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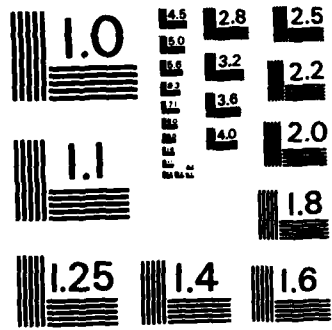
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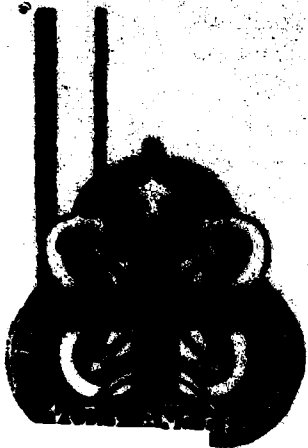
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CONSULTATION WITH THE
4TH INFANTRY DIVISION (MECHANIZED)
FORT CARSON, COLORADO:
COMBAT STRESS SURVEY

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TABLE OF CONTENTS

Report Documnetation Page DD 1473	ii
Table of Contents	iii
Introduction	1
Method	1
Results	1
Discussion	3
Recommendations	4
Reference	4
Annex A Combat Stress Survey Instrument	5
Annex B Items in Combat Stress Survey clusters	11
Annex C Battlefield Interview	12
Distribution	15



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Consultation with the 4th Infantry Division (Mechanized),
Fort Carson, Colorado: Combat Stress Survey

The Mental Health section of the 4th Infantry Division constructed a Combat Stress Survey to assess the cohesion and morale of the units within the division. The survey requires less than 30 minutes to administer. The combat stress assessment consists of 20 items each using a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

After having collected the data using the Combat Stress Survey, the 4th Infantry Division requested assistance from the Health Care Studies and Clinical Investigation Activity in analyzing the responses. The purposes of this consultation are: (1) to examine the test characteristics of the Combat Stress Survey and (2) to examine the responses of units administered the Combat Stress Survey before (Phase I) and after deployment (Phase II) to the National Training Center. The two phases will be examined separately. Appendix A contains the survey instrument. One item is reverse scored (item 92).

METHOD

Subjects.

Soldiers from two brigades were administered the Combat Stress Survey (see Mangelsdorff et al., 1983) during two phases; the results for Phase I (pre-deployment) were from 721 soldiers taking the survey in late December, 1983 through January 1984. Phase II (post-National Training Center) came from a sample of 615 soldiers from the same units taken in February 1984. The Combat Stress Survey instrument is found in Annex A.

Procedure.

Two types of analyses were performed: (1) a principal components factor analysis, and (2) an assessment of the characteristics of four subjectively derived subscales. Reliability estimates using the Kuder Richardson procedure were calculated using coefficient alpha determinations. Summary reports were customized for each company sized unit.

RESULTS

Test Characteristics.

Phase I.

- Factor Analysis to Assess Psychometric Characteristics.

Responses from the 721 soldiers were submitted to a principal components factor analysis of the 20 items. Three factors with eigenvalues greater than 1.0 were obtained, accounting for 48.8% of the cumulative variance. A Varimax rotation with Kaiser normalization was performed on the factors. Items having an item-total score of .30 and greater were extracted. Annex B summarizes item clusters and the items contained in the clusters.

The three item clusters extracted were subjected to reliability estimates using the Kuder Richardson procedure to calculate coefficient alpha. The coefficient alphas for the separate scales were: scale 1 (12 items) was .900; scale 2 (9 items) was .786; and scale 3 (5 items) was .615. The maximum possible reliability estimate would be a coefficient alpha of 1.0.

- Subscale Analysis.

Four subscales were labeled based on common themes; these subscales were: leader, unit, self, team. The reliability estimates (coefficient alphas) for the subscales were: team (4 items) was .646; leader (6 items) was .832; self (5 items) was .615; and unit (6 items) was .767. See Annex B for the items in the subscales.

Phase II.

- Factor Analysis of Phase II Responses.

Responses from the 615 soldiers were submitted to a principal components factors analysis of the 20 items. Three factors with eigenvalues greater than 1.0 were obtained, accounting for 50.4% of the cumulative variance. A Varimax rotation was performed.

- Subscale Analysis.

The four subscales were assessed for reliability estimates; team (4 items) was .721; leader (6 items) was .844; self (5 items) was .613; and unit (6 items) was .793.

- Reliability Estimates of Phase II Responses Using Phase I Item Cluster Scoring.

