient, and expert) in her model. The READI also encom-asses a five-tier format in the design of the questions, ranging om not competent to totally competent. The three domains xpressed in the theory of stress resistance described by Flan-ery[8] adapts appropriately to the individual sections of the EADI. The domain of mastery is expressed in the sections of linical nursing competency, operational nursing competency, oldier and survival skills, personal and physical readiness, and sychosocial readiness. The domain of attachment is demon-trated in the section relating to group integration and identifi-ation. Finally, the domain of meaning is portrayed in the sec-ion relating to leadership and administrative support. herefore, there is a logical rationale supported by the theoret-al framework described by Flannery.[8]

The sample for this study (N = 131) included research partic-pants from two of the nine MTFs across the Great Plains Re-ional Medical Command. Army Nurse Corps officers and their nlisted counterparts who were assigned as PROFIS personnel o a combat support unit in the 1st Medical Brigade were used s subjects. An Army community hospital and an Army medical enter were chosen for statistical comparisons of nursing com-etency and readiness for deployment. The MTFs selected for he study were Darnall Army Community Hospital (Fort Hood, exas) and William Beaumont Army Medical Center (Fort Bliss, exas). The initial sampling frame (N = 364) consisted of the ames and unit addresses of personnel assigned to a PROFIS osition in these two locations. Names and unit addresses were equested through points of contact at the individual medical acilities. The sampling frame was considered an adequate rep-esentation because it covered ~50% of the entire Great Plains Regional Medical Command PROFIS population (~750 PROFIS ersonnel).

Institutional Review

This study was approved and funded by the Tri-Service Nurs-ng Research Program, Uniformed Services University of the Health Sciences (Bethesda, Maryland), the Department of Clin-cal Investigation, University of Tennessee at Chattanooga (Chattanooga, Tennessee), and the Department of Clinical In-estigation of Brooke Army Medical Center (Fort Sam Houston, Texas) and William Beaumont Army Medical Center (Fort Bliss, Texas).

Results of a Pilot Test/Retest for the Electronic READI

To convert the previous paper-and-pencil version of the READI into an electronic version, a pilot test/retest study was conducted. The only changes made to the electronic version of the READI, compared with the paper-and-pencil version, were changes in demographic factors adapted to fit the sample.

An initial sample of 25 PROFIS participants assigned to Darnall Army Community Hospital were invited to participate in the pilot study. Nine (36%) of the 25 participants completed the pilot study. Of those participants, five were male and four were female. Six of the individuals were officers (66.7%) and three (33.3%) were enlisted personnel. Five of the nine individuals held a bachelors degree in nursing. A bachelors degree in nursing is required by the active component of the Army to enter the service as an officer and registered nurse. Of the remaining four participants, educational levels ranged from a high school diploma to a masters degree in nursing. Only one individual had been previously deployed in his military occupational specialty/area of concentration. Two officers had previous enlisted service. All participants had field training within the current year (2002), with an average of 4 days of training. No variance in the demographic data between the test and retest phases was noted.

TABLE I

PILOT STUDY RELIABILITY CORRELATION (N = 9)

Survey Subset	No. of Items
Clinical nursing competency (n = 35 items)	
Strong reliability	20
Medium reliability	12
Weak reliability	3
Operational nursing competencies (n = 11 items)	
Strong reliability	8
Medium reliability	3
Weak reliability	0
Soldier/survival skills (n = 11 items)	
Strong reliability	6
Medium reliability	3
Weak reliability	2
Personal and physical readiness (n = 5 items)	
Strong reliability	5
Medium reliability	0
Weak reliability	0
Psychosocial readiness (n = 22 items)	
Strong reliability	10
Medium reliability	4
Weak reliability	8
Leadership and administrative support (n = 5 items)	
Strong reliability	2
Medium reliability	2
Weak reliability	1
Group integration and identification (n = 4 items)	
Strong reliability	1
Medium reliability	1
Weak reliability	2

