

Running Head: ORIGINS AND CREDIBILITY

Army-Baylor University Graduate Program
in Health Care Administration

Graduate Management Project Proposal
Origins and Credibility of the Health Risk Assessment II.

Presented to:

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28 April, 2006

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20071101307

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 28-04-2006		2. REPORT TYPE Final Report		3. DATES COVERED (From - To) July 2005-July 2006	
4. TITLE AND SUBTITLE Origins and Credibility of the Health Risk Assessment II				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Joseph Aric Bowman MAJOR Medical Service Corp				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Madigan Army Medical Center				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) US Army Medical Department Center and School BLDG 2841MCCS-HFB (Army-Baylor Program in Healthcare Administration) 3151 Scott Road, Suite 1411 Fort Sam Houston, TX 78234-6135				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) 07-06	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The purpose of this case study is to document and describe the origins and credibility of the Health Risk Assessment II (HRA II). The unit of analysis was the HRA II, version II. The criterion for success was the establishment of a document stating the current level of credibility of the core questions on the HRA II. The results of this study have found 42 of the 76 core behavioral health questions to have either an unknown or poor level of credibility. Thirty four questions were found to have either good or at least fair credibility. Positivist and post-positivist themes are presented as a method of evaluation. A proposition to increase the credibility of future health risk assessments is posited.					
15. SUBJECT TERMS Health Risk Assessment, HRA, Credibility,					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 88	19a. NAME OF RESPONSIBLE PERSON
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			Rene Pryor
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Acknowledgements

First and foremost I acknowledge my Lord and Savior for the ability to complete this document. To my loving wife I have nothing but praise and admiration for the courage and patriotism you have displayed while deployed to Iraq during the production of this research report. I thank you for the many nights that I would complain on the phone only to hear you put life clearly in perspective by saying "Honey it is just a paper, try being in Iraq".

To Colonel Julie Martin, my preceptor, a very special thanks for the guidance, expertise, and continuous encouragement. I cannot express enough the wisdom of your simple guidance to find a project that (a) benefited the organization, and (b) that I wanted to do. The latitude to learn and grow professionally during this project and throughout the residency year will be appreciated for my entire career.

The successful completion of this document required the attention and cooperation of too many individuals to list by name. I am extremely grateful that throughout the time frame of this study I was always treated like a General Officer by everyone that I spoke too. Such respectful treatment was no small task considering that I visited and re-visited many individuals to the point that I am sure I became a nuisance. To Dr. Teressa Bruder, LTC Michael Cook, COL Gregory Gahm, Dr. Barbara Lucenko, Dr. John Meyer, Dr. John Miller, and the ICROWS staff, I will never be able to repay you for your kindness, guidance, and support.

Abstract

The purpose of this case study is to document and describe the origins and credibility of the Health Risk Assessment II (HRA II). The unit of analysis was the HRA II, version II. The criterion for success was the establishment of a document stating the current level of credibility of the core questions on the HRA II. The results of this study have found 42 of the 76 core behavioral health questions to have either an unknown or poor level of credibility. Thirty four questions were found to have either good or at least fair credibility. Positivist and post-positivist themes are presented as a method of evaluation. A proposition to increase the credibility of future health risk assessments is posited.

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Disclaimer

The views expressed in this study are those of the author and do not reflect the official policy or position of the Department of Defense, Department of the Army, Madigan Army Medical Center or the U.S. Government.

Statement of Ethical Conduct in Research

The author declares no conflict of interest or financial incentives in any product or service mentioned in this article. The confidentiality of individuals whose data may have been used in this study was protected at all times and under no circumstances will be discussed or released to outside agencies.

Introduction

The operational strain on the United States military exists at severely high levels. Since September 11th, 2001 the diverse nature of missions and the complexity of multiple worldwide deployments have created an unimaginable operational tempo. United States military forces are required to support direct combat operations, peacekeeping, and humanitarian support missions through multiple and continuing deployments and often in concurrent theaters. Currently, more than 275,000 service members are deployed worldwide to support national commitments on the war against terrorism as well as other endeavors (Winkenwerder, 2005). This large scale deployment of forces under wartime conditions creates daunting challenges for the Department of Defense (DoD) to maintain the operational status of Soldiers and equipment. Doctrinal changes in the nature of combat away from the traditional linear battlefield concept to one where the tactics of the enemy are non-linear only compounds the demands on military leadership. Societal pressure against the war in Iraq and Afghanistan and the lack of ability to meet recruiting goals makes the sustainment of individuals currently within the military a vital mission.

Because of these factors, the maintenance of the physical and mental health of the force has been identified as decisive to the continued success of the military. Commanders know the health and fitness of their Soldiers are critical indicators of the operational readiness of a unit, and unhealthy personnel will compromise the ability of a unit to accomplish its mission (Wright, Huffman, Adler & Castro, 2002). The need to address the mental and physical needs of Soldiers in a wartime environment is at the forefront of media reports, political speeches, and military commanders' initiatives. In June of 2005 General Bell, Commander, United States Army Europe, issued a

memorandum underscoring the fact that “early detection of problems and appropriate intervention is critical” when dealing with Soldiers returning from combat. This memorandum illustrates recognition by Army leadership of the importance of appropriately taking care of the needs of Soldiers in order to improve wellness and perhaps increase retention within the Army.

One way to maximize the medical readiness of military personnel is through the use of medical surveillance and the systematic collection of health data to develop methods for countering medical threats (Wright et al., 2002). The Army formally began the process of health data collection in 1986 when DoD Directive 1010.10, Health Promotion and Disease/Injury Prevention, mandated the establishment of the Army Health Promotion Program. This directive resulted in the publication of Army Regulation (AR) 600-63 in November of 1987 to prescribe the policy, responsibilities, and procedures for the Army Health Promotion Program (AR 600-63, 1996). Directive 1010.10 further established the development of individual programs at DoD installations to create health promotion activities, health education programs, and health screening of beneficiaries.

In order to accomplish the assessment of the health status of Soldiers AR 600-63, section 2-13, mandated the use of a health risk appraisal by providers to screen Soldiers, family members, Army civilians, and retirees for health risk factors (AR 600-63, 1996). The use of a health risk appraisal began in 1988 with a paper based health risk assessment (HRA) survey taken by individual Soldiers at varying times throughout their career. The development and evolution of the HRA used by the Army has been identified as one of the most contentious points in the history of the Army’s health promotion program

(Stevenson, 1990). For the purpose of clarity the original health risk assessment used by the Army will be designated HRA I throughout the rest of this document. The HRA I changed versions several times after it was introduced, and ceased to be used as part of the Army wide health promotion program in 1998.

The concept of using a survey instrument to assess the health and welfare of Soldiers continues to be developed at various locations throughout the Army. In 2002 Brigadier General (BG) Dunn, Commander of Madigan Army Medical Center (MAMC), directed the proponent for the installation health promotion program, the I Corps Readiness Outcomes and Wellness Service (ICROWS), to develop a new HRA that identified high risk Soldiers for proactive intervention and could also be used in a large scale screening initiative. The new survey, designated the Health Risk Assessment II (HRA II), was completed in September of 2003 and began beta testing in 2004. The HRA II (Appendix A) was to serve as a measurement tool for identifying the health needs of Soldiers to return them to full combat readiness in the most expeditious manner possible. Early detection and treatment of health needs to prevent more extensive health care interventions is critical in maintaining unit readiness.

Statement of the Problem

The credibility of some of the individual questions on the Health Risk Assessment II has not been established and therefore questions the quality and utility of information gathered by the survey. The underlying management issue therefore becomes whether the Health Risk Assessment II is an appropriate survey instrument for assessing the health care needs of Soldiers.

Purpose

The purpose of this case study is to document and describe the history and credibility of the Health Risk Assessment II.

Research Question

What are the origins and credibility of the survey questions used on the Health Risk Assessment II?

Conditions that Prompted the Study

The directive by BG Dunn to create a new HRA survey tool served as the authority for the development of a survey designed to assess the health needs of the military population, both active and reserve, at Fort Lewis, WA. This directive was based on a desire to produce health data about the Soldiers in the MAMC beneficiary catchment area to assess the effectiveness of population health care outcomes achieved from health promotion encounters. The goal was to provide commanders with a complete assessment of the health of their force to ensure all the medical readiness needs of their personnel are addressed (Wright et al., 2002). The Director of ICROWS hired a consultant to design a new survey instrument to be completed by September 2003. The HRA II was staffed, and survey questions were selected and designed into a paper based survey. The selection of the survey questions for the HRA II was conducted by combining several existing DoD surveys, questions from the original Army HRA I, and items from various subject matter experts at Fort Lewis.

In August 2003, a study by the U.S. Army Research Institute of Environmental Medicine (USARIEM) analyzed the quality of the survey questions used on the Army HRA I. The study revealed serious doubt as to the credibility of certain questions due to

the fact that “it does not appear that the Army ever published any findings related to the reliability or validity of the HRA I questionnaire or any of the items on it” (Senier, Bell, Strowman, Schempp & Amoroso, 2003, p. 24). The recent development of the HRA II is in some part based on questions taken from the HRA I. Based on the USARIEM study findings the structural similarity between the two surveys creates a need to review the credibility of the individual questions to determine if the HRA II survey is indeed measuring what it is intended to measure. A review of the remaining HRA II questions taken from existing surveys or developed by other sources also warrants study as to whether those questions produce credible data useful for the development of health promotion measures. As stated by the World Health Organization (2000), “the credibility of risk assessment depends, to a large extent, on the strength of the scientific evidence on which it is based” (p. 997). The data collected from the HRA II has the potential for use in program and resource planning, making comparisons about the health status of beneficiary groups, evaluating intervention programs, and assessing trends in health behaviors (Senier, et al., 2003).

Interviews with the Director of ICROWS, the Chief Department of Psychology, and the Director of the Health Outcomes Division at MAMC further identified the need to analyze the credibility of the HRA II. Those individuals expressed concern over the true state of the validity, and therefore the credibility, of the individual survey questions of the HRA II especially those questions that had been replicated from the HRA I. The fact that the HRA II was developed utilizing metrics from the HRA I, and the unknown status of the sources of many of the additional survey questions used in the construction

of the HRA II, posited a question as to whether the survey is a useful tool in the assessment of Soldier health needs.

The need for a complete history that included documentation and description of the credibility of the HRA II was recognized. Such documentation will strengthen the power of the survey and create a baseline document from which future work on the HRA II may be based. A review of the lessons learned material from the 2003 USARIEM study further emphasizes this need. Senier et al. (2003) point out two important facts: (a) that the development of survey questionnaires should be more rigorously documented, and (b) that if existing questions from the HRA I are used in the construction of a new survey that the inclusion of those questions should be made with consideration to the flaws of the original question.

Assumptions

It is assumed the 2003 USARIEM study on the HRA I produced accurate results. It is assumed that each of the five question proponents of the HRA II will lend assistance in conducting the study. Assistance from the proponents is vital to the success of the study.

Delimitation

Initially, this study will limit itself to the review of historical documents and the interviewing of individuals who might have been participants in the development of the HRA II.

Limitations

The study is limited in that even the most systematic and thorough review of the available literature on the credibility of the survey questions might result in the accidental

exclusion of a relevant article or reference. This study, as with any review of published literature, is subject to publication bias in that studies not finding significant effects are less likely to be published (Rosenthal, 1979). The impact of such publication bias will be minimized by a thorough search and inquiries regarding completed studies (WHO, 2000). The study is further limited by a defined time period in which it must be completed.

Significance of the Study

The current wartime state of the military, an economic slowdown within the United States, and the rising cost of health care have led to an increased need for efficient and effective medical processes within the DoD. The development of the HRA II is an attempt to use preventive techniques to identify and treat the health needs of Soldiers before they escalate to dangerous or unnecessary levels. The effective use of the HRA II survey has the potential to reduce health care costs, improve access to needed care, and improve the overall quality of life for Soldiers. This potential can be further augmented by ensuring that the survey instrument used to help make decisions on Soldiers care is constructed utilizing the best techniques possible.

Literature on the history of Army HRAs shows that the construction of those surveys was poor resulting in reduced data utility. The opportunity exists to make the HRA II a survey tool that truly addresses the health needs of Soldiers in a scientifically proven manner. A complete, qualitative documentation of the origins and credibility of the HRA II survey questions will strengthen the power of the survey and create a document from which future work on the HRA II may be based. A credible survey tool will add power to the development of future Soldier wellness assessment programs.

Literature Review

In this qualitative study the literature review is intentionally placed early in the study to serve as a useful backdrop for the problem that has led to the need for the study (Creswell, 2003), and to give contextual knowledge about the overall process and use of the health risk assessment in the United States Army.

The Army Health Promotion Program

The Army Health Promotion program was created on June 1st, 1986 when DoD Directive 1010.10 went into effect. This Directive called for the establishment of health promotion activities for all branches of the military, both active and reserve, and also included all additional DoD support agencies. Overall responsibility for implementing Directive 1010.10 was assigned to the Deputy Chief of Staff for Personnel (DCSPER) with assistance by the Office of the Surgeon General (OTSG). However, the actual implementation of the program was to be executed by local commanders at individual installations with the end result being a customized program tailored to the health needs of the local population (Senier et al., 2003). This flexibility in program development was key to the development of the HRA I and the systems designed to execute the survey.

The goal of the Army Health Promotion Program was to maximize readiness, combat efficiency, and work performance through encouraging lifestyles that would improve and protect physical, emotional, and spiritual health (AR 600-63, 1996). The program was designed to incorporate both behavioral and environmental techniques to improve and protect the health of Soldiers through the use of education and related activities. This kind of population based strategy aims to make healthy behavior a social norm, thus lowering risk in the entire population (WHO, 2002). As stated in AR 600-63

the function of the program was to combine health care activities and initiatives that covered a broad spectrum of areas including social, emotional, organizational and spiritual wellbeing. The desired end result was improved unit performance through health education and actions designed to enhance individual Soldier well-being.

The ten components of the program as listed in AR 600-63 include: (1) anti-tobacco, (2) physical conditioning, (3) weight control, (4) nutrition, (5) stress management, (6) alcohol and drug abuse prevention and control, (7) early identification of hypertension, (8) suicide prevention, (9) spiritual fitness, and (10) oral health. Installation commanders were allowed to address additional goals if they chose to do so, but the programs they put in place had to include these ten main objectives (Senier et al., 2003). Operationally, the Health Promotion Program was to be called "Fit to Win" with each installation having a coordinator appointed by the commander. *Figure 1* depicts the layout of the Fit to Win program.

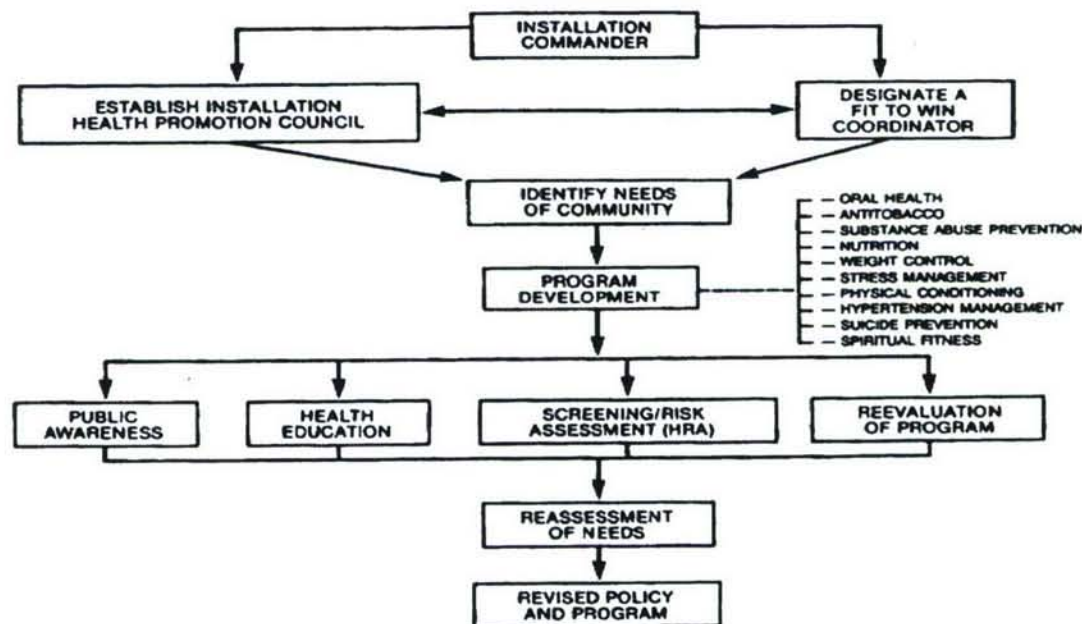


Figure 1. Development of an Installation Health Promotion Program

The regulation further stated that additional activities not listed as objectives would be required for the successful execution of the program. One of these additional activities was the use of a health risk appraisal survey designed to assess the health needs of Soldiers. The HRA survey was to serve as the entry point of Soldiers into the health promotion process by identifying health habits and behaviors and creating a risk profile for that individual.