The three item clusters determined in Phase I were used to score the responses obtained in Phase II. The reliability estimates (using coefficient alpha) were: scale 1 (12 items) was .902; scale 2 (9 items) was .809; and scale 3 (5 items) was .613.

Combined Phase I and Phase II Responses.

- Factor Analysis.

Responses from all 1336 soldiers were pooled for a principal components factor analysis. Three factors with eigenvalues greater than 1.0 were obtained, accounting for 49.1% of the cumulative variance. A Varimax rotation was performed.

The three item clusters determined in Phase I were used to score the overall responses. The reliability estimates (using coefficient alpha) were: scale 1 (12 items) was .901; scale 2 (9 items) was .796; and scale 3 (5 items) was .614.

- Subscale Analysis.

The four subscales were assessed for reliability estimates. The results were: team (4 items) was .683; leader (6 items) was .840; self (5 items) was .614; and unit (6 items) was .778.

Unit Scores.

Limited demographic information about individual soldiers' battalions and companies were available. When possible, a unique code was generated on each soldier to allow comparisons between company size units within and between the battalions. For each of the four subscales, the mean response to the items answered in the subscale was calculated for each soldier. The scores of the members of a unit were summed. The mean score calculated for each unit was compared with the mean subscale scores of the other units. Feedback of the unit mean subscale scores was provided to unit commanders as part of the debriefings.

DISCUSSION

The 4th Infantry Division Combat Stress Survey can be described as an instrument having reasonable reliability characteristics. The stability of the factor structures over the two samples was acceptable. The reliability estimates of the three item clusters derived from factor analyses across the two samples were good. The three factor analytically derived subscales dealt with themes about the unit, confidence and training, and combat. The amount of variance accounted for (roughly 50%) was acceptable. Use of the four subscales did not diminish the value of the survey; the four subscales had acceptable psychometric reliability estimates (all greater than .60) that were stable over time. The content of the four empirically derived subscales thematically included: leader, unit, self, and team. Because of the considerable overlap between the content of the three and the four subscales, it was decided to use the four empirically derived subscales to report to the commander.

It would have been preferable to have had all of the same subjects take the surveys in both phases. This would have allowed for assessing the individual differences across repeated measures; it would also have provided a better opportunity to assess the consistency of the survey (under test-retest conditions). Assessment of the validity characteristics of the survey was not done. No other data were available on the units to allow for testing whether the survey really assessed cohesion and unit morale. A structured battlefield interview (see Appendix C) was available; the interview data could be collected only on a limited basis and on very few units.

Summary reports were customized for each company sized unit, to allow feedback to unit commanders on the unit scores across the two phases and in comparison with other units. The summary reports contained mean scores for the four subscales and for each of the 20 items in the Combat Stress Survey. These were also presented in relation to other units mean for both phases.

RECOMMENDATIONS

- Recommend coordination with HCSCIA before any future study begins to determine how best to answer study questions.
- Recommend closer monitoring to obtain more complete data on subjects, particularly the unit identification codes.
- Recommend that the same units and soldiers be assessed under all conditions.
- Recommend concurrent testing with other instruments in a formal program to determine validity of the Combat Stress Survey in assessing cohesion and unit morale. The instruments of choice would be the Company Perceptions Questionnaire, the General Well Being Scale, the E1/E4 Squad/Platoon Perceptions Scale, and the Command Climate Survey. All of these instruments are available from the Walter Reed Army Institute of Research.

REFERENCE

Mangelsdorff, A.D., King, J.M., and O'Brien, D.E. (1983, October). (Editors). Proceedings of the Third Users' Workshop on Combat Stress: Cohesion, Health Care Studies and Clinical Investigation Activity Consultation Report 84-001.

ANNEX A

Combat Stress Survey Instrument

DIVISION MENTAL HEALTH

COMBAT STRESS SURVEY
(CSS)

THIS QUESTIONNAIRE IS INTENDED TO PROVIDE INFORMATION ABOUT HOW THE MEMBERS OF YOUR ORGANIZATION WORK TOGETHER. THE INFORMATION YOU PROVIDE WILL BE USED TO IMPROVE THE EFFECTIVENESS OF THE UNIT/ORGANIZATION.

IF THE RESULTS ARE TO BE HELPFUL, IT IS IMPORTANT THAT YOU ANSWER EACH QUESTION AS THOROUGHLY AND FRANKLY AS POSSIBLE. THIS IS NOT A TEST, THERE ARE NO RIGHT OR WRONG ANSWERS.