The READI consisted of six nursing subsets. The electronic READI was administered initially and then 2 weeks later. The subsets were analyzed by using Pearson's r statistic for correlation over time and Cronbach's α coefficient for internal consistency and reliability. Because of the small sample size, the coefficients are depicted as "strong" (0.7–1.0), "medium" (0.4–

TABLE II

SUMMARY OF RELIABILITY ANALYSIS

Questionnaire Section	Electronic Version r	Pencil-and-Paper Version r
Clinical nursing competency	0.93	0.71
Operational nursing competency	0.67	0.67
Soldier/survival skills	0.63	0.83
Personal and physical readiness	1.00	0.78
Leadership and administrative support	0.24	0.69
Group integration and identification	0.67	0.68

TABLE III

DESCRIPTIVE STATISTICS FOR DEMOGRAPHIC VARIABLES

	No.	%
Area of concentration/military occupational specialty		
66C, psychiatric nurse	2	2.0
66E, perioperative nurse	11	8.0
66F, nurse anesthetist	9	7.0
66H00, medical/surgical nurse	36	27.0
66H8A, critical care nurse	9	7.0
66H8E, nurse practitioner	5	4.0
66H8F, community health nurse	7	5.0
66HM5, emergency nurse	1	1.0
91B/91W, medical specialist	5	4.0
91C/91M6, licensed practical nurse	14	10.0
91D, surgical technician	15	11.0
91X, behavioral health technician	6	5.0
Other	12	9.0
Length of time in service[a] (years)		
<4	52	39.7
4–7	34	26.0
≥8	45	34.4
Level of education		
Less than bachelors	44	33.6
Bachelors in nursing	59	45.0
Masters in nursing	28	21.4
Age of soldier[b] (years)		
19–30	63	48.1
31–40	43	32.8
>40	25	19.1

[a] Length of time in service was collapsed for better depiction.
[b] Age of soldier was collapsed into three categories for better depiction.

0.69), and "weak" (0.1–0.39). Table I demonstrates the analysis of correlation. A summary of the reliability analysis is provided in Table II. The leadership and administrative support scale is very short, containing only five items. The small sample may account for the low 0.24 reliability coefficient. Although the sample size was small, the paper-and-pencil version of the READI and the electronic version of the READI were deemed to be comparable. Because of the comparability identified in the pilot study, no changes to the survey instrument were recommended. The major study commenced after the pilot study, at the two MTFs.

Major Research Study

Description of the Major Research Sample

One hundred thirty-one participants, of 338 eligible to participate in the research, responded to the survey within the 60-day period, resulting in an overall response rate of 39%. Twenty-nine of 44 possible participants from Darnall Army Community Hospital completed the survey, resulting in a site response rate of 66%. One hundred two of 294 possible participants from William Beaumont Army Medical Center completed the survey, resulting in a site response rate of 35%. Ninety-one surveys (27%) were completed within the first 30 days, and the remaining 40 (12%) were returned within the 60-day period.

Seventy-nine officers (60%) and 52 enlisted personnel (40%) completed the survey. Fifty-seven women (44%) and 74 men (56%) responded. Thirty soldiers (23%) had been previously deployed. Twenty-four (30%) of 79 officers reported previous enlisted time. The number of years of previous enlisted time ranged from 3 years to 15 years, with an average of 7 years. Numerous military occupational specialties were identified for the previous service. However, 91C/91M6 (licensed practical nurse) appeared more often than the other military occupational specialties. Thirty-three research participants indicated they had civilian nursing experience before entering the military. The more commonly mentioned fields were medical/surgical, cardiac, critical care, and emergency/trauma nursing. The average number of years of civilian experience was 5.5 years. Twelve of the 131 participants indicated they had not completed any annual readiness training with a combat support unit. Therefore, these individuals had not met annual readiness requirements for their PROFIS status and possible deployment. For those who completed annual training, the most frequently reported number of days of readiness training was 5 days. Other descriptive data are depicted in Table III.