The HRA survey was to be administered by a community health nurse and a copy of the results documenting any high risk health concerns given to the Soldier. If any behavioral interventions were deemed necessary by the risk profile, the Soldier would be referred to a medical treatment facility or given guidance by a clinical counselor on ways to reduce health risks. AR 600-63 stated various time periods in which a Soldier would be required to take a HRA survey such as upon entry into the military service and during any periodic physical exam, but it would ultimately become common for Soldiers to take an HRA as part of inprocessing to a new duty assignment (Senier et al., 2003). *Figure 2* depicts the typical process of administration of an HRA.

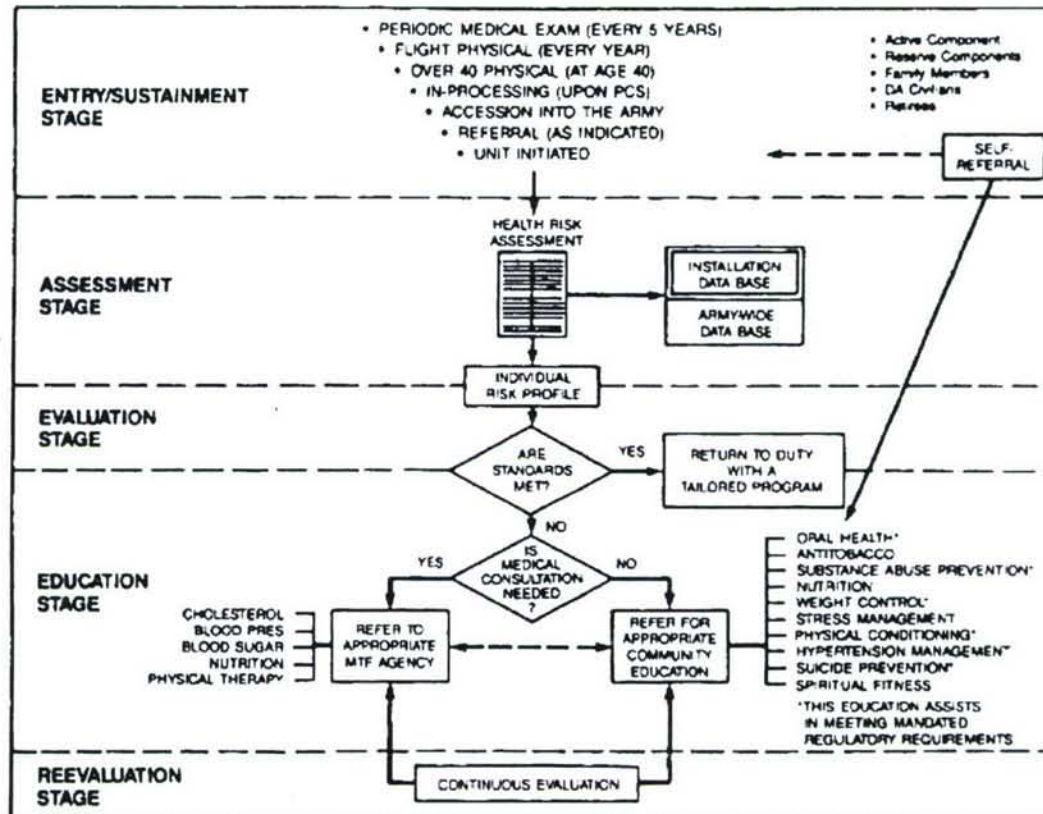


Figure 2. The Health Promotion Process utilizing an HRA

What is a Health Risk Assessment?

A health risk assessment (HRA) is a process used to assess the level of an individual's health risk to provide data for making recommendations on improving health and overall well-being (Chapman, 2005). HRAs are a way of identifying health risks or needs that may otherwise not be potentially known by an individual, especially if the risk behavior is one that does not generate a health concern until a disease state manifests itself. HRAs have their roots in the environmental sector where it was developed as a systematic way of comparing different environmental issues with resulting health threats (WHO, 2002). The process of health risk assessment is designed to allow decision makers to conclude whether a potential health hazard warrants the need for management

by a health care provider. An HRA risk computation score compares answers to data gathered from a larger population and then matches individual risk factors with disease precursors to determine a relative risk for the individual (HOOAH4 Health, 2005).

HRAs were first developed in the early 1980s to help doctors communicate health risks to patients and as a way to use preventive intervention techniques as a method of containing escalating health care costs. HRAs may be designed to fulfill a number of management goals and exist in many different forms ranging from internet based surveys to questionnaires that a patient will fill out at a physician's office (Chapman, 2005). An HRA can be structured to ask a small number of broad questions or built to survey specific items in great detail. Chapman further states that HRAs can vary tremendously by size, content, format, scientific validity, processing time and cost. Regardless of the function, HRAs have three standard components as stated by Beery, Schoenbach, and Wagner (1986):

1. Measurement of risk factors for the individual based on life style habits, personal medical history, and family medical history.
2. Use of the individual's risk factors to predict his or her risk of death.
3. Feedback to the individual on ways to modify lifestyle behaviors to reduce the risk of disease, injury, and death.

One of the main goals of the HRA is to simply identify high risk individuals so they may be directed to appropriate medical care or be more closely monitored. Reliable, comparable and locally relevant information on the magnitude of different risks to health is crucial for governments to be able to prioritize health policy and research (WHO, 2002). Health risk assessments are designed to serve as educational and diagnostic tools

and not as a method to gather information for research, although the Army's HRA has created a vast database of information about health habits (Senier et al., 2003).

Development of the Army Health Risk Appraisal Questionnaire

The creation of AR 600-63 in November 1987 established the need for the Army to develop a HRA questionnaire. The Preventive Medicine Division of the Office of the Surgeon General (OTSG) was tasked with direct responsibility for selecting a health risk assessment and in 1985 the selection committee chose the Rhode Island Wellness Check (RIWC) as the vehicle for the questionnaire (Stevenson, 1990). The RIWC appealed to the selection committee because it was easy to implement and gave positive messages to respondents on health objectives. "Meanwhile, health risk appraisal methodology was also enjoying a surge in popularity in the civilian sector" (Senier et al., 2003, p. 9). Several different civilian institutions were experimenting with the use of HRAs in an effort to find a way to curb the rising cost of health care through the use of preventive medicine. One of these institutions, the Carter Center at Emory University embarked on a collaborative effort with the Centers for Disease Control (CDC) to update the CDC's HRA and was given permission to make the HRA available to the public (Senier et al.).

In 1988 just before the Army launched the RIWC based HRA, the selection committee decided to use the CDC version (Stevenson, 1990). This decision to switch to the CDC HRA created many last minute problems that would affect the HRA for years to come. Both the RIWC and CDC HRA were designed to be given on a paper based survey and then scanned into a computer database. As is typical for many medical databases, the CDC HRA would not work on the computer systems the Army had already purchased for the RIWC instrument. Consequently, the Army had to contract with the Carter Center to

modify the CDC HRA to work with the existing computer systems. The modified version of the CDC HRA then became the original health risk appraisal questionnaire used by the Army beginning in the fall of 1989 (Wilson & Howe, 1991). However, Senier et al. (2003) caution that it is possible that versions of the RIWC survey were actually given out at the same time as the CDC version, and therefore caution should be used in the assessment of data collected by the HRA during the early deployment stages.

The Army offered the HRA to active duty Soldiers for over a decade before ceasing the formal requirement for the survey in 1998 (Senier et al., 2003). Even conservative estimates put the number of Soldiers who took the HRA at around half a million (Bell, Williams, Senier, Amoroso & Strowman, 2002). The HRA is still used at different locations throughout the Army, to include Fort Lewis, primarily for assessment of Soldiers during initial inprocessing. The data collected by the HRA over the periods of use has provided a vast amount of historical health related data on Soldiers. However Senier et al. strongly caution that an evaluation of the psychometric properties, specifically the reliability and validity of the information, should be made before the data is used for any decision making exercises.

Development of the Health Risk Assessment II

In 2002 BG Dunn instructed the Director of ICROWS to develop a new HRA that identified high risk Soldiers for proactive intervention and which could be used in a large scale screening initiative. In addition to being able to identify high risk Soldiers, BG Dunn directed that the new HRA II survey must have the following functionality as listed in the 2003 ICROWS Point Paper: (a) A method to communicate information gathered by the ICROWS process to MAMC and Ft. Lewis clinics, (b) senior, Mid-level, and

Clinical leadership metrics regarding health status of troops and targets of opportunity, (c) a set of questions on injury prevention that assist I Corps medical staff in their effort to keep Soldiers physically fit and medically ready, (d) a way to identify those individual at high risk who could benefit by on-site counseling, and (e) the new HRA II must be able to be used in an In-processing/Soldier Readiness Program (SRP) setting and be able to link ICROWS to the SRP process and make it one annual review.

To create the HRA II a consultant was hired by the Director of ICROWS and a completion target of September 2003 was set. The HRA II was staffed and survey questions were selected and input into a paper based survey that was to be converted into an electronic survey at the earliest possible opportunity. All data collected by the HRA II was to be downloaded into the Integrated Clinical Data Base (ICDB) / MEDBASE database. The selection of the survey questions for the HRA II was conducted by combining several existing DoD surveys, questions from the original Army HRA I, and items from various subject matter experts at Fort Lewis. The objective was to make a survey that incorporated multiple other DoD surveys into one efficient and comprehensive tool for use in various settings to include in-processing, pre-deployment, and post-deployment. The HRA II was to become a method of not only assessing health risks in various settings, but also as a method of tracking changes in the status of the health risks of Soldiers by allowing the analysis of data over a period of time. The concept of tracking risk profiles in order to evaluate the outcomes of the health promotion activities was revolutionary, and directly addresses the need for evidence based processes called for in the Institute of Medicine report, *Crossing the Quality Chasm* (2001).

The HRA II was developed without knowledge of the 2003 USARIEM study that questioned the reliability and validity of the HRA I. Initial research shows that as much as 15-20% of the HRA II is based from the HRA I. Additional interviews with those involved with the design of the HRA II established the need to examine the source of the remaining questions on the HRA II to assess the credibility of those questions.

Procedures

Qualitative Research Strategy

Qualitative research can be defined as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification” (Strauss & Corbin, 1990, p. 17) (as cited in Hoepfl, 1997). This qualitative report utilized a case study design. The design is used when uncertainty exists about a program’s operations, goals, methods, or results and to safeguard against investment in larger studies when the determination of a problem is not well defined (GAO, 1990). Stark (1995) further states that a case study is used when the researcher explores a program, event, activity, process or individuals to collect detailed information using a variety of data collection procedures over a sustained period of time. It was appropriate to utilize this design because uncertainty exists as to the true state of the credibility of the HRA II questions. “The ability of the case study to capitalize on insight, to shift focus as the data demand, and to let disparate pieces of evidence fall into place in ways that are not always easy to describe or command is believed to yield a richer, fuller, and truer explanation of why things look the way they do than the more limited number of tests of a hypotheses that other methods use” (GAO, 1990, p. 94).

Previous study by the USARIEM on the HRA I established doubt as to the credibility of certain HRA II questions because of survey similarities, but little or nothing were known about the remaining questions. The objective of this case study was to establish a baseline document (Appendix B) on the current status of the credibility of the HRA II. This effort is pursued in order to provide management a sufficient level of information from which to determine whether or not to invest in more formal studies to improve the credibility of any questions found to be lacking. As stated by Cooper and Schindler (2002) "It is inefficient to discover anew through the collection of primary data or original research what has already been done and reported" (p.152).

This study was modeled from the 2003 USARIEM study on the Health Risk Assessment I. The unit of analysis was the Health Risk Assessment II, version II. The criteria for success was the establishment of a document that states whether or not each of the core questions on the HRA II has been shown to produce credible results within previous studies, and whether or not those standards are acceptable for use with the HRA II. A health risk screening program without evidence of effectiveness could be harmful to the population it is intended to help (Rona, Hyams & Wessely, 2005). The time frame for the study was from December 2005 to April 2006.

Role of the Researcher

Throughout the duration of this study the interests of all parties involved were continuously appraised and upheld and every effort was made to eliminate any potential conflicts of interest. The research setting involved studying the researcher's own organization and immediate work setting, which may lead to compromises in the researcher's ability to disclose information (Creswell, 2003). To help to minimize this

potential issue, the researcher obtained permission from the creator of the HRA II and the supporting staff to conduct this case study. During the initial fact finding efforts to establish the need for this case study, the researcher stressed to all participants that the goal of this project was not to prove a right or wrong, but only to discover and document the current state of the HRA II. Reported findings associated with the data collected during this project is for the purpose of serving the greater good of the Fort Lewis population. During the study no conflicts of interest of any potential participants were discovered. As identified by the Faculty of Social Sciences Committee on Ethics at Lancaster University (n.d.), the researcher was accountable and responsible for the following items:

1. The researcher was accountable to any and all research participants, the supervisor, to the parent organization and employees, and to the research profession. The researcher acted in the best interest of all those to whom he was accountable.

2. The researcher was responsible for producing ethical and legal work and following an agreed upon protocol. The researcher treated all participants with respect and honored any requests for privacy. The researcher ensured that all data collected and reported was accurate and that the confidentiality of that data was maintained. The researcher reported the progress of the study to the supervisor and reported any project related problems that might have hindered completion of the study.

Data Collection Procedures

The data collection steps include setting the boundaries for the study, collecting information through defined measures, and establishing the protocol for recording information (Creswell, 2003). The primary types of data collected for the case study was

a review of documentation, to include existing surveys and archival records, and semi-structured interviews. The following data collection procedures, as defined by Creswell, were used for this qualitative study:

1. Interviews- The researcher conducted face-to-face and telephone interviews with participants. These interviews involved unstructured or semi-structured, open-ended questions that were few in number and intended to elicit specific views, information, or opinions from participants. An interview protocol (Appendix B) for recording information was created and utilized for each interview. This protocol included the following components: (a) a heading, (b) opening statements designed to establish context, (c) six key questions, (d) space for recording reflective and descriptive comments, and (e) closing statements. The questions asked during the interview (see Appendix B) were intended to help establish the source and origin of the survey questions on the HRA II as well as the existence of any known studies relating to the survey questions. Regarding the qualitative interview process Hoepfl (1997) says:

An interview guide is a list of questions or general topics that in the interviewer wants to explore. It is prepared to insure that basically the same information is obtained from each person. In the semi-structured interview, the interviewer is free to probe and explore within predetermined areas. In keeping with the flexible nature of qualitative research designs, interview guides can be modified over time to focus attention or exclude unproductive questions.

Information collected from the interview was handwritten and then transcribed to type as deemed necessary. Qualitative interviewing “provides high credibility and face validity;

results “ring true” [sic] to participants and make intuitive sense to lay audiences”(Sewell, n.d.).

2. Document Collection- Public documents such as official reports or existing research studies; or private documents such as personal journals, emails, or other correspondence were utilized. An analysis of documents can be an invaluable source of information for qualitative researchers; in fact, there are some specialized forms of qualitative research which rely solely on analysis of documents (Hoepfl, 1997). For this study numerous civilian and military health risk assessments were reviewed. Any notes collected reflected key information about the document or other material and were designated as (a) primary material that has been taken directly from existing research or secondary material or (b) secondhand accounts written by others.

Strengths and weaknesses, as defined by Creswell, for each type of collection procedure are discussed in Table 1.

Table 1

Qualitative Data Collection Types

<i>Data Collection Type</i>	<i>Options Within Type</i>	<i>Advantages of the Type</i>	<i>Limitations of the Type</i>
Interviews	• Face-to-face • Telephone • Group	• Useful when participants cannot be observed directly • Participants can provide historical information • Allows researcher control over the line of questioning	• Provides indirect information filtered through the views of interviewees • Researcher's presence may bias responses • People are not equally articulate and perceptive
Documents	• Public documents • Private documents • E-mail discussions	• Enables a researcher to obtain the words of participants • Can be accessed at a time convenient to the researcher • Represents data that are thoughtfully compiled by participants • As written evidence it saves the researcher time in transcribing	• May be protected information not available for private or public access • Requires the researcher to search out the information in hard-to-find places • Requires transcribing or copying computer entries • Materials may be incomplete • Documents may not be authentic or accurate

The collection of data was conducted in the following manner:

1. Each question on the HRA II was separated into one of the following proponent areas or agencies with questions on the survey: Post Deployment, Army Substance Abuse Program, Behavioral Health, Medicine, Family Advocacy/Social Work, Sports Medicine, Exercise, Tobacco Cessation, Women's Health, Injury Prevention, Sexual Practices, Nutrition Care, Relationship, Finance, and Self Referral.