THE COMPLETED QUESTIONNAIRES WILL BE PROCESSED BY AUTOMATED EQUIPMENT WHICH WILL SUMMARIZE THE ANSWERS IN STATISTICAL FORM SO THAT INDIVIDUALS CANNOT BE IDENTIFIED. PLEASE DO NOT WRITE YOUR NAME ANYWHERE ON THE QUESTIONNAIRE OR ANSWER SHEET.

INSTRUCTIONS

1. Mark all responses on the machine-readable answer sheet. If you do not find the exact response that fits your case, use the one that is closest to it.
2. Remember, the value of the survey depends upon your being straightforward in answering the questionnaire. Your answer sheets are processed by automated equipment and no one from your command will see them.
3. The answer sheet is designed for automatic scanning of your responses. Items are answered by marking the appropriate response rectangle (□) on the answer sheet as illustrated in the following example.

Item #3: When I am in the field my unit tells me what is going on and what to expect.

Response Scale for Questions 85-104

- (1) I strongly disagree
- (2) I somewhat disagree
- (3) I am neutral
- (4) I somewhat agree
- (5) I strongly agree

In this example, the response is 2 , I somewhat disagree that my unit tells me what is going on and what to expect when I am in the field.

4. Please use a pencil (No. 2 is best), and observe carefully these important requirements:

- Make heavy marks that fill in the number rectangle.
- Erase cleanly any answer you wish to change.
- Make no stray markings of any kind.
- Do not write your name or social security number anywhere on the questionnaire or the answer sheet.

<input type="checkbox"/> 1
<input checked="" type="checkbox"/>
<input type="checkbox"/> 3
<input type="checkbox"/> 4
<input type="checkbox"/> 5
<input type="checkbox"/> 22
<input type="checkbox"/> 6
<input type="checkbox"/> 7
<input type="checkbox"/> 8
<input type="checkbox"/> 9
<input type="checkbox"/> 10

5. The particular meaning of the term "this unit" will be announced by the person administering the questionnaire. For example, "this unit" may refer to your company, battalion, brigade, etc. Questions about "your supervisor" refer to the person to whom you report directly. Questions about "your co-workers" refer to the people you associate with from day to day in order to get the job done -- they usually report to the same supervisor. Questions about "your work group" refer to the entire team of people, including your co-workers and your supervisor(s) who work for a common goal.

6. Turn to side two (GREEN SIDE) and fill in the appropriate unit/organization code.

COMBAT STRESS SURVEY

Section A

1. This background information is necessary to get a complete picture of your unit and may be used to sort responses into selected subgroups.
 2. Please answer all the questions unless you have extreme reluctance to answer a particular statement.
 3. Begin your responses with statement number 116 on your answer sheet.
(On side two - Green Side)
-

116. Have you taken this survey before in this unit?

1. No.
2. Yes.

117. Sex.

1. Male.
2. Female.

118. Education.

1. No High School Diploma.
2. High School Diploma or G.E.D.
3. College Work, less than a 4-year degree.
4. College Work, 4-year degree.
5. Graduate Degree.

119. How long have you been in the Army?

1. 6 months or less.
2. 7 to 18 months.
3. 19 months to 4 years.
4. 5 to 10 years.
5. Over 10 years.

120. How long have you been at this installation?

1. 6 months or less.
2. 7 to 12 months.
3. 13 to 18 months.
4. 19 months to 2 years.
5. More than 2 years.

121. How long have you been in this unit?

1. 6 months or less.
2. 7 to 12 months.
3. 13 to 18 months.
4. 19 months to 2 years.
5. More than 2 years.

122. Ethnic Background.

1. White.
2. Black.
3. Hispanic.
4. Asian American.
5. Other (e.g., American Indian, Filipino, Korean).

123. Which of the following best describes your career intentions at the present time?

1. I will definitely stay until retirement.
2. I will probably stay until retirement.
3. I am undecided about staying.
4. I will stay for now but will probably leave before retirement.
5. I will definitely leave at the earliest opportunity.

124. Military Pay Grade.

- | | |
|----------------|-------------------|
| 1. E-1 to E-4. | 4. W-1 to W-4. |
| 2. E-5 to E-6. | 5. O-1 to O-3. |
| 3. E-7 to E-9. | 6. O-4 and above. |

125. Which military branch corresponds the closest with your primary MOS?

1. Infantry.
2. Field Artillery, Air Defense Artillery.
3. Armor.
4. Corps of Engineers.
5. Signal Corps.
6. Military Police/Military Intelligence.
7. Logistics (Ordinance, Quartermaster, Transportation).
8. Adjutant General/Finance.
9. Other (Medical, Dental, Chaplain, etc.).