TABLE IV

ANOVA FOR CLINICAL NURSING COMPETENCIES BETWEEN MILITARY OCCUPATIONAL SPECIALTIES

Source	F	p
Competency 1	6.472	0
Competency 2	7.804	0
Competency 3	11.303	0
Competency 4	0.269	0.848
Competency 5	5.347	0.002[a]
Competency 6	5.003	0.003[a]
Competency 7	5.632	0.001[a]
Competency 8	7.064	0
Competency 9	9.736	0
Competency 10	5.865	0.001[a]
Competency 11	6.811	0
Competency 12	3.201	0.026[b]

For all comparisons in this table, the degrees of freedom between groups are 3 and within groups are 127, for a total of 130.
[a] $p < 0.01$.
[b] $p < 0.05$.

Descriptive Findings

The first of two research questions for this study was as follows: are there differences in perceived competency skills required for deployment in the combat support arena among PROFIS personnel assigned to the fixed facility? The means and SDs were calculated from responses on a 5-point rating scale to answer the research question. The numbers of items varied by topic and section.

One-way analysis of variance (ANOVA) was used to test for statistical significance. The data were statistically analyzed at a confidence interval of 95%. Because this research study surveyed both enlisted and officer PROFIS personnel, the data are presented in group format, as 66XXX (registered nurse), 91C/91M6 (licensed practical nurse), and a third group composed of 91D (mental health specialist), 91X (operating room specialist), and other military occupational specialties. In the 91B/91W (certified nursing assistant) group, only five individuals completed the survey. Therefore, the results for this group might not be a fair representation of their skill levels; results are not displayed in the panoramic graph but are included in the tables

and ANOVAs for review. Significant differences were noted between the groups throughout the six dimensions of the READI.

The READI uses a 5-point scale, as follows: 1, not competent; 2, slightly competent; 3, somewhat competent; 4, competent; 5, totally competent. After review of the data analysis, we thought the results of the research could be more clearly displayed if the 5-point scale was collapsed into three categories, i.e., not competent, moderately competent, and totally competent. Table IV provides an ANOVA of a portion of the clinical nursing competency results. Figure 1 and Tables V to VIII illustrate the means and SDs for the different subsets.

Clinical Nursing Competency

Participants reported low levels of competency for more than one-half of the clinical competency skills, including caring for patients in hemorrhagic shock, implementing documentation in a field environment, reconstituting medications, performing in a code situation, implementing Advanced Cardiac Life Support protocols without a physician, caring for life-threatening injuries, and implementing triage categories. Moderate to high levels of competency were noted in areas such as following standing orders, responding to code situations, and deciding who would be treated first in a shock scenario. None of the participants reported the highest level of competency in this category.

Operational Nursing Competency

All groups reported moderately high competency in field sanitation and hygiene and deployable medical systems proficiency. Slightly low competency means were reported for evacuation procedures, reporting unlawful acts, and echelon of care. Very low means were noted for use of the 12-lead electrocardiograph and the suction apparatus. The same results were noted in previous studies.[6]

Soldier/Survival Skills

The results were fairly consistent across the three groups, with means varying from 2.25 to 3.43 for perceived competency in soldier and survival skills. The lowest item score among all three groups was for competency in the ability to resist the enemy if captured. The highest rated item was the ability to navigate using a map and a compass. The enlisted soldiers reported greater competency in using the Army communications equipment than did the officers. All groups rated moderately in the ability to defend themselves and their patients and in using the M40 mask and protective gear during a nuclear/biological/chemical attack.

Personal/Physical/Psychosocial Readiness

The research study results indicated that PROFIS personnel were moderately to mostly ready in all categories. Very few personnel were noted to have physical restrictions that limited them during deployments, and all personnel had moderate scores on their physical training tests. All had met their dental examination requirements. The research participants had high scores in rating any pending legal matters, having a care plan if applicable, and family support during deployment. All participants indicated low to moderate scores relating to stress at home or work. This study indicated low levels of readiness relating to death, carnage, one's own death, battle fatigue, and weather extremes, compared with previous studies.[6] The research participants did indicate a moderately high level of readiness for long work hours.