2. The question source was identified. In some cases multiple sources from which an individual question may have been constructed existed. The primary sources for consideration were the HRA I, known surveys from which questions were taken, and interviews with subject matter experts who were tasked to create questions for the HRA II.

3. The existence of evidence that establishes credibility for each survey question was documented and described. This was accomplished through the review of documentation, to include existing surveys and archival records, and semi-structured interviews. As stated by WHO (2000), “the credibility of risk assessment depends, to a large extent, on the strength of the scientific evidence on which it is based” (p. 997).

4. All findings were documented and reported in a concise manner that transformed a complex issue into one that may be understood. The study was written in a manner that details how procedures may be repeated if necessary (Soy, 1996).

5. Management was provided a document with a sufficient level of information to establish the utility of the HRA II and from which to make decisions regarding the use of the survey. *Figure 3* shows a conceptual model of the case study.

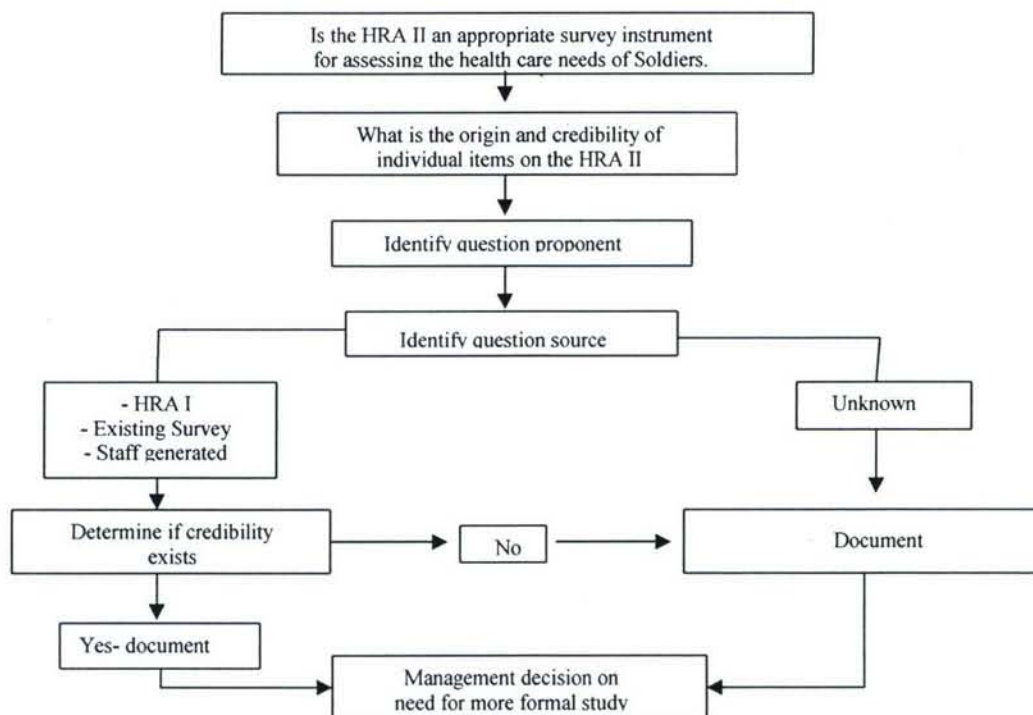


Figure 3. Model of case study

The boundaries for the case study were set by purposefully selecting the site and individuals involved. The idea behind qualitative research is to purposefully select participants, sites, documents, or materials that will best help the researcher understand the problem and research question (Creswell, 2003). Three of the four aspects about participants and sites identified by Miles and Huberman (1994) (as cited in Creswell, 2003) were used. The setting was Madigan Army Medical Center and Fort Lewis, Washington. The participants were those individuals directly involved with construction of the HRA II or with the selection of survey questions. The events were interviews with the participants and a thorough review of any documentation that addresses the credibility of the HRA II questions.

Data Analysis and Interpretation

Bogden and Biklen (1982) define qualitative data analysis as “working with data, organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (p.145) (as cited in Hoepfl, 1997). Case study data analysis involves a detailed description of the setting or individuals, followed by analysis of the data for themes or issues in an attempt to make sense out of the text or image data (Creswell, 2003). Creswell further states that the analysis involves using open-ended data that requires asking general questions and developing an analysis from the information supplied by participants. The following data analysis steps adapted from Creswell were used:

1. The data were organized and prepared by transcribing interviews and arranging data obtained from documents into a manageable database (Appendix C) that allowed for easy sorting and grouping of related information.

2. The researcher carefully studied all the data to become familiar with it and obtain a general idea of what the information was saying. Particular attention was paid to the overall depth and emotion of responses obtained from interviewees.

3. A detailed description of information collected from the applicable documents and from the interview process was built. The researcher attempted to ascertain if certain themes existed relative to the individual proponents who created survey questions for the HRA II. Those themes were then studied to discover any linkages.

4. A method for the description of findings in the narrative was chosen. The narrative included both rich description of the findings and the use of quick reference tables (see Appendix C) to display findings in a detailed and easy to understand manner. An interpretation of the data that suggested whether or not the findings confirmed past information or diverged from it was constructed.

5. A recommendation on whether further attention is needed on any survey questions that lack documented credibility was made.

Strategies for Validating Findings

Patton (1999) and Lincoln and Guba (1985) (as cited in Giacomini & Cook, n.d.) state that the term *validity* [italics added] is typically associated with quantitative research, so to avoid confusion qualitative researchers usually avoid the term “valid” [sic] in favor of alternatives such as “credible”[sic]. However, Creswell (2003) states that “validity is seen as a strength of qualitative research, but it is used to suggest determining whether the findings are accurate from the standpoint of the researcher, the participants, or the readers of an account” (p. 195). Patton (1990) states that credibility depends less on sample size than on the richness of the information gathered and on the analytical

abilities of the researcher (as cited in Hoepfl, 1997). Since there are no statistical tests for significance in qualitative studies, the researcher bears the burden of discovering, interpreting, and reporting the importance of what are found and forming conclusions that are plausible (Hoepfl, 1997). For this study the accuracy of the findings was assessed using the following recommendations from Creswell:

1. Triangulation of different data sources of information was made by examining evidence from the sources and using it to build justification for themes. This method of validation was extremely important in determining the overall credibility of the survey items. The discovery of multiple sources of established evidence of question credibility added strength to the final assessment of the HRA II.

2. Member-checking was used to determine the accuracy of the qualitative findings by reviewing the report with participants and determining whether they felt that the reported information was accurate. This process was repeated continually throughout the study to maintain face validity.

3. The use of rich, thick description in the narrative to convey the findings aided in imparting a detailed description of the findings. Every effort was made to use detailed tables to illustrate findings in an organized manner that is easy to read and navigate.

4. All negative or discrepant information that ran counter to the themes was presented. An honest report of any findings in the review of documentation that contradict interview accounts of participants was reported.

5. The researcher used peer debriefing to enhance the accuracy of the account.

6. Two external auditors, the researcher's preceptor and the faculty reviewer, were used to review the entire project and to provide official assessment of utility and

accuracy. As stated by Hoepfl (1997), judgments about the usefulness and credibility of qualitative studies are left for the researcher and the reader to determine.

Evaluating Levels of Credibility

Within this study the term credibility is used to describe the extent to which the survey questions are meaningful and produce results that may be believed (Pakulat, 2004). The criteria for the determination of the credibility for the HRA II questions was based on the ability of the researcher to connect the question with documentation or knowledge of scientific testing that showed the reliability and validity of the question. The opinions and feelings of those participants who were interviewed were also considered as a basis for labeling a question as having a defined level of credibility. Weighing the evidence is a more subtle and delicate matter of hearing each participant's viewpoint, while still recognizing that any single perspective is relative to the respondent's experience and position (Berkowitz, 1997). Data on each survey question was coded as Good, Fair, Poor, or Unknown to describe the overall credibility of the survey questions on the HRA II. This design was modeled from the 2003 USARIEM study on the HRA I. To maintain validity this study looked for the exact word for word match of HRA II survey questions when reviewing documentation or when comparing the questions to other external survey instruments. Since there are no statistical tests for significance in qualitative studies, the researcher bears the burden of discovering, interpreting, and reporting the importance of what are found and forming conclusions that are plausible (Hoepfl, 1997). The interpretations and conclusions draw from the data are based on checks of validity addressed earlier in this study. With qualitative analysis "conclusion drawing involves stepping back to consider what the analyzed data mean and

to assess their implications for the questions at hand” (Berkowitz, 1997, Chapter Four, Conclusion section, ¶ 1).

Some items on the HRA II were found to originate from other questionnaires or sources that have been empirically tested and found to produce valid results. Those questions have been labeled as having good credibility. The documented existence of data that established the overall reliability and validity of the question served as the basis for determining the credibility of the question. The results of those studies are reported as they pertain to the individual question or question set. In some cases the questions used on the HRA II represented a validated survey instrument embedded within the HRA II without modification to the original source. Those questions have been labeled as having good credibility.

A few questions were found to lack documented scientific testing, but they originated from a trusted survey instrument or were based on scientific literature that has been shown to produce useful health risk data. In this instance the strength of the literature or utility of the survey were considered to establish a fair level of credibility to the survey question. This condition primarily existed for those questions that were taken or modified from the Health Enrollment Assessment Review 3.0 (HEAR) and the Post Deployment Health Risk Assessment (PDHRA).

A question was found to have poor credibility if documented studies or interview statements showed that the question produced data that was useless or invalid. A question was also found to have poor credibility if the item lacked documented psychometric testing, evidence of basis on scholarly literature and principles, or use in any other validated surveys. Some questions were also found to exist in prior surveys that have no

established scientific merit. In particular many of the questions that originated from the HRA I have not been improved from the original source.

In three instances the source and origin of the question could simply not be found. For those three questions an exhaustive search of the literature regarding the context of the question and a search of numerous other civilian and military health surveys was made in an attempt to locate a point of origin. The credibility of those three outliers is listed as being unknown due to lack of any source of information about the questions. Table 2 provides the screening and evaluation criteria used in labeling the level of credibility for the HRA II questions.

Table 2

Levels of Credibility

Credibility	Screening Criteria	Evaluation Criteria
Good	Question source and origin could be identified	• Evidence of scientific testing that establishes the valid and trustworthy merit of the question could be found • Question originates from another survey questionnaires or sources that have been empirically tested and found to produce reliable and valid results
Fair	Question source and origin could be identified	• Question is based on scientific literature that has been shown to produce useful health risk data, but the question itself may not have been scientifically tested • Question originates from a trusted survey instrument that may not have been externally validated
Poor	Question source and origin could be identified	• Question is considered to produce invalid or useless results • No studies could be located that assess the dependability or validity of the question
Unknown	Source and origin of the question could not be identified	• No studies could be located that assess the dependability or validity of the question

Results

The HRA II, version II questionnaire comprises 109 questions. Questions 1-16 collect demographic and administrative data such as age, rank, social security number, and duty status. Questions 17-24 collect medical threat brief information. Questions 37 and 38 collect anthropometric information on height and weight. Questions 103-109 collect clinical information on blood pressure, glucose levels, and cholesterol. The remaining questions (25-36, 39-101) are the core health behavior questions of the HRA II and the questions evaluated for credibility. The sections that follow highlight the survey questions by proponent in the order they appear in Appendix C. An attempt has been made to present results based on the numerical progression of the questions; however, the mixed distribution of the items by proponents will present some deviations in numerical order.

Post Deployment

Questions 26-33 and 41 make up the post deployment portion of the HRA II. Every question in this set originated from the inclusion of the PDHRA into the HRA II. In March of 2005 the Assistant Secretary for Health Affairs mandated that all Soldiers returning from a combat zone will take the PDHRA within three to six months post-deployment. This mandate was issued at the same time that the new HRA II was in the final stages of development. In an effort to prevent requiring Soldiers from completing two separate surveys, the decision was made by the HRA II consultant to incorporate the PDHRA into the HRA II.

The validity and reliability of the PDHRA as a survey instrument is currently being evaluated at the Walter Reed Army Institute of Research (WRAIR) using data

collected from multiple DoD locations. Previous studies evaluated several, but not all, of the screening portions of the PDHRA. Those areas that have been tested and shown to produce credible results include questions pertaining to Post Traumatic Stress Syndrome (PTSD), relationship problems, alcohol problems, and depression. The questions on the HRA II that pertain to these four areas are covered under different portions of this report.

The remaining questions taken from the PDHRA, HRA II items 26-33 and 41 originate from DD Form 2796 Post Deployment Health Assessment (PDHA) according to COL Joyce Adkins of the Office of the Special Assistant for Gulf War Illnesses (OSAGWI). "The first 7 questions were taken from the PDHA (DD Form 2796) and were recommended by the Joint Preventive Medicine and Public Health Working Group"(J. Adkins, personal communication, April 3, 2006). The DD 2796 is used to document post-deployment health problems and occupational or environmental exposures and is not necessarily a screening tool for detecting or predicting medical conditions (Guidelines for DD Form 2796, 2003). Completion of the DD 2796 is required by law of every service member returning from a deployment (Guidelines for DD Form 2796, 2003).

Evaluation of DD 2796 for this study shows that only HRA II questions 26-29 actually come from the PDHA. Questions 26-28 are designed to provide a physician the basis for determining the current state of a Soldier's health and are not considered all inclusive of conditions a service member may have (Guidelines for DD Form 2796, 2003). Question 29 collects data on occupational and environmental exposures related to wartime activities. There are many references in professional literature regarding the links between occupational or environmental exposures and health concerns and this creates a strong need for accurate assessment. The development of questions 26-29 was

based upon data collected by providers and epidemiologists following the first Gulf War (USACHPPM, n.d.) and has been viewed as the standard assessment tool for over a decade. Multiple attempts to contact officials or locate documentation that addresses the testing of these questions beyond their development have been unsuccessful, and it is speculated that none exists. However, use of DD 2796 by military physicians to document post-deployment issues has shown utility in providing useful data for health risk assessment (Guidelines for DD Form 2796, 2003). Queries of providers also find that use of DD 2796 is well accepted. The strength of these findings and the utility of the DD 2796 were considered to establish a fair level of credibility to this question set.

Questions 30-33 and 41 originated from Joint Preventive Medicine and Public Health Working Group and can not be found in any other survey evaluated for this report. Questions 30 and 31 represent a two part question ascertaining whether the service member was wounded, injured, assaulted, or physically hurt and then whether those conditions are still creating problems. The wording of these questions is problematic, as the exact nature of what the survey question is asking may be interpreted in different ways. The interpretation of what constitutes a wound or injury may vary greatly among those who saw actual combat versus those who filled a supporting role. Unfortunately, it does not appear that the committee who designed these questions published any findings regarding considerations for the validity or objectivity of the items, and their credibility is considered poor.

Questions 32-33 and 41 queries about the use of health care resources post deployment and how the Soldier's current health compares to pre-deployment. These questions represent attempts to determine the Soldier's propensity to utilize medical

resources as related to perceived deployment issues. As with questions 30 and 31, attempts to locate those individuals responsible for creating these questions or to find documentation regarding their credibility was unsuccessful, and their status is considered poor.

Sexual Assault / Family Advocacy

Questions 34-35, 82-85 and 92 comprise the family advocacy program (FAP) portion of the HRA II. This entire question set was generated by the staff of the Family Advocacy department at MAMC and can not be found in any other identifiable survey. Interviews with the staff found that no attempt was made to use a prior existing FAP questionnaire or other source of validated questions. Both question sets were created referencing requirements found in various Army regulations, and it is obvious that a deliberate attempt to create deployment related questions was made. Even though these questions have a basis in regulatory requirements, the credibility of the questions to produce useful information is poor due to the fact that they have not been tested in any form.