126. Which corresponds the closest to your supervisory level?

1. Supervisory.
2. Non-supervisory.

RESPONSE SCALE

- (1) Strongly Disagree.
- (2) Somewhat Disagree.
- (3) Undecided.
- (4) Somewhat Agree.
- (5) Strongly Agree.

- 85. My individual training has been good in preparing me for combat.
- 86. My unit training has been good in preparing my unit to work together in combat.
- 87. I am confident in the abilities of the enlisted people (E-1 to E-4) in my unit to perform their duties in a combat situation.
- 88. I am confident in the abilities of the NCO's (E-5 and above) in my unit to effectively manage the people under them in a combat situation.
- 89. I am confident in the ability of the company grade officers (LT and CPT) in my unit to lead me in a combat situation.
- 90. I am confident in the ability of the field grade officers (MAJ and above) over me to lead me in a combat situation.
- 91. In a combat situation, I would feel I could completely trust and depend upon the people I work with.
- 92. In a combat situation, most people in my unit would be more trouble than they are worth.
- 93. In a combat situation, my equipment would function well.
- 94. I can use my weapons effectively in a combat situation.
- 95. When I am in the field my unit tells me what is going on and what to expect.
- 96. When I am in the field, my leaders insure that I am properly fed, warm, and rested whenever possible.
- 97. The NCO's over me have much concern for my well-being.
- 98. The officers over me have much concern for my well-being.
- 99. My unit has good training on caring for and evacuating our own wounded in combat.
- 100. I am proud of my unit.
- 101. My unit values what I do.
- 102. I choose to spend my free time with the people in my unit.
- 103. My family members are well prepared to take care of themselves if my unit should suddenly have to go into combat.
- 104. My chances are very good of staying alive if my unit went into combat against the Russians in Europe.

ANNEX B

Items in Combat Stress Survey clusters

Item clusters derived from factor analyses:

cluster number	items in Combat Stress Survey	content of cluster
1	86 88 89 90 95 96 97 98 99 100 101 104	unit
2	85 86 87 88 91 R92 99 102 104	confidence, training
3	85 93 94 103 104	combat

Item clusters empirically derived:

cluster number	items in Combat Stress Survey	content of cluster
1	87 88 91 R92	team
2	88 89 90 96 97 98	leader
3	85 93 94 103 104	self
4	86 99 100 101 102 104	unit

Note: item 92 is reverse scored

ANNEX C

Battlefield Interview

BATTLEFIELD INTERVIEW

The purpose of this interview is to help us measure certain aspects of your unit's readiness for combat. We are interested in how this exercise is affecting your readiness. You will not be personally identified in any way. Your responses to the interview will not be reported individually to anyone. We are only interested in the overall collective opinions of your unit. If you have strong reservations about answering any particular question please say so. Obviously, your honest opinion is what we need and our work will be useless without it.

1. Since this exercise began, has your confidence in yourself as a soldier:
Increased? _____ Decreased? _____ Stayed the same? _____
2. How would you rate your own fighting ability?
3. Since this exercise began, has your confidence in your unit's fighting ability:
Increased? _____ Decreased? _____ Stayed the same? _____
4. How would you rate your unit's fighting ability now?
5. Since this exercise began, has your opinion of your company grade officers:
Increased? _____ Decreased? _____ Stayed the same? _____
6. How would you rate your company grade officers overall now?
7. Since this exercise began, has your opinion of your NCO's (E-5 and above):
Improved? _____ Gotten worse? _____ Stayed the same? _____
8. How would you rate your NCO's overall now?
9. Since this exercise began, how your opinion of the enlisted people (E-1 - E-4) in your unit:
Improved? _____ Gotten worse? _____ Stayed the same? _____
10. How would you rate the enlisted people overall now?
11. Since this exercise began, has your confidence in your weapons:
Increased? _____ Decreased? _____ Stayed the same? _____

12. How would you rate your weapons now?
13. Since this exercise began, has your confidence in your other equipment:
Increased? _____ Decreased? _____ Stayed the same? _____
14. How would you rate your equipment now?
15. Since this exercise began, has your personal morale:
Improved? _____ Gotten worse? _____ Stayed the same? _____
16. How would you rate your morale now?
17. How many hours have you slept in the last three days?
18. How tired are you?
Extremely tired? _____ Very tired? _____ Pretty tired? _____ O.K. _____
19. Have your leaders shown a concern for your physical and mental state during this exercise? Which leaders (NCO/Officer)?
20. Are your concerns for your family or personal matters back home keeping you from giving 100% here?
21. How does your family (if applicable) handle your absence:
Well? _____ O.K.? _____ Not too good? _____
22. How do you feel about facing the real Russians in combat at this point?

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