Leadership and Administrative Support

PROFIS personnel indicated a low level of competency regarding perceived leader concerns. Also, they indicated a low level of competency in the ability of their first-line deployment supervisors to keep them informed. The perceived feeling of the inability of leaders to keep troops informed was noted in previous research.[6]

Group Integration and Identification

Self-reported ratings for readiness to adjust to crowded/mixed gender sleeping quarters were moderately high. This study indicated moderate readiness levels in familiarity with the deployment unit's mission, vision, and values. The number of days trained with the deployment unit was rated at a low level of readiness. The number of days spent in the field with their units in the past year varied from 1 day (12.9%) to 5 days (33.5%). Previous research reflected high levels of readiness in the ability to adjust to crowed/mixed gender sleeping arrangements. Some of the research participants (57.1%) also reported a greater number of days (7 days) spent training with their deploying unit.[6]

The second research question that was asked was as follows: are there differences in perceived competency levels among PROFIS personnel assigned to various fixed facilities? Two dif-

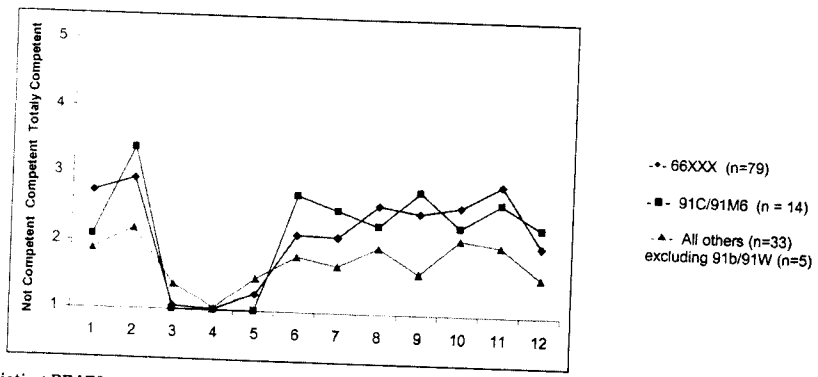

Fig. 1. Panoramic display depicting READI profiles and statistical comparison of active duty nurses, 91M6, 91W, and all other military occupational specialties.