Questions 34-35 address sexual assault or misconduct during the deployment. Both questions were developed based on Department of Defense (DoD) directives which state that the Sexual Assault Prevention and Response Program will collect, record, and maintain data on sexual assault trends (AR 600-20, 2006). Both questions specifically address sexual assault cases coming out of the combat theater. Email records indicate that question 34 was structured to simply collect and report sexual assault data while question 35 generates a referral to offer advocacy assistance if requested by the Soldier (J. Miller, personal communication, March 3, 2006).

Questions 82-85 address FAP issues surrounding personal safety, anger, and thoughts of hurting others. The general wording of questions 82-85 was based on DoD directives found in AR 608-18 regarding spouse/partner maltreatment and a desire to identify emerging patterns of risk for victimization. Interviews with Diane Debiec, Deputy Director for the MAMC Department of Social Work, indicate that this question set was deliberately constructed to address “matters of safety, not abuse”(D. Debiec, personal communication, March 3, 2006). It was felt that the definition of mental abuse was too vague to determine, therefore the question set attempts to get as close to asking about abuse without using the specific word. Debiec further said that “they were looking for a way to create an opportunity for face to face contact in order to bring out more information”(D. Debiec, personal communication, March 3, 2006), and asking about safety instead of abuse was perceived to create that opportunity.

Question 92 asks about past participation in anger management or stress management classes. This question clearly appears to address family advocacy related issues, however the Director of the Family Advocacy department denies that this is a FAP question. Attempts to link this question to mental health or other related proponents was unsuccessful, and the question cannot be located in any other survey. Lack of knowledge of the question’s origin or scientific methodology leave the credibility of the item as unknown.

Medicine

Questions 36, 39, 40, 42 and 52 ask a variety of questions about the individual’s health. Question 36 is a staff generated item by members of the physical therapy department at MAMC and did not originate or exist in any other established survey

instrument. The question was designed to “screen out any type of prolonged injury that might be a factor for upcoming deployments....and to look for problems with injuries or limitation of physical capacity either current or chronic.”(B. Jovag, personal communication, March 29, 2006). The credibility of this question is considered poor due to lack of scientific testing.

Question 39 asks how the individual would describe their general health today. The question originates from the HEAR 3.0 and is also very similar to the first question on the PDHRA. The HEAR 3.0 was developed by the Air Force Office for Prevention and Health Services Assessment (OPHSA) and is the standard health survey used by the military health insurance program (TRICARE). The HEAR 3.0 is reported to have “virtually all questions taken from proven, validated, national health survey instruments....[and] this process greatly enhanced validation and testing procedures and ensured data comparability to previously administered surveys” (Memorandum for Lead Agents, 1996). In follow up consultations with OPHSA, it was discovered that the HEAR 3.0 combined question set has not been validated as a stand alone survey instrument (B. Kenyon, personal communication, April 3, 2006). This comment creates the possibility that some survey items on the HEAR 3.0 may have questionable credibility similar to the HRA II. It should be noted that Dr. John Meyer, the HRA II design consultant, has credited question 39 with having “the greatest predictive power of all the questions” (J. Meyer, personal communication, March 15, 2006). Lack of documented testing on question 39 is unfortunate given this comment by Dr. Meyer. However, the accepted value of the HEAR 3.0 by the DoD and the strength of Dr. Meyer’s comments give this question at least fair credibility.

Question 40 asks how the individual would describe their health today as compared to one year ago. This question was created by Dr. Meyer and is not found in any other survey. The need for this question originates in literature discussing identifying the predictors for health care utilization. Dr. Meyer wanted a question that would tell “who will use large amounts of medical resources in the next year”(J. Meyer, personal communication, March 15, 2006). In theory a selection of *Much Worse* [italics added] would indicate a propensity for high use of medical resources. Evidence that this question has been tested for credibility cannot be found, and the need for analysis of this question was further identified by Colonel (COL) Diane Flynn, Chief of the Department of Family Medicine at MAMC. In interviews COL Flynn stated that “through the Soldier Wellness Assessment Pilot Program (SWAPP), question 40 has been found to not be helpful because Soldiers interpret the question differently” (D. Flynn, personal communication, March 1, 2006). Col Flynn continued by saying that “asking if health is the same as a previous time point has no value, asking how you rate your health is a better predictor with an answer of *Severe* [italics added] being the key indicator”(D. Flynn, personal communication, March 1, 2006). This strong assertion and lack of documented testing lends poor credibility to the question and clearly indicates a need for validation.

Question 42 originates from the How's Your Health (HYH) survey designed by the Dartmouth Medical School and the Institute for Healthcare Improvement (IHI). This is the only question on the HRA II from the HYH survey. The HYH survey was designed over 25 years ago by a researcher who realized that patients and physicians were not effectively communicating and interacting (IHI, 2006). The HYH survey has been tested in various controlled trials and is widely popular among state health systems. The HYM

is “a tool used by a growing number of health systems, including employer groups, cities and towns, and even the Army” (IHI, 2006). The HYH can be scaled and modified to conform to the size and age range of various populations in order to generate data that is useful and applicable. The substantial amount of trustworthiness the HYH has generated among a wide variety of health care providers lends good credibility to question 42, although the effect of removing that one question from an established survey is unknown.

Question 52 asks for the individual to pick from a list of medical problems to identify whether they know if any of their parents, brothers, or sisters ever had one of the listed medical conditions. The question originates from the HEAR 3.0 but has been altered to omit wording that references blood relatives and grandparents. The HRA II version also has two fewer response options. As with question 39 of this section, the HEAR 3.0 is credited as having proven and validated questions, although the exact breakdown of which questions is not known. However, the accepted value of the HEAR 3.0 by the DoD give this question at least some credibility, although the slight changing of the question wording and response options creates a definite need for further testing. As stated by Creswell (2003), when one modifies an instrument or combines instruments, the original validity and reliability may not hold true for the new instrument.

Sports Medicine

Questions 43 and 44 comprise the sports medicine portion of the HRA II. Both questions were staff generated at MAMC under the leadership of the MAJ David Brown, the Director of Primary Care for Sports Medicine. Both questions are unique to the HRA II and can not be found in any other identifiable survey.

Question 43 asks about the affects of pain or injury on the ability to perform work, and was created by combining questions X-3, X-4, and X-5 from the HRA I X-questionnaire. The X-questionnaire is a follow on set of 8 additional questions to the HRA I focused primarily on injury prevention. Question 43 was developed to satisfy a directive by BG Dunn to create an injury assessment scorecard for providers to use with patients during initial history questioning (D. Brown, personal communication, March 1, 2006). As part of the HRA II the question serves as a flag for referral to a primary care physician. The Command at MAMC “wanted a question that could tell the impact of injuries” (D. Brown, personal communication, March 1, 2006) and that could be routinely tracked and reported. Brown further acknowledged that there was a need to create a new question because the HRA I X-questions “did not make sense for a military population” (D. Brown, personal communication, 1 March, 2006), and were structured for an elderly population. Brown’s assessment of the HRA I questions was validated by the 2003 USARIEM study. Senier et al. (2003) state that most of the algorithms that form the foundation of the civilian surveys upon which the HRA I was formed are based on work with adult populations between age 25 and 60, and in contrast the Army has a large proportion of Soldiers under age 25. This question represents a definite improvement over the HRA I items, but the credibility of this question to produce useful information is poor due to the fact that it has not been evaluated in other scientific tests.

Question 44 asks about Army Physical Fitness Test (APFT) failure and which event was failed, if any. The question is geared toward those at risk for muscular skeletal injury and is designed to serve as a predictor for physical injury. Although this question was also staff generated, it appears that the foundation of the question was at least based

on credible scientific evidence obtained from the 1999 edition of the Atlas of Injuries of U.S. Armed Forces. The work group that created the Atlas of Injuries concludes that “the strongest predictor of injury is run time on the Army physical fitness test” (Jones, Amoroso, Canham, Weyandt, Schmitt, 1999, p. 6) and those musculoskeletal conditions are the leading cause of disability among soldiers. This finding led to the creation of question 44 to flag for referral any soldier that admitted to failing the run portion of the APFT. This evidence created a solid foundation for the need to assess such information in the HRA II, however the credibility of the question to accurately identify Soldiers at risk is only fair due to lack of documented testing.

Exercise

Questions 45 and 46 on the HRA II ask about strength training exercise and aerobic activities. Both of these questions originated from the HRA I and are transcribed word for word to the HRA II. Senior et al. (2003) state that it appeared that these two questions were originally adapted from the RIWC survey for the HRA I. The 2003 USARIEM study further concluded that neither of these questions has been studied to assess the reliability or validity of the responses they generate. This finding clearly questions the credibility of the items and raises uncertainty as to the usefulness of data derived from Soldier responses.

Even though no formal evidence of studies on the credibility of the Exercise questions on the HRA II can be found, Senior et al. (2003) were able to document finding regarding self-reported exercise activity in other studies. Various studies on the test-retest reliability of similar exercise questions found on the CDC’s HRA and the Behavioral Risk Factor Surveillance System (BRFSS) established a low level of trustworthiness by

yielding “modest correlation coefficients for self-reported aerobic activity” (Senier et al., 2003, p. 27). The 2003 USARIEM study also noted that a validation study by Smith, McKinlay, and McKinlay, (1991) found that the HRA question on physical activity was too frequently inaccurate to be of use in predicting risks incurred from lack of exercise.

Tobacco Use

Questions 47-51 address tobacco use and whether the individual desires to quit. Interviews established that the entire question set was created by Dr. Meyer for the HRA II (J. Meyer, personal communication, March 15, 2006). The tobacco use questions do not appear in any other known survey, although most HRAs used in both the military and civilian sectors contain some form of tobacco use questions. The tobacco use questions on the HRA II deviate from the previously used question set on the HRA I by not asking for number of tobacco products used such as numbers of cigarettes smoked per day. Instead the HRA II questions focuses on the individuals desire to change their smoking habits and then time frames upon which the respondent would like to quit. Dr. Meyer chose this type of questioning based on a desire to “put the questions into terms of family practice type questions” (J. Meyer, personal communication, March 15, 2006) in which a physician is less interested in smoking history and more on whether the patient desires help quitting. With this desire in mind Dr. Meyer utilized the Transtheoretical Stages of Change model to help determine the level of willingness of the individual to change their smoking behavior.

“During the past decade behavior change has come to be understood as a process of identifiable stages through which patients pass” (Zimmerman, Olsen, Bosworth, 2000, p.1409). The Stages of Change model is a six stage cycle through which a person

gradually moves in their decision to change a behavior. The model shows that for most persons, a change in behavior moves through the following six steps: (a) precontemplation, (b) contemplation, (c) preparation, (d) action, (e) maintenance, and (f) relapse (Zimmerman et al., 2000). The HRA II questions are structured to address the contemplation, preparation, and action stages of this model. The Stages of Change encompasses concepts from many previously developed models such as The Health Belief model and the Locus of Control model and is useful for selecting appropriate interventions (Zimmerman et al.).

Similar to other staff generated questions on the HRA II, the tobacco use questions have not been formally tested. However, the Stages of Change model “has been validated and applied to a variety of behaviors.... it is a simple and effective stage-based approach... that demonstrates widespread utility” (Zimmerman et al., 2000, p. 1410). Furthermore, Dr. Meyer states that “we don’t know the sensitivity of the questions, but they seem to be answering the mail” (J. Meyer, personal communication, March 15, 2006). The documented validity and success of the model in many aspects of health promotion and behavior change lend fair credibility to the HRA II questions and establish a level of utility to survey answers.

Women’s Health

Questions 53-57 comprise the female only portion of the HRA II. Questions 53-56 were directly copied from the HRA I and all except question 56 on breast self exam originally appear either on the Carter Center HRA or the CDC HRA (Senier et al., 2003). Question 57 asks about the current primary method of birth control. The origin of question 57 is unknown and the exact wording of the question cannot be located in any

other survey, although a similar version of the question does appear on the HEAR 3.0 and the CDC HRA. The inability to locate the origin or any information on question 57 leaves the credibility of the question to produce useful data as unknown.

Senier et al. (2003) report that “it does not appear that the Carter Center undertook any studies to assess the reliability or validity” (p. 51) of questions 53-55. Data on question 56 from the CDC HRA could not be located. Because of the lack of any studies on the women’s health questions used on the HRA I, Senier et al. compared the questions to the similar ones found on the BRFSS. Senier et al. reference numerous reports describing the credibility of these cancer screening questions. These studies concluded that questions 53 and 54 on the time of the last Pap smear and mammogram “generally elicit reliable and consistent responses....although the overall validity of Pap smear [and mammogram] is only fair to good.” (Senier et al., 2003, p. 53). These findings provide a fair level of credibility to questions 53 and 54, although lack of studies on the exact questions hinders confidence in the utility of the data.

Senier et al. (2003) also found that question 55 on family history of breast cancer has surprisingly few studies examining the reliability and validity of the information the question produces. Kerber and Slattery’s study (as cited in Senier et al., 2003) found that a question about family history of breast cancer showed good validity, and that younger persons seemed to be better able to report accurate family history. This is encouraging considering the younger average age of females in the military. As with questions 53 and 54, the credibility of question 55 is only fair due to the lack of studies on the exact question.

Injury Prevention

Items 58-62 ask a variety of injury prevention and motor vehicle safety questions. Questions 58 and 62 were directly copied from the HRA I and originally appear on the Carter Center HRA. Question 61 was also taken from the HRA I, but is found on the eight question follow-on survey to the HRA I called the Health Risk Appraisal X-Questions. Question 59 is clearly a hearing conservation item, but an exhaustive search to determine the exact origin of the question was unsuccessful and the overall credibility of the question is unknown. Question 60 appears to be a slight adaptation to an item found on the HEAR 3.0.

Question 58 asks about the number of times the individual has driven or ridden with a driver that has had too much to drink, and represents a double-barreled survey item. A double-barreled item is one in which the question asks more than one question but only allows one response that must then apply to both questions. The inability to determine how the question response relates to the survey question itself makes analysis difficult. Senier et al. (2003) state that being able to separately analyze the two groups into those that drive after drinking and those that ride with others who are drinking would be valuable for understanding social dynamics. Senier et al. further reports that no studies analyzing the reliability or validity of the question as it is written could be found. The double-barrel nature of the question and lack of scientific study elicit poor credibility for the question.

Question 60 asks about the use of protective gear when doing various hazardous activities, and appears to have been taken from the HEAR 3.0. The wording on the HEAR 3.0 item differs by including a portion that defines the activities to working or

doing hobbies outside of the primary job. There is also change in the individual's answer choices. As with other HEAR 3.0 derived questions already discussed, the HEAR 3.0 is credited as having proven and validated questions although the exact breakdown of which questions is not known. However, the accepted value of the HEAR 3.0 by the DoD give this question at least some credibility, although the slight changing of the question wording and response options creates a definite need for further testing.

Question 61 is a direct copy of HRA I question X-6 and asks about helmet use when riding a bike, motorcycle, or all terrain vehicle. Unfortunately, the 2003 USARIEM study on the HRA I failed to document or mention any work on the eight questions found on the HRA I X-questionnaire. Attempts to locate any studies addressing this set of questions have been unsuccessful, and the credibility of those questions is considered poor.

Question 62 asks about seat belt use when driving or riding. Similar to question 58 Senier et al. (2003) report that no studies analyzing the exact question as it is written can be found. The question is very similar to one found on the BRFSS which has been examined in multiple studies. Senier et al. summarize these studies by saying that although the reliability of question appears high, the validity is questionable due to a propensity for people to over-report seat belt use. Lack of any formal studies on the question as it appears on the HRA II and unsubstantiated validity give poor credibility to the question.

Sexual Practices

Questions 63 and 64 ask about the number of sexual partners and condom use. Both questions originated from the HRA I X-questionnaire. The 2003 USARIEM study

on the HRA I does not document or mention any work on the eight questions found on the HRA I X-questionnaire. Surveying sexual practices is a common theme among many health risk assessments. Unfortunately, attempts to locate other studies or surveys with similarly worded questions have been unsuccessful and the credibility of those questions is considered poor.

Nutrition

Questions 65-67 comprise the nutrition items on the HRA II. Questions 66 and 67 ask about how often the individual eats foods high in saturated fat and high in fiber. Both questions were directly copied from the HRA I and originally “appear to be adaptations of items from the RIWC” (Senier et al., 2003). For both of these questions the 2003 USARIEM study concluded that no evidence exists that shows the reliability or validity of the questions or even those they were based on from the RIWC. Lack of any scientific testing on questions 66 and 67 raises doubt as to their credibility as a useful tool for gathering trustworthy data from which to make health promotion decisions.