TABLE V

DESCRIPTIVE STATISTICS FOR CLINICAL NURSING COMPETENCIES AND OPERATIONAL NURSING COMPETENCIES

	READI Scores							
	66XXX (*n* = 79)		91C/91M6 (*n* = 14)		91B/91W (*n* = 5)		All Others (*n* = 33)	
Competency in	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Clinical nursing competency								
1. Different types of shock	2.85	0.988	3.21	0.802	4.6	0.548	2.55	1.121
2. Caring for hemorrhagic shock	2.91	1.221	2.64	0.842	4.6	0.548	1.97	1.075
3. Correct response to shock scenario	1.99	0.196	2.0	0.0	2.0	0.0	1.82	0.392
4. Documenting in field environment	2.94	0.979	2.43	1.222	3.8	1.643	2.18	1.158
5. Last time provided direct patient care	3.68	0.743	3.36	1.151	3.4	1.342	3.21	1.269
6. Types of triage experience	3.28	1.502	4.0	1.519	4.6	0.548	2.64	1.388
7. IV drip calculations	3.41	1.401	2.43	1.399	4.8	0.447	2.24	1.659
8. Last time reconstituted, calculated, administered IV medications	2.65	1.241	2.36	1.393	3.4	1.342	1.91	1.259
9. Instituting standing orders	3.48	1.239	3.29	1.49	5.0	0.0	2.27	1.398
10. Code/emergency situation	2.18	0.594	2.0	0.877	2.8	0.447	1.73	0.719
11. Calculating body surface area for burn patient	3.56	1.01	3.57	1.505	4.8	0.447	2.48	1.278
12. Deciding which patient is seen first	3.16	1.137	3.5	1.506	4.8	0.447	2.55	1.252
13. Performing ACLS protocols	2.72	1.484	2.07	1.328	4.4	0.894	1.88	1.193
14. Caring for life-threatening injuries	2.92	1.13	3.36	1.447	4.6	0.894	2.18	1.31
15. IV skills	1.05	0.221	1.0	0.0	1.0	0.0	1.39	0.496
16. Describing life saving principals	1.01	0.113	1.0	0.0	1.0	0.0	1.03	0.174
17. Assessing multiple-trauma patient	1.25	0.438	1.0	0.0	1.0	0.0	1.48	0.508
18. Care of NBC patient	2.13	0.972	2.71	1.437	3.4	0.894	1.82	0.983
19. Care of ballistic missile injuries	2.11	1.24	2.5	1.605	4.0	1.414	2.7	0.984
20. Recognizing tension pneumothorax	2.58	1.317	2.29	1.204	4.6	0.894	1.97	1.075
21. Fluid replacement for burn patients	2.47	1.228	2.79	1.528	4.4	0.894	1.61	1.059
22. Universal blood donor protocol	2.59	1.345	2.29	1.59	4.8	0.447	2.12	1.364
23. Disease, nonbattle injuries	2.91	1.303	2.64	1.336	4.4	0.894	1.03	1.185
24. Use of field ventilator	2.03	1.206	2.29	1.49	3.2	1.643	1.58	1.062
25. Airway management	3.09	1.37	3.57	1.505	4.2	0.837	2.58	1.37
26. Implementing triage categories	2.96	1.018	3.57	1.651	4.6	0.548	2.33	1.291
27. Assuming clinical team leadership	3.57	1.227	3.21	1.369	4.8	0.447	2.39	1.60
28. Caring for refugees	1.58	0.727	2.07	1.385	2.4	1.14	1.45	0.938
29. Pre-partum/postpartum care	3.16	1.265	2.07	0.997	3.2	0.837	1.85	1.349
30. Field infection control	2.90	1.081	2.86	1.406	3.6	1.14	2.27	1.353
31. Orthopedic nursing	3.39	0.869	2.71	1.383	4.0	1.225	2.24	1.324
32. Neurological nursing	3.08	1.118	1.86	1.231	3.8	1.304	1.91	1.128
33. Identifying components of physical examination	3.41	0.941	2.93	1.542	4.4	0.894	2.27	1.18
34. Listing examination techniques to perform physical examination	3.25	1.006	2.43	1.222	4.0	1.414	2.27	1.257
35. Performing nursing assessment and interpreting abnormal findings	3.39	1.137	2.14	1.562	4.4	1.342	2.12	1.317
Operational nursing competency								
1. Obtaining 12-lead EKG by scenario	2.27	1.384	1.79	1.477	3.6	1.673	2.00	1.50
2. Working with suction apparatus	1.35	0.769	1.57	1.016	2.6	1.817	1.52	0.906
3. Knowledge of recharge time for battery pack	1.25	0.759	1.43	0.938	1.4	0.548	1.88	1.364
4. Answer for suction power in field hospital	1.09	0.286	1.07	0.267	1.2	0.447	1.09	0.292
5. Answer for power in evacuation vehicles	1.03	0.158	1.00	0.00	1.2	0.447	1.09	0.292
6. Answer for power for patient on litter	1.11	0.32	1.36	0.497	1.4	0.548	1.06	0.242
7. Evacuation procedures	2.59	0.885	3.36	1.499	3.8	0.837	2.42	1.173
8. Echelon of care	2.63	0.95	2.93	1.639	4.2	1.304	2.33	1.137
9. Reporting unlawful act or conduct	2.41	0.968	3.00	1.617	3.8	1.304	2.48	1.228
10. Field sanitation and hygiene	3.22	0.983	3.43	1.555	3.8	0.447	3.09	1.444
11. DEPMEDS setup	3.28	1.061	2.14	1.406	3.4	1.14	2.91	1.40

Means and SD were calculated from responses on a 5-point rating scale. DEPMEDS, deployable medical systems; IV, intravenous; ACLS, Advanced Cardiac Life Support; EKG, electrocardiogram; NBC, nuclear, biological, chemical.

TABLE VI

DESCRIPTIVE STATISTICS FOR SOLDIER/SURVIVAL SKILLS AND PERSONAL/PHYSICAL READINESS

	READI Scores							
	66XXX (n = 79)		91C/91M6 (n = 14)		91B/91W (n = 5)		All Others (n = 33)	
Competency in	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Soldier/survival skills								
1. Familiarity with M-16 rifle	2.94	1.017	3.71	1.59	4.2	1.304	4.58	0.561
2. Familiarity with 9-mm pistol	3.01	0.954	3.14	1.748	4.2	1.304	2.39	1.273
3. Ability to defend self and patients	3.04	1.16	3.36	1.823	3.8	1.643	3.82	1.357
4. Protection of self with mask/MOPP gear	3.29	1.189	3.57	1.555	4.4	0.894	3.97	.0883
5. Navigation with map and compass	3.43	0.929	3.36	1.646	4.2	1.789	3.91	1.234
6. Maintaining weapon in working order	3.20	1.181	3.93	1.685	4.4	1.342	4.30	1.045
7. Performing in adverse conditions	3.32	1.236	3.79	1.626	4.2	1.304	3.91	1.128
8. Decontaminating self/patient using decontamination equipment	2.52	1.011	3.36	1.692	3.8	1.095	3.42	1.30
9. Familiarity with status under Geneva Convention	2.61	1.192	3.07	1.774	3.6	1.517	3.00	1.323
10. Ability to resist enemy if captured	2.25	1.138	3.00	1.754	3.8	1.643	2.88	1.364
11. Familiarity with Army communications equipment	2.63	0.976	3.36	1.646	3.4	1.14	3.18	1.103
Personal/physical readiness								
1. Last APFT score	3.42	0.982	2.86	1.027	3.6	1.342	3.79	1.111
2. How long since last dental examination	4.27	0.943	3.57	1.651	4.8	0.447	4.58	0.902
3. Has family care plan if indicated	2.57	0.796	2.36	0.929	2.2	1.095	2.18	0.983
4. Has physical profile or not	1.80	0.404	1.64	0.497	2.0	0	1.85	0.364
5. Profile prevents deployment	2.43	0.779	2.07	0.917	2.6	0.894	2.42	0.83

Means and SD were calculated from responses on a 5-point rating scale. MOPP, mission-oriented protective posture; APFT, Army Physical Fitness Test.

TABLE VII

DESCRIPTIVE STATISTICS FOR PSYCHOSOCIAL READINESS

	READI Scores							
	66XXX (n = 79)		91C/91M6 (n = 14)		91B/91W (n = 5)		All Others (n = 33)	
Competency in	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Psychosocial Readiness								
1. Quality of current family support system	3.06	1.102	3.21	1.528	4.0	0.707	3.39	1.144
2. Same support system available if deployed	1.0	0.0	1.07	0.267	1.0	0.0	1.0	0.0
3. Separation >6 months from family	1.7	0.463	1.36	0.497	1.4	0.548	1.33	0.479
4. Family's response to separation	4.61	1.829	3.86	1.875	3.2	1.924	3.76	1.733
5. Having a current will	1.13	0.335	1.21	0.426	1.2	0.447	1.15	0.364
6. Having a current power of attorney	1.13	0.335	1.21	0.426	1.2	0.447	1.30	0.467
7. Any pending legal matters	1.96	0.192	1.79	0.426	1.8	0.447	1.97	0.174
8. Current working relationship with coworkers in deployment unit	3.52	1.306	2.57	1.089	4.8	0.837	3.36	1.432
9. Overall feeling of last deployment	5.19	1.451	3.36	1.946	5.2	1.304	5.03	1.447
10. Amount of current stress at work	2.46	1.06	2.29	1.069	2.0	0.707	2.30	0.847
11. Amount of current stress in family	1.87	0.931	1.86	1.167	1.4	0.548	1.97	0.81
12. Amount of current stress with finances	1.71	0.834	1.79	0.699	1.4	0.548	1.97	1.212
13. Amount of current stress in other areas	1.22	0.613	1.14	0.363	1.0	0.0	1.52	0.972
14. How to access emotional support during deployment	1.08	0.267	1.14	0.363	1.0	0.0	1.15	0.364
15. How to access mental health services while deployed	1.18	0.384	1.14	0.363	1.0	0.0	1.09	0.292
16. Preparation for death, dying, and carnage	2.43	1.298	2.5	1.557	3.2	1.643	2.88	1.219
17. Preparation for own death	2.62	1.352	2.07	1.439	2.6	1.817	2.67	1.164
18. Preparation to deal with battle stress	2.45	1.136	2.57	1.399	3.0	1.414	2.94	1.273
19. Preparation to deal with weather extremes	2.81	1.144	3.0	1.617	3.8	1.643	3.09	1.259
20. Preparation to work long hours	3.43	1.058	3.21	1.672	4.4	1.342	3.58	1.091
21. Preparation to deal with lack of privacy	2.85	1.231	3.21	1.718	4.6	0.894	3.52	1.228