Question 65 is a new nutritional question on the HRA II and asks if the respondent is taking dietary supplements, herbal medications, or vitamins. Interviews with both the I Corps Readiness Outcomes and Wellness Service (ICROWS) director and the consultant who designed the HRA II concluded that this question was developed to ascertain the level of ephedrine use in Soldiers. During the development of the HRA II scientific evidence of the dangers of ephedrine use was just being published, and the Army quickly moved to try to determine and counter the use of ephedrine in the Soldier population.

Question 65 is a MAMC staff generated question and it is unclear who the exact individual that developed the question was. Attempts to locate the question in any other nutritional survey have been unsuccessful. The question is similar to information surveyed in the nutrition section of the patient history that is collected by nurse level staff at MAMC on each new patient. This type of question is a requirement of the Joint Commission for Accreditation of Hospital Organizations (JCAHO) under the 2006 National Patient Safety Goals Implementation Expectations instructions. The question in the patient history is not a word for word match of question 65 on the HRA II, and it is unclear if the development of the question was based on knowledge of the JCAHO requirement.

This question was ultimately designed to gather ephedrine specific information, although it asks for information across a broad range of subjects. Interviews with dietitians of the MAMC Nutritional Care Division yielded a negative opinion on the usefulness of the question due to its broad nature. The question was seen as being “too generic” (S. Meyer, personal communication, March 2, 2006) and produced information that was vague and worthless. Meyer further stated that a *yes* [italics added] to the question does not tell her whether the respondent is taking healthy vitamins or unhealthy substances.

Relationship

Questions 68-70 address the individual’s relationship with their spouse. An extensive search to determine the exact origin of question 69 was unsuccessful and the overall credibility of the question is unknown. The question does represent a redundancy on the HRA II, as this question is also asked in the demographics portion of the survey.

It should also be noted that the inclusion of this question into the HRA II was not made by Dr. J. Meyer, the HRA II consultant. When interviewed about the possible origin of the question Dr. Meyer expressed great concern that the addition of number 69 to the HRA II was done outside of his supervision. This represents a loss of control in the chain of custody of the survey questions and is an issue that must be addressed to maintain the scope and focus of the HRA II.

Questions 68 and 70 originate from a relationship problem scale created from an Item Response Theory analysis of the Quality of Marriage Index (QMI). This scale was tested by Bliese, Wright, Adler, Thomas (2004) who found that the sensitivity and specificity of the scale was good and that when appropriately scored the “risk factors are a reasonable screen for relationship problems” (p. 6). The strength of this scientific evidence gives good credibility to these questions.

Mental Health

Questions 25, 71-78, 86, and 93-96 make up the mental health portion of the HRA II, and constitute the largest block of questions for any proponent on the survey. The mental health questions originate from a variety of behavioral health surveys, the PDHRA, and some staff generated inquiries. The majority of this question set can be directly linked to tested and credible sources.

Question 25 and 71 ask about combat experiences and relationships with other military personnel. Both questions originate from the Deployment Risk and Resilience Inventory (DRRI). The DRRI is a collection of 14 measurement factors that may be associated with military post-deployment stress-related reactions that affects the long term health and well-being of military veterans (King, King, Vogt, 2003). The DRRI can

be separated into three categories: (a) pre-deployment factors, (b) deployment factors, and post-deployment factors. Both questions 25 and 71 are taken from the deployment factors portion of the DRRI. Question 25 is directly linked to the Combat Experiences Scale (CES) and question 71 to the Deployment Social Support Scale. Even though only two of the 14 measurement factors on the DRRI are represented on the HRA II King et al. (2003) state that “any one of these measures may be used individually depending on the needs of the researcher....one or more may be used, apart from the full DRRI, depending upon the purpose of the study.” (p. 10). The VA Health and Research Development Service (HRDS) found that the DRRI gave researchers the ability to pick and choose scales that are most relevant to their research purposes rather than selecting measures piecemeal from the literature (METRIC, 2005).

The DRRI was developed with careful attention paid to content validity, with efforts including focus groups with members of the target population [military], consultation with content experts and iterative procedures to insure proper wording and presentation of questions (King et al., 2003). Through multiple studies the measures on the DRRI have been shown to have high internal reliability as well as face and content validity (King et al.). The versatility of the DRRI measurement items to be used independently of the entire survey, and the confirmed validation of the survey on a military population provide good credibility to questions 25 and 71.

Questions 72-73, 75 and 96 originate from the Primary Care Evaluation of Mental Disorders (PRIME-MD) Patient Health Questionnaire (PHQ). This question set is transcribed word for word from the PHQ to the HRA II. The PHQ is a three page questionnaire that can be entirely self administered by a patient (Spitzer, Kroenke,

Williams, 1999). The PHQ is built from the original PRIME-MD and consists of different scales that assess eight different mental health disorders. The self administered PHQ has diagnostic validity comparable to that of the original PRIME-MD instrument and shows good criterion and construct validity (Spitzer et al., 1999). In fact, Spitzer et al. found that the PHQ was “clearly more efficient” (p.1743) to use than the PRIME-MD and offered an advantage over the PRIME-MD due to comparable validity and greater efficiency.

The different diagnostic scales of the PHQ have also been independently verified. Question 75 represents the depression scale portion of the PHQ and is referred to as the PHQ9. The PHQ9 is “well validated and widely used as a brief diagnostic and severity measure” (Lowe, Kroenke, Herzog, Gafé, 2004, p. 61). Kroenke, Spitzer, and Williams, (2001) also concluded that the PHQ9 is “a reliable and valid measure of depression severity” (p. 606). Question 73 corresponds to the panic disorder scale of the PHQ, which has also been independently validated. Validation studies by Lowe, Grafe, et al. (2003) concluded that the PHQ panic disorder scale “can be recommended as a valid and practicable screening instrument...” (p. 518). Lowe, Grafe, et al. also found that the use of the single screening question on panic disorder from the PHQ could identify as much as 93% of those with the disorder, and then recommended the integration of this question [73] into the clinical evaluations of all physicians.

Evidence of the utility of the PHQ abounds in the literature, and the survey is generally regarded as superior to many other measures for mental disorders (Lowe, Grafe et al., 2003). The ability to use the various scales of the PHQ independently of the entire survey is a definitive advantage, and an important consideration in the development of

the HRA II. The strength of the validation and versatility of the PHQ gives this question set good credibility.

Question 74 was selected for use with the HRA II because of the inclusion of the PDHRA. The question originates from the primary care PTSD screen (PC-PTSD) and is not altered from the original form. The PC-PTSD is a test designed for primary care patients to detect posttraumatic stress disorders caused by overwhelmingly stressful events (Prins, et al., 2003). Prior to the development of the PDHRA or the HRA II the military had also used this screening question with the DD form 2796, Post Deployment Health Assessment, to help screen for post deployment related issues. Bliese, Wright, Adler, and Thomas (2004) found that the PC-PTSD screen provided high sensitivity, especially when a cut-off score of 3 or more positive responses is used. Prins et al. concluded that the PC-PTSD appeared to be a psychometrically sound screen for those patients with and without PTSD, and was distinguishable for its readability and brevity. Further recommendations by Prins et al. were to embed the PC-PTSD into a larger battery of important patient information such as the HRA II. The strength of the PC-PTSD to accurately identify those with traumatic stress lends good credibility to question 74.

Questions 76-78 and 93-95 were taken from the Behavioral Health Screening Instrument (BHSI) and added to the HRA II. The BHSI is a mental health survey solely created by the Behavioral Health Department at MAMC. The BHSI has not been validated as a stand alone survey instrument even though much of it is built on established practices (B. Lucenko, personal communication, March 29, 2006).

Items 76-78 query about suicide ideation and past history of relatives who might have attempted suicide. Questions 93-95 ask about any current or prior use of mental health or alcohol medication or counseling. Unfortunately, attempts to discover the original source of both sets of questions has been unsuccessful, and it is assumed that they were created by members of the MAMC Behavioral Health Department for the original version of the BHSI. Even though these questions exist on a known survey, the lack of knowledge about the foundation of the questions and a lack of formal testing makes their credibility poor.

Question 86 originates from the Dimensions of Anger Reactions (DAR) scale and appears on the HRA II in an unaltered form from the original DAR survey. Novaco's study (as cited in Forbes et al., 2004) stated that the DAR scale has seven items measuring anger due to stress and psychological adjustment problems, and is being used on the HRA II to measure anger in Soldiers suffering from PTSD or other reactions due to traumatic experience. In 2004 the DAR was validated on Australian Vietnam veterans and shown to be a reliable and sensitive measure of anger with high internal consistency (Forbes et al., 2004). Of particular importance for the HRA II Forbes et al. found that the brevity and user friendly format of the DAR suggest that it has potential to be a useful measure of anger as part of a self-completed instrument battery. The propensity for anger related problems experienced by Soldiers due to sustained combat operations and other traumatic exposures clearly indicates a need to measure anger as a method of prevention and treatment. The positive results of the psychometric testing on the DAR give good credibility to question 86.

Alcohol

Questions 79-81 ask about alcohol consumption and alcohol related problems and have been taken from established surveys. Question 79 and 80 originated from number 10 (a) and 10 (b) on the PDHRA, and are copied word for word. Question 81 comprises the entire Alcohol Use Disorders Identification Test (AUDIT), and appears on the HRA II in an unedited form.

Questions 79 and 80 represent the only alcohol related questions on the PDHRA. The original source for both questions is the two item conjoint screen (TICS) for alcohol. A conjoint screening test question is “defined as a question that inquires simultaneously and in aggregate about experiences with alcohol and other drugs” (Brown, Leonard, Saunders, Papasouliotis, 2001, p. 95). An exhaustive amount of literature too broad for this report is available on the TICS which has shown the test to consistently have high sensitivity to detecting substance abuse. Brown et al. (2001) state that “these two items were reported to be highly sensitive and specific for lifetime alcohol problems...” (p. 103). More importantly for the HRA II Brown et al. found that “two screening questions can select for nearly 80% of young and middle-aged adults [defined as age 18 to 59] who have substance abuse or dependence” (p. 104). This is important because unlike many other studies it accurately captures the age range of military members. Brown et al. also tested the validity of the TICS by regressing the Marlow-Crowne social desirability score and the TICS against current substance use disorder with significant positive results. The strength of the TICS as a scientifically viable tool gives good credibility to question 79 and 80.

Question 81 is the AUDIT screening tool. Similar to the TICS, vast amounts of literature regarding the AUDIT is available. The AUDIT was developed in 1982 by the World Health Organization (WHO) and is unique because it was derived from a cross-national data set using only questions that could be translated, literally and idiomatically into multiple languages (Saunders, Assland, Babor, De La Fuente, Grant, 1993). (Saunders et al. 1993). This is important to the HRA II because it demonstrates good understandability of questions for the multi-cultural military population.

The AUDIT is a "10 item questionnaire which covers the domains of alcohol consumption, drinking behavior, and alcohol related problems" (Saunders, et al., 1993, p. 791). The responses to the 10 questions are given a score of 0 to 4, with a maximum score of 40. A score of 8 or higher generally identifies an individual as having an alcohol related problem. Jolee Darnell, Director of the Fort Lewis Army Substance Abuse Program, indicates that the HRA II cutoff score for flagging an individual using the AUDIT have been significantly raised to a score of 18 (J. Darnell, personal communication, January 18, 2006). This change was intentionally made to identify only those individual at high risk for alcohol problems due to concerns over resource availability to assist the large numbers of Soldiers taking the HRA II.

The AUDIT has been validated on primary health care patients in six countries and has been found to provide an accurate measure of risk across gender, age, and culture (WHO, 2006). In a review of 18 studies Reinert and Allen (2002) found that the AUDIT has also proven to be internally consistent even with diverse samples. Furthermore, Daepen, Yersin, Landry, Pecoud, and Decrey (2000) observed high test-retest reliability among primary care patients over a six week trial period. Several studies exist that also

have tested the validity of the AUDIT when it was imbedded into a health risk appraisal such as the HRA II. Daeppen et al. (2000) found that the validity of the AUDIT was not compromised by embedding it into a health risk appraisal, an especially important finding for the credibility of the HRA II. Reinert and Allen (2002) conclude that the AUDIT “has proven itself to be reliable, valid, and practical” (p. 277), and this finding combined with the vast amount of literature available on the utility of the AUDIT lend good credibility to question 81 of the HRA II.

Finance and Legal

Questions 87-90 address the financial status of the respondent and question 91 asks whether the individual desires legal assistance. All of these questions produce Yes/No responses and are designed to generate a referral to a financial or legal specialist. Interviews concluded that this entire question set was created by Dr. J. Meyer, the HRA II consultant, at the request of the I Corps Surgeon. The question set does not exist in any other known survey and is not based on known literature addressing these issues. The objective of the questions was too “find out what soldiers get in trouble with” (J. Meyer, personal communication, March 15, 2006) and to perhaps determine a link between negative health behavior, domestic violence, and financial/legal problems. The credibility of these questions to produce useful information is poor due to the fact that they are not based on any identifiable scientific methodology.

Self Referral

Questions 97-102 are designed to give a Soldier the opportunity to self refer to a professional for additional or specific assistance on a broad range of issues. Question 97 and 102 were created by Dr. Meyer and do not exist in any other known survey.

Question 97 gives the respondent a choice to select written, verbal, or face-to-face assistance concerning a list of seven service areas. The service area choices available represent the majority of the themes presented on the HRA II. The availability of receiving less invasive follow up assistance was designed to help alleviate Soldier fears of having to speak to an actual person regarding personally sensitive topics. Question 102 gives the option to speak to a counselor now, and is designed to capture those Soldiers in immediate risk who want help. Both questions have not been tested for reliability or validity, and the credibility of the data they produce is considered poor.

Questions 98-101 originate from the PDHRA and closely resemble the choices for self referral already presented by question 97. They differ from question 97 in that they require only a yes or no response and do not give the option for different types of follow up assistance. The inclusion of these questions is based on the DoD mandate requiring all post-deployment soldiers to take the PDHRA. The need for self referral questions was identified by Bliese, Wright, Adler, and Thomas (2004) through their validation study of the post-deployment short screen. That study served as a foundation for determining the validity of the screening items on the PDHRA. Bliese et al., (2004) recommended “a set of items giving Soldiers an opportunity to ask for help directly, and one item on current treatment status” (p. 10). Bliese et al. listed four suggestions for questions that would be effective for self referral. The PDHRA self referral items very closely match those suggestions. In a later study Bliese, Wright, Adler, Hoge, and Prayner (2005) state that “the goal of screening is also to provide service members with the opportunity to self-refer” (p. 13). This finding and the endorsement of the PDHRA by DoD as a scientifically viable tool gives good credibility to question 98-101.

Discussion

The HRA II, version II questionnaire comprises 109 questions. This study has evaluated the 76 core behavioral health questions of the HRA II for credibility. No formal studies on the overall credibility of the HRA II as an independent survey unit have been conducted. The results of this study have found that 42 of the 76 core behavioral health questions have either an unknown or poor level of credibility. The fact that over half of the HRA II is composed of survey items of questionable credibility plus the lack of tests on the overall usefulness of the HRA II is cause for concern. As stated by WHO (2000), “the credibility of risk assessment depends, to a large extent, on the strength of the scientific evidence on which it is based” (p. 997). Rona et al. (2005) further contend that a health risk screening program without evidence of effectiveness could be harmful to the population it is intended to help. However, it is important to consider that portions of the HRA II, specifically the mental health and substance abuse sections, contain survey questions that have been well documented as providing credible and useful health risk data. A total of 34 questions were found to have either good or at least fair credibility, and it is upon these strengths that work on any future health risk appraisals should be based. In analyzing the data the question must be asked as to why so many of the HRA II items had poor credibility, and what steps can be taken to improve on this finding. To answer this question, a look at both positivist and post-positivist methodology is considered.

Use of Positivist Philosophy

In evaluating the credibility of the HRA II questions, this study has taken a primarily positivist approach by basing levels of credibility on known scientific facts.

“Positivists strive to use valid and reliable methods to describe, predict, and control human behavior” (Plack, 2005, p. 226). The criteria for the determination of the credibility for the HRA II questions was based on the ability of the researcher to connect the question with documentation or knowledge of scientific testing that showed the reliability and validity of the question. Positivists believe that the only real truths are based on scientific empiricism, math, and logic (Crotty, 1998, as cited in Plack, 2005). “Positivist methodologies are deductive processes in which concepts are explicitly defined and measured and in which contexts are controlled” (Coppola, 2006).

It is important to note this study has applied qualitative methodology to a positivist philosophy. Positivist work is most commonly associated with quantitative research, but this strict association has been challenged in the literature. Crossan (2003) states “it is important to note that while quantitative research methods (or positivist philosophies) and qualitative methods (or post-positivist philosophies) are often seen as opposing and polarized views they are frequently used in conjunction” (p. 49). Clark (1998) (as cited in Crossan, 2003) further emphasizes this point by stating:

Though some distinction between methods is well placed...it is being acknowledged that philosophically the qualitative and quantitative paradigms are not as diverse or mutually incompatible as often conveyed. Staunch identification of methods with particular paradigms may not be as accurate, or even as useful, an endeavor as past trends would indicate.

In this study the determination of the credibility of HRA II survey questions is based on a review of documentation and interviews verifying the application of scientific empiricism to question creation. “A major criticism of the positivist approach is that it does not

provide the means to examine human beings and their behaviors in an in-depth way” (Crossan, 2003, p. 50). With this limitation in mind, the need to answer why the HRA II contained so many questions of poor credibility and then how that trend can be improved may be found in reviewing findings that take a post-positivist approach.

Post-Positivism

Like the positivist, the goal of the post-positivist is to discover cause and effect relationships and to predict and control future behavior on the basis of present behavior (Guba & Lincoln, 1994; Walker & Evers, 1988, as cited in Plack, 2005). According to Letoumeau and Allen (as cited in Crossan, 2003) post-positivist approaches give way to both qualitative and quantitative methods. Creswell (2003) aptly says that “the knowledge that develops through a post-positivist lens is based on careful observation and measurement of the objective reality that exists “out there”[sic] in the world” (p. 7). A post-positivist look at the credibility of the HRA II enables the researcher to bring forth underlying humanistic themes that affect the overall purpose of the study. “Unlike the positivist, the post-positivist utilizes numerous approaches to inquiry including qualitative research in naturalistic settings to be able to discover cause and effect relationships in given contexts” (Plack, 2005, p. 227).

In the course of documenting and describing the origins and credibility of the HRA II, several themes have been discovered that may help elucidate why so much of the survey has a poor level of credibility. Berkowitz (1997) says throughout the course of qualitative analysis the researcher should be asking what patterns and common themes have emerged in responses dealing with specific items, and then how do those patterns help illuminate the broader study questions. Stake (1995) and Wolcott (1994) (as cited in

Creswell, 2003) further state that case study research “involves a detailed description of the setting or individuals, followed by analysis of the data for themes or issues (p. 191). It is in the study of these post-positivist themes that have emerged throughout the course of this project that qualitative methods of improving the HRA II may be found.

HRA II Specific Themes

When it comes to collecting accurate and useful information about how people think and behave, poorly constructed survey questions can create problems with instrument credibility (Salant & Dillman, 1994). Of the 16 proponent sections on the HRA II, eight contained questions created solely for the survey. The processes of deciding what new information is needed, how to structure the question to avoid word problems, and whether people can accurately answer what is asked are just a few of the challenges in writing new questions (Salant & Dillman). The science behind writing effective survey questions is extensive, and the need to understand the nuisances of question creation is critical to minimizing measurement error.

With the HRA II dichotomous opinions emerged in relation to writing new survey questions. On one side a very strong feeling was expressed that survey questions were useless if they had not been validated; while others felt that a question did not have to be validated to produce accurate results. The latter opinion was surprising given the fact that without adequate testing the trustworthiness and ability of a survey question to adequately address a topic is unknown. Two such opposite views can potentially have a negative effect on the overall usefulness of the HRA II. Exploration into the opinion that survey questions did not need scientific backing discovered that this opinion was held either due to lack of education on how to create a survey item, because of a desire to

follow personal bias, or an unfounded faith in the use of prior survey items. These findings revealed methods for improving the credibility of the HRA II that fell away from the strict positivist view and into the realm of post-positivism by exploring and examining the human behaviors that are beyond the scope of positivism (Crossan, 2003).

Lack of Education

“The goal of the post-positivist is to both acknowledge the presence of human interactivity and control for it as much as possible” (Plack, 2005, p. 227). During the initial stages of development, a solicitation was made for survey questions from the various participants involved with the HRA II. The level of expertise in creating survey items varied greatly among those asked to generate questions. The effective selection, wording and algorithm creation of questions was to some extent based on the chance that proponent committees had experience with survey creation or access to established questions. This discrepancy in the education level of committees or individuals created a void between utilizing questions with good fundamental value and those that simply sounded as if they were asking the right question. As stated by Salant and Dillman (1994) “no amount of money or talent can create value out of a trivial question.... and if the questions do not ask for useful information the project will be a waste of time, money, and energy” (p. 25).

The void in education was exemplified by a request to provide additional questions for the HRA II by the Deputy Director, Department of Ministry and Pastoral Care at MAMC. When interviewed Lieutenant Colonel (LTC) Brett Travis stated that he had created six questions based solely on personal experiences utilizing words and responses he thought was appropriate. A vague idea existed as to what useful information

was wanted, but exactly how to ask the questions were completely unknown. Salant and Dillman (1994) state that the first step to writing a good question is to identify exactly what kind of information you want respondent's to provide in order to be able to translate the problem statement into good questions. When asked what scientific knowledge he was basing his questions on the chaplain stated that he had none, and that he was "shooting from the hip" (B. Travis, personal communication, April 5, 2006).

In an offer of assistance the chaplain was then presented with literature referencing known scientific studies of theological surveys to include topic areas that various established surveys covered. The literature referenced known data on reliability and validity of the surveys and appropriate target populations. The reaction was dramatic with palpable excitement. LTC Travis stated that he had "never seen information like this before....[and] that this connects everything, narrows me down into precise topics" (B. Travis, personal communication, April 11, 2006). "Clarifying what kind of information you want is important because it is so easy to ask for one type of information when you really want another" (Salant & Dillman, 1994, p. 78).

This experience highlighted the need to accurately assess the knowledge level and expertise of those individuals and committees that were asked to assist in the creation of the HRA II. Various proponents experienced differing levels of this kind of lack of education on how to write survey questions and also on what resources were available to assist in creating credible questions. "Writing good questions means minimizing measurement error" (Salant & Dillman, 1994, p. 92) through known techniques. The lack of knowledge on how to accomplish this was a direct contributing factor to the number of HRA II survey items with poor credibility.

Personal Bias

A second theme that developed was the proclivity of individuals to write questions based on personal bias. Most selection committees for the HRA II contained members with significant years of experience in their respective fields. This experience created good knowledge of what health risks might be experienced by the target population, but it also skewed the objectivity involved in writing credible questions. In some instances individuals choose to avoid the use of known, validated survey questions in favor of the use of questions that more closely aligned to personal desires or beliefs. "Our question creation was influenced by in-borne biases developed over time" (Anonymous, personal communication, March 24, 2006) due to years of experience in our field. "It is likely that bias led to avoiding the use of validated surveys that might have been good just because of dislike of particular questions" (Anonymous, personal communication, March 24, 2006).

Obviously the effect of avoiding the use of validated survey instruments in favor of creating questions based on personal factors is unknown until formal testing establishes a baseline for comparison. However considering the general constraints in both time and resources needed to adequately validate a health risk appraisal; the use of validated questions when available would seem a more reasonable method of increasing a new survey instrument's credibility. Salant & Dillman (1994) state that no one has ever succeeded in compiling a perfect list of rules for writing good questions, but one common mistake is that they write questions for a particular population and purpose instead of writing in the abstract. To combat this tendency Salant & Dillman propose to "consider using questionnaires that have worked in other surveys on similar topics" (p. 91). In

several cases during the development of the HRA II the opportunity of utilizing existing questions that would have been appropriate for the target population existed; but instead the option of writing new questions prevailed due to personal bias.

Utilizing known sources

A final theme that may have affected the credibility of the HRA II questions was the tendency to utilize items from other surveys simply because it was a question that was in common use and familiar to the participants. It is important to note that this theme differs from the prior suggestions of this study to consider using validated survey questions in the construction of a new health risk assessment. In this instance, the decision to use established questions was based on the humanistic factors of perceived convenience or habit and not on principles based on scientific methodology. This observation applies primarily to those questions taken from the HRA I and some taken from the Behavioral Health Screening Instrument (BHSI). It appears that a reliance on past questions precluded any additional research into credible question sources. This may be at no fault to the proponent committee due to lack of knowledge surrounding the HRA I or BHSI prior to constructing the HRA II. Creswell (2003) suggests that "to use an existing instrument, describe the established validity and reliability of scores obtained from past use of the instrument" (p. 157). In the case of the Exercise, Nutrition Care, and Sexual Practices question sets, this investigation into whether the items produced meaningful answers did not occur. It was simply assumed that the questions were valid and produced useful data based solely on the extended time frame for which they had been used in prior military surveys.

This also occurred to a lesser degree with the suicide ideation questions from the Mental Health proponent. Items 76-78 query about suicide ideation and past history of relatives who might have attempted suicide. This set of questions had been created by members of the MAMC Behavioral Health Department but no record of why, how, or by whom the questions were created had been maintained. These questions were on the original BHSI instrument, but “we cannot identify origin prior to that, we may have created them as single questions to address a specific clinically relevant risk factor” (G. Gahm, personal communication, March 29, 2006). The BHSI has been used for a number of years by the department, but the survey has not been validated as a stand alone instrument (B. Lucenko, personal communication, March 29, 2006). The process of attempting to establish the origin of this question set uncovered multiple validated surveys on suicide ideation that were appropriate for the target population and scope of the HRA II. Interviews concluded that use of these reputable surveys did not occur because of past reliance on the BHSI, even though the credibility of the suicide questions had not been established. “There is no real reason why we could not have used that [Revised Suicide Ideation Scale] survey, it is a good idea and we should consider it” (B. Lucenko, personal communication, April 5, 2006). As with other proponents a reliance on prior survey tools, perhaps due to convenience, might have precluded the consideration of use of more credible instruments.

Controlling for these themes in any stages of development of the HRA II will help to refine the focus of those involved in survey creation and ensure the production of a meaningful instrument. In addition to these themes, it is worth noting some of the developmental similarities that the HRA II shared with the HRA I that directly apply to

this study. A fifteen year time span separated the creation of the two surveys, yet many of the trials and tribulations of the surveys were remarkably similar. A study of the relationship between the HRA I and HRA II will serve as a final backdrop to evaluating the survey and ways of improving future work.

Similarities to the HRA I

The development of the HRA II in many ways paralleled the development of the HRA I to include falling victim to some of the same pitfalls that hampered the HRA I. In an effort to guide future health risk appraisal development, Senior et al. (2003) not only extensively documented concerns relating to the credibility of the HRA I, but also some of the history behind the development of the HRA I that led to some of the surveys drawbacks. The goal of the *lessons learned* [italics added] section of the 2003 USARIEM report was to propose suggestions for how to avoid the failures of the HRA I in the development of other health risk appraisals. Unfortunately those warnings were not available before the creation of the HRA II. In an effort to create a blueprint for future work, it is worth noting some of the similarities in issues between the surveys.

Document the Decision Making Process

Senior et al. (2003) contend that the “development of survey questionnaires should be more rigorously documented....if existing questions are used in the construction of a new survey instrument, the decision to include them should be made in careful consideration of the flaws of the original question” (p. 78). In this statement Senior et al. are referring to the development of the HRA I and the lack of adequate tracking and research into the questions used on the survey. The 2003 USARIEM report thoroughly details how the lack of documentation on the development of the HRA I made

the study of that survey extremely difficult and time consuming. This statement is also directly applicable to the development of the HRA II. As stated previously in this report some proponents included questions from previous military surveys without taking into the account of the credibility of those questions. Senier et al. go on to say that:

Taking the time to document the decision-making process, on such issues as when and whether to borrow items, or to use public domain items, or even to write new questions is a useful exercise in making sure the instrument stays true to its stated purpose and objectives and in arriving at the best questions to gather the information desired (p. 78).

In the case of the HRA II, some documentation of the origins of questions used on the survey did take place. The consultant for the HRA II did document where the majority of the survey items came from, but the list was not all inclusive and did not cover in detail the process behind the selection of each question. In some cases a question would be documented as having been staff generated, but little information beyond that point was maintained. The purpose of this study was to address this issue and create a document (Appendix B) that provided in detail the origin and credibility of the HRA II questions and from which further development of the HRA II may be based.

List Points of Contact

Similar to the need to document survey development, Senier et al. report a need to also create and maintain a list of those individuals responsible for question selection or creation. "Because military personnel change jobs frequently...it has been enormously challenging to learn even the names of many of the key players in the early days of the program" (Senier et al., 2003, p.78). This study encountered the same barrier in

attempting to document the origins and history of survey questions. Even though the HRA II is but three years old, the ability to pinpoint the individual responsible for selecting or creating a question for the survey was extremely difficult. Because no formal record of the exact point of contact for questions had been maintained, this researcher was limited to following multiple interview leads in the attempt to narrow down the source of some questions.

In three cases with HRA II questions, the source and origin of the question could not be determined even with ample assistance from survey proponents. It should also be noted that in two separate cases individuals claimed to have created a question that after further research was discovered to originate from public domains. The rapid loss of contact with points of origin for survey items and the lack of ability to recall where questions were taken from clearly indicates the need for careful documentation during the development process. Appendix C lists the known points of contact for the survey items. In order to address the frequent changes in duty locations by military members, this study has listed as many civilian points of contact as possible. The civilian counterparts too many of the military officers responsible for survey questions tend to have more stability and longevity over time, and therefore serve as a more useful point of contact.

Senier et al. (2003) make a vital point regarding the need to document the decision making process and points of contact for the HRA II by commenting on the possible future need of separate researchers to access data on the survey. Referencing the HRA I, Senier et al. comment that "if more scrupulous attention had been paid to documentation during the early days of the program, it would be easier to obtain HRA data and to fully understand more of the idiosyncrasies expressed in the HRA database"

(p. 79). The purpose of the HRA II is to track health risk changes of Soldiers across post-deployment, pre-deployment, and in-processing. The need to be able to reference information on the origins and credibility of the survey could have a major impact on health promotion program planning in the near future. In the event that the HRA II does undergo formal testing for reliability and validity, a need may exist to be able to access information about individual questions before deciding to alter the questionnaire.

Committee Collaboration

Senier et al. (2003) affirm that “one of the keys to designing a good survey instrument is beginning with a clearly defined set of objectives” (p. 77) and to avoid the temptation to add extra questions on topics that are not related to survey objectives (Fowler, 1993, as cited in Senier et al., 2003). Senier et al. continue by saying that resisting this temptation may be even more difficult if the questions used in the survey are designed by committees with different goals and objectives. Differing goals and philosophies between the Deputy Chief of Staff of Personnel (ODCSPER) and the Office of the Surgeon General (OTSG) on the purpose and design of the HRA I created barriers that had dramatic consequences on the survey design. It is perhaps as a result of having different goals and objectives that some of the committee areas for the HRA II appear to have developed strained working relationships. As Berkowitz (1997) said “qualitative analysts should be alert to patterns of inter-connection in their data that differ from what might have been expected” (Conclusion Section, ¶ 13).

Throughout the data collection portion of this study, it became clear that some of the proponent committees that selected or created questions for the HRA II either acted fairly independently of each other or disagreed with the inclusion of some proponent’s

portions. Interviews with numerous individuals created a sense that certain proponents deserved to have a larger set of questions and inclusion of other areas precluded that from happening. While the desire of health care leaders to include the maximum amount of survey questions from their respective disciplines is not surprising, it is the observation of this researcher that such desires have developed into a negative working relationship between some proponents. Lack of collaboration between committees perhaps hindered the sharing of knowledge in how to create questions. The affect of this personnel dynamic on the HRA II is unknown, but strained lines of communication among committees are unlikely to provide the level of collaboration needed for successful health promotion planning.

Thorough Pilot Testing

The final similarity between the development of the HRA I and the HRA II is the need to conduct thorough pilot testing. The HRA I was pilot tested on six military posts, however “no reports documenting the results of these evaluations, or what changes, if any, were made to the questionnaire in response to the findings” (Senier et al., 2003, p. 79). The HRA II was pilot tested but unfortunately political barriers have prevented the formal testing of the reliability or validity of the survey on the target population. Without such testing the credibility of the HRA II to accurately identify the health risks of the target population is not known. Without founded studies we don’t know if “we are screening and referring to appropriate services...there is no way of knowing who is falling through the cracks” (B. Lucenko, personal communication, February 27, 2006). In the event that those barriers are lifted, Senier et al. contend that a new questionnaire “should be formally evaluated with respect to the reliability and validity of the responses

they garner” (p. 79). Formal testing of the HRA II should include a document that chronicles those tests and any changes made to the survey. Such a document will prove useful to guide further work on the survey should it become an instrument utilized outside of the Fort Lewis population.