Means and SD were calculated from responses on a 5-point rating scale.

TABLE VIII

DESCRIPTIVE STATISTICS FOR LEADERSHIP/ADMINISTRATIVE SUPPORT AND GROUP INTEGRATION/IDENTIFICATION

	READI Scores							
	66XXX (n = 79)		91C/91M6 (n = 14)		91B/91W (n = 5)		All Others (n = 33)	
Competency in	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Leadership/administrative support								
1. Understands set-up, functions, and command structure of TOE unit	2.78	1.14	2.64	1.336	2.4	1.517	2.52	1.326
2. Competent family care plan will work if deployed if single parent or dual military	6.10	2.01	4.86	2.685	5.8	2.683	5.48	2.539
3. Rate deployment unit's first-line leaders knowledge and concern for soldiers	2.28	0.861	1.79	1.122	3.0	1.414	2.18	0.983
4. Rate deployment unit's first-line acceptance of responsibility for tough training	2.33	0.902	1.79	1.051	3.0	1.414	2.24	0.969
5. Rate deployment unit's first-line leader's ability to keep you informed	2.49	0.875	1.79	1.122	3.0	1.414	2.39	0.933
Group integration and identification								
1. Rate ability to adjust to crowded mixed sleeping quarters	3.58	1.139	3.57	1.505	4.6	0.894	4.24	0.867
2. Number of days trained with deployment unit in past 12 months	2.75	1.315	2.64	1.447	2.8	1.789	2.94	1.273
3. Familiarity with deployment unit's mission, vision, and values	3.51	1.386	2.93	1.385	2.8	2.049	3.45	1.603
4. Familiarity with role/duty position in deployment unit	3.25	1.489	3.14	1.791	2.6	2.191	3.48	1.584

Means and SD were calculated from responses on a 5-point rating scale. TOE, troops, organization, and equipment.

ferent types of MTFs were chosen to test this research question. One facility is considered a community hospital, whereas the other facility is classified as a medical center. An Army community hospital offers "complex, resource-intensive secondary care (e.g., inpatient care, surgery under general anesthesia) at a major post, usually 50 to 150 beds."[9] An Army medical center offers "tertiary care (sophisticated diagnosis/treatment of any ailment) as well as primary and secondary care. Medical centers have more sophisticated equipment and more specialized staff and offer wider arrays of specialty care."[9]

The means and SDs were calculated from responses on a 5-point rating scale to answer the research question. The numbers of items varied by topic and section. One-way ANOVA was used to test for statistical significance. The data were statistically analyzed at a confidence interval of 95%.

The medical center reported slightly higher scores in clinical nursing competency, operational nursing competency, and psychosocial readiness. Table IX illustrates the statistical data. Because the facility is a large medial center with a trauma center, it could be assumed that nursing personal would experience a greater diversity of patient scenarios. This could account for the higher levels of perceived competency skills.

Data analysis indicated that there were differences in perceived competency levels among PROFIS personnel assigned to various fixed facilities. The differences may result from the training received at the respective medical facilities, previous deployments, or skills learned through personal experiences.