A Proposition for Future Work

The findings of this study have shown the importance of understanding the nuisances and intricacies of creating a health risk assessment survey. Based on the findings of this report the following proposition for future work is presented:

While the determination of the credibility of question usefulness needs to be based on a positivist approach of fundamental statistical analysis, the overall process of creating a survey questionnaire sufficient to achieve credible results must incorporate humanistic, post-positivist methodology and controls.

This proposition is posited in order to help guide future work on the development or improvement of any health risk appraisal.

Conclusion and Recommendations

Eisner (1991) (as cited in Hoepfl, 1997) states that “the most important test of any qualitative study is its usefulness....a good qualitative study can help us understand a situation that would otherwise be enigmatic or confusing” (p.59). The purpose of this study was to document and describe the history and credibility of the Health Risk Assessment II. The development of the HRA II is an attempt to use preventive techniques to identify and treat the health needs of Soldiers before they escalate to dangerous or unnecessary levels. The effective use of the HRA II survey has the potential to reduce

health care costs, provide Soldiers the access to needed care, and improve the overall quality of life for service members.

A total of 34 questions were found to have either good or at least fair credibility, and it is upon these strengths that work on any future health risk appraisals should be based. However, the results of this study have also found that 42 of the 76 core behavioral health questions have either an unknown or poor level of credibility. This finding is cause for concern. It is strongly recommended that all barriers to conducting formal psychometric testing on the HRA II be removed, and that adequate funding be provided to conduct full scale validation studies. The requirements in both time and resources that are needed to adequately validate a health risk appraisal can be daunting. This study has generated a comprehensive list of the origins and credibility of the HRA II core behavioral health questions and illuminated some of the humanistic issues involved with creating a health risk appraisal. A proposition to help guide future work on the HRA II or other DoD health risk appraisals has been provided.

This report endeavored to give the readers an impression of where the data was found, how it was generated and collected, and what its context was prior to being separated in analysis (Chenail, 1995). These actions have been taken in order to allow replication of this study's methodology. With qualitative analysis it must be noted that "it is not necessary or even desirable that anyone else who did a similar study should find exactly the same thing or interpret this or her findings in precisely the same way" (Berkowitz, 1997, Summary Section, ¶ 2). Giacomini et al. (n.d.) similarly report that "the results of a qualitative research report are best understood as an empirically based

contribution to ongoing dialog and exploration, rather than as documentation of an invariant fact” (Relevance Section, ¶ 1).

Senier et al. (2003) illuminated the drawbacks and lack of validation of the HRA I survey that had been trusted and used for over a decade by the U.S. Army. The combined question set of the HEAR 3.0, the survey used by the military health insurance program, has also not been validated as a stand alone survey instrument (B. Kenyon, personal communication, April 3, 2006). Lack of validation of these instruments coupled with the current studies being conducted on the Post Deployment Health Risk Assessment (PDHRA) has created an opportunity for the custodians of the HRA II. The decision to undergo full scale tests of validity to establish the credibility of the HRA II as a complete and stand alone survey instrument has the potential to make a vital impact on military health promotion, and may establish the HRA II as the standard in military health risk assessment.

Appendix B

Origins and Credibility of the HRA II**Interview Worksheet**

Interview number: _____

Date / Time: _____

Location: _____

Proponent: _____

Interviewer: _____

Opening Statement: The purpose of this interview is to collect data for the case study on the origins and credibility of the Health Risk Assessment II. This study is being conducted as a GMP in order to satisfy degree requirements for a Masters in Health Care Administration from Baylor University. The research question being asked is what are the origins and credibility of the survey questions used on the Health Risk Assessment II.

Conditions that prompted the study: In August 2003, a study by the U.S. Army Research Institute of Environmental Medicine (USARIEM) analyzed the quality of the survey questions used on the original Army HRA I. The study revealed serious doubt as to the credibility of certain questions due to the fact that it does not appear that the Army ever published any findings related to the reliability or validity of the HRA questionnaire or any of the items on it (Senier et al.).

The recent development of the HRA II is in some part based on questions taken from the HRA I. The work by the USARIEM established doubt as to the credibility of certain HRA II questions, but little or nothing is known about the remaining questions. The objective of this case study is to establish a baseline document on the current status of the credibility of the HRA II. Credibility is defined as the quality of being believable or

trustworthy. Credibility is the believability of a statement, action, or source, and the ability of the observer to believe the above. As stated by the World Health Organization (2000), the credibility of risk assessment depends, to a large extent, on the strength of the scientific evidence on which it is based. The data collected from the HRA II is important because it has the potential for use in health program and resource planning and evaluating intervention programs. This effort is pursued in order to provide management a sufficient level of information from which to determine whether or not to invest in more formal studies concerning the credibility of survey questions on the HRA II.

The goal of this project is not to prove a right or wrong or to find fault or value, but only to discover and document the current state of the HRA II. Reported findings associated with the data collected during this project is for the purpose of serving the greater good of the Fort Lewis population.

Statement of Ethical Conduct in Research: I declare no conflict of interest or financial incentives in any product or service mentioned in this GMP. The confidentiality of individuals whose data may be used in this study will be protected at all times and under no circumstances will any identifying information be discussed or released to outside agencies without permission. If requested a copy of the final report will be provided to you.

Questions:

- (1) Which survey questions on the HRA II belong to your proponent?
- (2) What was the source used in selecting each of those questions?
- (3) Are you aware of what the original source, i.e the point of creation, of each survey question might be?

(4) Can you identify any documentation that confirms the existence of evidence that would establish credibility for each survey question?

(5) Are you aware of any studies currently being conducted that might establish or enhance the credibility for the survey questions?

(6) Do you have any personal reservations or comments concerning any of your proponent's survey questions that you feel should be addressed?

Descriptive Notes:

Reflective Notes:

Question notes continuation:

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HEALTH RISK ASSESSMENT II



HEALTH TRANSFORMATION IS ARMY TRANSFORMATION

**I CORPS READINESS OUTCOMES
AND WELLNESS SERVICE (ICROWS)**

For use of this form, see AR 40-501 and AR 600-63

HEALTH RISK ASSESSMENT II: HEALTH TRANSFORMATION IS ARMY TRANSFORMATION

PURPOSE(S): Health Risk Assessment II (HRA II) is a medical readiness questionnaire used to help you and your health care providers recognize and understand your health risk factors. Knowing your risk factors helps your health care providers counsel you and make recommendations to decrease your risks and improve your health. HRA II will not give you a diagnosis and it is no substitute for a physical examination or check-up.

AUTHORITY: Title 10, U.S.C., Executive Order 9397; 29 CFR Chapter XVII, Occupational Safety and Health Standards; 5 U.S.C., section 7901 and Executive order 12196 authorized collection of this information.

ROUTINE USES: Information may be disclosed to departments and agencies of the Executive Branch in performance of their official duties relating to health risk appraisal and cardiovascular screening. We ask for your social security number so we can statistically track trends in health risks and awareness over long periods of time. Additional disclosures of this information may be: to the Office of the Surgeons General and local commands in aggregated form to develop command fitness profiles and strategies for proactive intervention; to military medical researchers for the purpose of correlating health precursors to health problems. Where data from this system of records are provided to agencies external to the military, social security number and name will be deleted. This form will be destroyed after information is extracted.

DISCLOSURE: Mandatory for all military personnel IAW AR 40-501 and AR 600-63; voluntary for all other individuals.

PRIVACY: This system of records contains individually identifiable health information. The DoD Health Information Privacy Regulation (DoD 6025.18-R) issued pursuant to the Health Insurance Portability and Accountability Act of 1996, applies to most such health information. DoD 6025.18-R may place additional procedural requirements on the uses and disclosures of such information beyond those found in the Privacy Act of 1974 or mentioned in this system of records notice.

Marking Instructions

Please fill in your responses like this using a #2 pencil.

When filling in your name, please use the blank ovals for dashes, periods, or spaces in your name.

Sample Grid

To complete grids, first write in your number, then fill in the corresponding bubble.

Social Security Number							
1	2	3	4	5	6	7	8
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

Card 1 Side 1

Social Security Number									
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

Last Name									
A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

First Name									
A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C	C	C
D	D	D	D	D	D	D	D	D	D
E	E	E	E	E	E	E	E	E	E
F	F	F	F	F	F	F	F	F	F
G	G	G	G	G	G	G	G	G	G
H	H	H	H	H	H	H	H	H	H
I	I	I	I	I	I	I	I	I	I
J	J	J	J	J	J	J	J	J	J
K	K	K	K	K	K	K	K	K	K
L	L	L	L	L	L	L	L	L	L
M	M	M	M	M	M	M	M	M	M
N	N	N	N	N	N	N	N	N	N
O	O	O	O	O	O	O	O	O	O
P	P	P	P	P	P	P	P	P	P
Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
R	R	R	R	R	R	R	R	R	R
S	S	S	S	S	S	S	S	S	S
T	T	T	T	T	T	T	T	T	T
U	U	U	U	U	U	U	U	U	U
V	V	V	V	V	V	V	V	V	V
W	W	W	W	W	W	W	W	W	W
X	X	X	X	X	X	X	X	X	X
Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z	Z	Z	Z	Z

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X
Y
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Card 2 Side 1

Date of Birth		
	DAY	YEAR
Jan		
Feb		19
Mar	0	0
Apr	1	1
May	2	2
Jun	3	3
Jul	4	4
Aug	5	5
Sep	6	6
Oct	7	7
Nov	8	8
Dec	9	9

GENDER

- ☐ Male
☐ Female

Pay grade

- ☐ E-1
☐ E-2
☐ E-3
☐ E-4
☐ E-5
☐ E-6
☐ E-7
☐ E-8
☐ E-9
☐ O-1
☐ O-2
☐ O-3
☐ O-4
☐ O-5
☐ O-6
☐ O-7
☐ O-8
☐ O-9
☐ O-10
☐ W-1
☐ W-2
☐ W-3
☐ W-4
☐ W-5
☐ Unknown

Service Branch

- ☐ Army
☐ Air Force
☐ Coast Guard
☐ Navy
☐ Marines
☐ Other

Military Status

- ☐ Active
☐ National Guard
☐ Reserves
☐ Other

Unit Identification Code

A	A	A	A	A	A
B	B	B	B	B	B
C	C	C	C	C	C
D	D	D	D	D	D
E	E	E	E	E	E
F	F	F	F	F	F
G	G	G	G	G	G
H	H	H	H	H	H
I	I	I	I	I	I
J	J	J	J	J	J
K	K	K	K	K	K
L	L	L	L	L	L
M	M	M	M	M	M
N	N	N	N	N	N
O	O	O	O	O	O
P	P	P	P	P	P
Q	Q	Q	Q	Q	Q
R	R	R	R	R	R
S	S	S	S	S	S
T	T	T	T	T	T
U	U	U	U	U	U
V	V	V	V	V	V
W	W	W	W	W	W
X	X	X	X	X	X
Y	Y	Y	Y	Y	Y
Z	Z	Z	Z	Z	Z
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

Today's Date		
	DAY	YEAR
☐ Jan		
☐ Feb		20
☐ Mar	0 0	0 0
☐ Apr	1 1	1 1
☐ May	2 2	2 2
☐ Jun	3 3	3 3
☐ Jul	4 4	4 4
☐ Aug	5 5	5 5
☐ Sep	6 6	6 6
☐ Oct	7 7	7 7
☐ Nov	8 8	8 8
☐ Dec	9 9	9 9

Current home phone number

Current work phone number

Current cell phone number

Current DSN

Current e-mail

Current street address (1)

Current street address (2)

Current city

Current state

Current ZIP

Confidentiality statement: This survey is confidential, and will only be provided to appropriate health care providers.

INSTRUCTIONS: Please read the entire question before marking your selection/ selections. If you need assistance with a question, please ask the medical personnel administering the survey.

12. Marital status:

- ☐ Never married ☐ Divorced
☐ Married ☐ Widowed
☐ Separated

13. Do you have children?

- ☐ Yes ☐ No

14. What is the highest level of education you have received in school?

- ☐ Some high school
☐ High school graduate
☐ Some college, but no degree
☐ Associate's degree
☐ College graduate (bachelor's degree)
☐ Postgraduate or professional degree

15. Racial/ethnic background (Mark all that apply):

- ☐ American Indian ☐ Black
☐ or Alaskan Native ☐ Hispanic
☐ Asian ☐ White
☐ Pacific Islander ☐ Other

16. This questionnaire is being administered as part of:

- ☐ In-processing ☐ Post-deployment
☐ Pre-deployment

Current assignment location

Occupational specialty (MOS, NEC, AFSC)

NOTE: For the purpose of this survey, a deployment is defined as a troop movement for 30 continuous days or greater to a location outside the United States that does not have a permanent U.S. military medical facility.

17. Your total Operation Iraqi Freedom (OIF) deployments in the last five (5) years?

- ☐ None ☐ 2 ☐ 4
☐ 1 ☐ 3 ☐ 5 or more

18. Your total Operation Enduring Freedom (OEF) deployments in the last five (5) years?

- ☐ None ☐ 2 ☐ 4
☐ 1 ☐ 3 ☐ 5 or more

19. Your total other deployments in the last five (5) years?

- ☐ None ☐ 2 ☐ 4
☐ 1 ☐ 3 ☐ 5 or more

20. Have you been deployed during the past two (2) years?

- ☐ Yes ☐ No

21. Location of operation:

- ☐ Iraq ☐ Afghanistan ☐ North America
☐ Kuwait ☐ Qatar ☐ South America
☐ Australia ☐ Europe ☐ SW Asia-Other
☐ Africa ☐ On a ship ☐ Bosnia, Kosovo
☐ Other

Other operation location?

22. Date arrived theater:

Date Arrived Theater			
	DAY		YEAR
☐ Jan			20
☐ Feb			
☐ Mar	0	0	0 0
☐ Apr	1	1	1 1
☐ May	2	2	2 2
☐ Jun	3	3	3 3
☐ Jul	4	4	4 4
☐ Aug	5	5	5 5
☐ Sep	6	6	6 6
☐ Oct	7	7	7 7
☐ Nov	8	8	8 8
☐ Dec	9	9	9 9

23. Date departed theater:

Date Departed Theater			
	DAY		YEAR
☐ Jan			20
☐ Feb			
☐ Mar	0	0	0 0
☐ Apr	1	1	1 1
☐ May	2	2	2 2
☐ Jun	3	3	3 3
☐ Jul	4	4	4 4
☐ Aug	5	5	5 5
☐ Sep	6	6	6 6
☐ Oct	7	7	7 7
☐ Nov	8	8	8 8
☐ Dec	9	9	9 9

24. Since return from deployment I have:

- ☐ Maintained/returned to previous status
☐ Transitioned to selected reserves
☐ Transitioned to ready reserves
☐ Retired from military service
☐ Separated from military service

25. During combat operations did you...

- a. ... become wounded or injured? Yes ☐ No ☐
 b. ... personally witness anyone being killed? Yes ☐ No ☐
 c. ... see the bodies of dead soldiers or civilians? Yes ☐ No ☐
 d. ... kill others in combat (or have reason to believe that others were killed as a result of your actions)? Yes ☐ No ☐

26. Other than wounds or injuries, do you currently have a health concern or condition that you feel is related to your deployment?

Yes ☐ No ☐

27. Please mark items that best describe your deployment-related condition or concern.

(Mark all that apply)

- | | |
|--|---|
| Difficulty remembering ☐ | Fever ☐ |
| Chest pain or pressure ☐ | Back pain ☐ |
| Skin diseases or rashes ☐ | Weakness ☐ |
| Redness of eyes with tearing ☐ | Headaches ☐ |
| Swollen, stiff, or painful joints ☐ | Runny nose ☐ |
| Dizziness, fainting, light headedness ☐ | Muscle aches ☐ |
| Numbness or tingling in hands or feet ☐ | Chronic cough ☐ |
| Taking more risks such as driving faster ☐ | Difficulty breathing ☐ |
| Diarrhea, vomiting, or frequent indigestion ☐ | Ringing in the ears ☐ |
| Dimming of vision, like the lights were going out ☐ | Increased irritability ☐ |
| Problems sleeping or still feeling tired after sleeping ☐ | Other ☐ |

Please describe your other deployment concern or condition.