TABLE IX

ANOVA BY COMPETENCY SECTION FOR DIFFERENT FACILITIES

Source	F	p
Clinical nursing competency	0.609	0.437
Operational nursing competency	6.639	0.010[a]
Soldier/survival skills	1.455	0.230
Personal and physical readiness	0.421	0.518
Psychosocial readiness	9.671	0.002[b]
Leadership and administrative support	0.230	0.632
Group integration and identification	2.632	0.095

For all comparisons in this table, the degrees of freedom between groups were 3 and within groups were 127, for a total of 130.

[a] $p < 0.05$.

[b] $p < 0.01$.

Discussion

Overall, the data in this study illustrated a difference in perceived competency skills, compared with previous studies. The means within the six dimensions were lower in this research than in previous studies using the READI. Participants reported low competency for more than one-half of the clinical competency skills, including caring for patients in hemorrhagic shock, implementing documentation in a field environment, reconstituting medications, performing in a code situation, implementing Advanced Cardiac Life Support protocols without a physician, caring for life-threatening injuries, and implementing triage categories. In operational nursing competencies, the participants indicated they had a low level of competency in obtaining a 12-lead electrocardiogram and low to moderate competency skills in deployable medical systems setup. The participants reported low readiness for dealing with death, dying, and carnage. Most thought that they had a low to moderate ability to adjust to crowded/mixed gender sleeping quarters and that they did not have enough opportunity to train with their deployment units. Based on the results of the study, these groups of PROFIS personnel tend to project a perceived feeling of not having the appropriate competency skills needed for deployment. These results support previous research findings regarding medical personal and deployments.

As military personnel prepare for possible deployment, in view of the present world situation, these perceived feelings could greatly affect mission readiness. Family separation and the unknown greatly influence military deployments. Without the necessary confidence in their nursing skills, individuals could possibly experience even greater levels of stress and discord during deployments, which could affect the quality of care provided.

Conclusions

The purpose of the study was to identify the perceived readiness of U.S. Army PROFIS personnel in the Great Plains Re-

gional Command regarding nursing competency and readiness for deployment during combat missions or MOOTW. Two different types of MTFs were chosen to discern a perceived difference in competency skills based on the type and size of the facility. Historical events might have had an impact on the study results. By the completion of data collection, military nursing personnel were again on a heightened state of alert because of a possible conflict with Iraq. Three areas continue to affect preparation for deployment to combat or MOOTW, namely, competency, military readiness, and psychosocial issues. Of the three, competency continues to be documented as a priority for nursing personnel.

Military competency "includes the ideas of technical proficiency, ability to use nursing skills with field equipment, physical assessment skills, clinical decision acumen, and trauma/triage skills."[5] Moreover, competency is related to flexibility to and the ability to function in nontraditional roles. In a combat environment, clinical competency is seen as part of three areas, i.e. (1) military specialty-related skills, (2) military-unique skills, beyond what is normally done in the workplace, and (3) trauma intervention capability.[5] Other clinical competencies used in combat include increasing autonomy, implementing orders without a physician, triaging, improvising with a shortage of supplies, using/trusting one's senses during assessment without the benefit of high-technology equipment, and caring for a greater diversity of patients in a harsh setting.[4,10-12]

Nursing personnel must be trained to function efficiently for the next military deployment. If medical personnel are not trained effectively, then "many will die as lessons are relearned."[13] Army nursing personnel are at risk of being unprepared without a conceptual model to guide professional practice and training. Individual readiness must be a priority for all nursing personnel, because nurses must sustain the health of soldiers to meet deployment missions. "Readiness is fundamental to army nursing—readiness for deployment, readiness for the future of health care."[14]

As military nursing personnel continue to deploy during times of combat or during MOOTW, providing care in strange, possibly dangerous environments, they must be trained to meet the diversity of injuries among patients they may encounter. This research and that of previous studies using the READI support the need for a core competency tool to augment the READI. Future research should focus on the development and piloting of a core competency tool for PROFIS nursing personnel dispersed worldwide.

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