☒ Yes ☐ No

- | | |
|--|---|
| ☒ Paints | ☐ Smoke from oil fire |
| ☒ Lasers | ☐ Industrial pollution |
| ☒ Solvents | ☐ Radar/ microwaves |
| ☒ Radiation | ☐ Excessive vibration |
| ☒ Sand/ dust | ☐ Fog oils (smoke screen) |
| ☒ Loud noises | ☐ Pesticide-treated uniforms |
| ☒ Pesticide strips | ☐ Vehicle or truck exhaust fumes |
| ☒ JP8 or other fuels | ☐ Blast or motor vehicle accident |
| ☒ Depleted uranium | ☐ Smoke from burning trash or feces |
| ☒ Tent heater smoke | ☐ DEET insect repellent applied to skin |
| ☒ Flea or tick collars | ☐ Environmental pesticides (like area fogging) |

28. Do you have any persistent concerns regarding the health effects of something you believe you may have been exposed to or encountered while deployed?

29. Please mark items that best describe your deployment-related exposure concerns. (Mark all that apply)

Please explain your depleted uranium exposure:

Please describe any other deployment exposures:

☒ Yes ☐ No

30. During your deployment, were you wounded, injured, assaulted, or otherwise physically hurt?

☒ Yes ☐ No ☐ Not sure

31. Are you still having problems related to this wound, assault, or injury?

☒ No visits ☐ 2-3 visits ☐ Over 5 visits
☒ 1 visit ☐ 4-5 visits

32. Since you returned from deployment, how many times have you seen a health care provider for any reason, such as in sick call, emergency room, primary care, family doctor, or mental health provider?

☒ Yes ☐ No

33. Since you returned from deployment, have you been hospitalized?

☒ Yes ☐ No

34. While you were deployed, did you experience any unwanted sexual attention, like verbal remarks, touching, or pressure for sexual favors?

☒ Yes ☐ No

35. While you were deployed, did anyone use force, threat of force, or coerce you to have sex against your will?

☒ Yes ☐ No

36. Have you been on temporary profile for more than two (2) weeks at a time during the last year?

37. What is your height?

38. What is your weight? (in pounds)

Height	
Feet	Inches
	0
	1
	2
	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11

Weight Pounds		
	00	0
100	10	1
200	20	2
300	30	3
400	40	4
500	50	5
	60	6
	70	7
	80	8
	90	9

39. How would you describe your general health today? Excellent ☐ Good ☐ Poor ☐
Very good ☐ Fair ☐
40. How would you describe your general health today compared to one (1) year ago? Much better ☐ No change ☐ Much worse ☐
Better ☐ Worse ☐
41. How would you describe your general health today compared to your most recent deployment? Much better ☐ No change ☐ Much worse ☐
Better ☐ Worse ☐
42. Have you been told by a doctor or medical staff member that you have any of the following problems?
- | | | | |
|---|------------------------------|-----------------------------|--------------------------|
| a. High blood pressure | Yes ☐ | No ☐ | ☐ |
| b. Heart trouble or hardening of the arteries | Yes ☐ | No ☐ | ☐ |
| c. High cholesterol | Yes ☐ | No ☐ | ☐ |
| d. (Sugar) diabetes | Yes ☐ | No ☐ | ☐ |
| e. Asthma, bronchitis or emphysema | Yes ☐ | No ☐ | ☐ |
| f. Obesity | Yes ☐ | No ☐ | ☐ |
43. Do you have physical pain or injury that affects your ability to perform your work or your physical training program? Yes ☐ No ☐
44. In the past 12 months . . .
- | | | | |
|---|-----------------------------------|----------------------------------|------------------------------|
| a. Have you failed the APFT? | Yes ☐ | No ☐ | ☐ |
| b. If yes, which sections did you fail? (Mark all that apply) | Push-ups ☐ | Sit-ups ☐ | Run ☐ |
45. How often do you do exercises that improve muscle strength, such as pushups, sit-ups, weight lifting, a Nautilus/Universal workout, resistance training, etc.? 3 or more times a week ☐
1 or 2 times a week ☐
Rarely or never ☐
46. How often do you do at least 20 minutes of non-stop aerobic activity (vigorous exercise that greatly increases your breathing and heart rate such as running, fast walking, biking, swimming, rowing, etc.)? 3 or more times a week ☐
1 or 2 times a week ☐
Rarely or never ☐
47. Have you used tobacco within the last 6 months? Yes ☐ No ☐
48. Do you currently use any of the following tobacco products?
- | | | | |
|--|------------------------------|-----------------------------|--------------------------|
| a. Cigarettes | Yes ☐ | No ☐ | ☐ |
| b. Cigars | Yes ☐ | No ☐ | ☐ |
| c. Smokeless tobacco (chewing tobacco, snuff, pouches, etc.) | Yes ☐ | No ☐ | ☐ |
| d. Pipes | Yes ☐ | No ☐ | ☐ |
49. Are you trying to quit using tobacco? Yes ☐ No ☐
50. Are you ready to quit using tobacco in the next 30 days? Yes ☐ No ☐
51. Do you want help to quit using tobacco? Yes ☐ No ☐
52. To the best of your knowledge did any of your parents, brothers, or sisters (living or deceased) ever have any of the following problems?
- | | | | |
|---|------------------------------|-----------------------------|--------------------------|
| a. Heart attack before age 50 | Yes ☐ | No ☐ | ☐ |
| b. High blood pressure before the age of 50 | Yes ☐ | No ☐ | ☐ |
| c. High blood cholesterol | Yes ☐ | No ☐ | ☐ |
| d. Diabetes | Yes ☐ | No ☐ | ☐ |

Females Only (Males, please skip to question 58)

- ☐ Within the past year ☐ More than 3 years ago 53. When did you last have a Pap smear?
☐ 1 to 2 years ago ☐ Never had a Pap smear
☐ 2 to 3 years ago
- ☐ Within the past year ☐ More than 3 years ago 54. When did you last have a breast X-ray (mammogram)?
☐ 1 to 2 years ago ☐ Never had a mammogram
☐ 2 to 3 years ago
- ☐ 0 ☐ 2 or more 55. How many women in your natural family (mother and sisters only) have had breast cancer?
☐ 1
- ☐ Rarely or never ☐ Monthly 56. How often do you examine your breasts for lumps?
☐ Every few months
- ☐ None ☐ Spermicidal jelly 57. What is your current primary method of birth control?
☐ Norplant ☐ Depo-Provera injection
☐ Condom ☐ Condom & spermicidal jelly
☐ Birth control pills ☐ Not applicable

Males and Females

- | Times | |
|-----------------------------|---|
| ☐ 9 | ☐ Does not apply ☐ 75% to 99% |
| ☐ 10 | ☐ 100% ☐ Less than 75% |
| ☐ 20 | |
| ☐ 30 | ☐ Does not apply ☐ 75% to 99% |
| ☐ 40 | ☐ 100% ☐ Less than 75% |
| ☐ 50 | |
| ☐ 60 | |
| ☐ 70 | ☐ Does not apply ☐ 25-74% |
| ☐ 80 | ☐ 100% ☐ Less than 25% |
| ☐ 90 | ☐ 75-99% |
- ☐ Does not apply 75-99%
☐ 100% ☐ Less than 25%
- ☐ Not sexually active ☐ 5-10
☐ 1 ☐ 11-50
☐ 2-4 ☐ More than 50
- ☐ Does not apply to me
☐ Every time I have sex
☐ Almost always (more than 50%)
☐ Sometimes (less than 50%)
☐ Never
- ☐ Yes ☐ No
- ☐ At every meal ☐ Less than 3 days a week
☐ Daily ☐ Rarely or never
- ☐ At every meal ☐ Less than 3 days a week
☐ Daily ☐ Rarely or never
- ☐ Yes ☐ No
☐ Unsure
58. How many times in the last month did you drive or ride when the driver had perhaps too much to drink?
59. What percent of the time do you wear your hearing protection when you are around loud noise in your work environment?
60. During the last 12 months, how often did you wear appropriate protective gear such as eye protection, gloves, or respirators when doing work that involved loud noise, dust, hand or power tools, or hazardous chemicals?
61. If you ride a bicycle, motorcycle, or all-terrain vehicle, what percent of the time do you wear a helmet?
62. What percent of the time do you usually buckle your safety belt when driving or riding?
63. How many sexual partners have you had in the past 12 months?
64. How often do you and your partner(s) use condoms?
65. Are you taking any dietary supplements, herbal medications, or vitamins?
66. How often do you eat foods high in saturated fats such as beef, hamburger, pork, sausage, butter, whole milk, cheese, etc.?
67. How often do you eat high fiber foods such as whole grain breads, cereals, bran, raw fruit, or raw vegetables?
68. Are you having marital or relationship problems?

69. Do you have a spouse or significant other?

Yes ☐

No ☐

70. Rate the following statement about your spouse or significant other.

a. My relationship with my spouse or significant other is strong.

Strongly disagree ☐

Agree ☐

Disagree ☐

Strongly agree ☐

Neutral ☐

71. The following statements are about your relationships with other military personnel. Please read each statement and describe how much you agree or disagree by selecting the answer that fits best.

a. I feel like my efforts really count to the military.

b. The military appreciates my service.

c. I am supported by the military.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

d. Do you have a current unit assignment? (If no, skip to question 72.)

Yes ☐

No ☐

e. My unit is like a family to me.

f. I feel a sense of camaraderie between myself and other soldiers in my unit.

g. Members of my unit understand me.

h. Most people in my unit are trustworthy.

i. I could go to most people in my unit for help when I have a personal problem.

j. My commanding officer(s) are interested in what I think and how I feel about things.

k. I am impressed by the quality of leadership in my unit.

l. My superiors make a real attempt to treat me as a person.

m. The commanding officer(s) in my unit are supportive of my efforts.

Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐
☐	☐	☐	☐	☐

72. Over the last 4 weeks, how often have you been bothered by any of the following problems?

a. Feeling nervous, anxious, on edge, or worrying a lot about different things

b. Feeling restless so that it is hard to sit still

c. Getting tired very easily

d. Muscle tension, aches, or soreness

e. Trouble falling asleep or staying asleep

f. Trouble concentrating on things, such as reading a book, watching TV

g. Becoming easily annoyed or irritable

Not at all

Several days

More than half the days

☐

☐

☐

☐

☐

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73. In the last 4 weeks...

a. Have you had an anxiety attack—suddenly feeling fear or panic?

IF YOU ANSWERED "No", GO TO QUESTION 74

b. Have you ever had an anxiety attack before?

c. Do some of these attacks come suddenly out of the blue—that is, in situations where you don't expect to be nervous or uncomfortable?

d. Do these attacks bother you a lot or are you worried about having another attack?

e. During your last bad anxiety attack, did you have symptoms like shortness of breath, sweating, your heart racing or pounding, dizziness or faintness, tingling or numbness, or nausea or upset stomach?

Yes ☐

No ☐

Yes ☐

No ☐

Yes ☐

No ☐

Yes ☐

No ☐

Yes ☐

No ☐

74. In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month, you...

a. Have had nightmares about it or thought about it when you did not want to?

b. Tried hard not to think about it or went out of your way to avoid situations that reminded you of it?

c. Where you were constantly on guard, watchful, or easily startled?

d. Felt numb or detached from others, activities, or your surroundings?

Yes ☐

No ☐

Yes ☐

No ☐

Yes ☐

No ☐

Yes ☐

No ☐

Not at all Several days More than half the days Nearly every day

☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

☐ Yes ☐ No

75. Over the last 2 weeks, how often have you been bothered by any of the following problems?

- a. Little interest or pleasure in doing things
- b. Feeling down, depressed, or hopeless
- c. Trouble falling or staying asleep, or sleeping too much
- d. Feeling tired or having little energy
- e. Poor appetite or overeating
- f. Feeling bad about yourself, or that you are a failure, or that you have let yourself or your family down
- g. Trouble concentrating on things, such as reading the newspaper or watching television
- h. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual
- i. Thoughts that you would be better off dead, or of hurting yourself in some way

76. Do you feel like hurting yourself at this time?

77. Have you ever attempted to kill yourself?

78. Do you have relatives who have attempted suicide?

79. In the past month, did you use alcohol more than you meant to?

80. In the past month, have you felt you wanted to or needed to cut down on your drinking?

81. Please consider the past 12 months when answering these questions on alcohol use. A 'drink' refers to a can or bottle of beer, a glass of wine, a wine cooler, or one cocktail or shot of hard liquor.

a. How often do you have a drink containing alcohol?

- ☐ Never ☐ 2-3 times a week
☐ Monthly or less ☐ 4 or more times a week
☐ 2-4 times a month

b. How many drinks containing alcohol do you have on a typical day when you are drinking?

- ☐ None ☐ 5 or 6
☐ 1 or 2 ☐ 7, 8, or 9
☐ 3 or 4 ☐ 10 or more

c. How often do you have six or more drinks on one occasion?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

d. How often during the last year have you found that you were not able to stop drinking once you had started?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

e. How often in the last year have you failed to do what was normally expected from you because of drinking?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

f. How often in the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

g. How often during the last year have you had a feeling of guilt or remorse after drinking?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

h. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

- ☐ Never ☐ Weekly
☐ Less than monthly ☐ Daily or almost daily
☐ Monthly

i. Have you or someone else been injured as a result of your drinking?

- ☐ No ☐ Yes, during the last year
☐ Yes, but NOT in the last year

j. Has a relative, friend, doctor, or other health worker been concerned about your drinking or suggested that you should cut down?

- ☐ No ☐ Yes, during the last year
☐ Yes, but NOT in the last year

82. Is there anyone living with you who makes you feel unsafe? Yes ☐ No ☐
83. Are there times when you feel unsafe with what is happening in your home environment? Yes ☐ No ☐
84. a. Have you had a temper outburst in your home setting? Yes ☐ No ☐
IF YOU ANSWERED "No", GO TO QUESTION 85
b. Did the temper outburst result in a physical altercation? Yes ☐ No ☐
c. Did legal or law enforcement become involved? Yes ☐ No ☐
85. Since return from your deployment, have you had thoughts or concerns that you might hurt or lose control with someone? Yes ☐ No ☐ Unsure ☐

86. On a scale of 0 (Not at all) to 9 (Absolutely), how well does each of the following statements describe you?
- a. I often find myself getting angry at people or situations.
- b. When I get angry, I get really mad.
- c. When I get angry, I stay angry.
- d. When I get angry at someone, I want to clobber that person.
- e. My anger interferes with my ability to get work done.
- f. My anger prevents me from getting along with people as well as I'd like to.
- g. My anger has had a bad effect on my health.

Not at all

Absolutely

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

87. Are you having financial problems? Yes ☐ No ☐
88. Have you had a check returned in the past 30 days? Yes ☐ No ☐
89. Are you behind in mortgage, rent, or loans? Yes ☐ No ☐
90. Do you have enough money for food, clothing, and shelter? Yes ☐ No ☐
91. Are you having legal problems? Yes ☐ No ☐
92. Have you ever participated in an anger management class or stress management class? Yes ☐ No ☐
93. Have you received mental health or alcohol counseling in the past? Yes ☐ No ☐
94. Have you ever been on any medication for emotional problems? Yes ☐ No ☐
95. Are you currently receiving mental health or alcohol counseling? Yes ☐ No ☐
96. If you checked off any problems or concerns on this questionnaire, how difficult have these problems made it for you to do your work, take care of things at home, or get along with people?

Not difficult at all ☐
Somewhat difficult ☐Very difficult ☐
Extremely difficult ☐

97. What services are you interested in for the following?

- a. Mental health concerns(related to deployment)
- b. Mental health concerns (NOT related to deployment)
- c. Alcohol or other drug misuse
- d. Family or other relationship concerns
- e. Domestic violence or sexual assault
- f. Legal difficulties
- g. Financial difficulties

None	Written information only	Referral for assistance	Speak to someone today
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐
☐	☐	☐	☐

☐ Yes ☐ No

98. Would you like to schedule a visit with a health care provider to further discuss your health concern(s)?

☐ Yes ☐ No

99. Are you currently interested in receiving information or assistance for a stress, emotional, or alcohol concern?

☐ Yes ☐ No

100. Are you currently interested in receiving assistance for a family or relationship concern?

☐ Yes ☐ No

101. Would you like to schedule a visit with a chaplain or a community support counselor?

☐ Yes ☐ No

102. Do you wish to speak to a counselor now?

Clinical Measures

103. Total Chol.

	00	0
100	10	1
200	20	2
300	30	3
400	40	4
500	50	5
	60	6
	70	7
	80	8
	90	9

104. HDL Chol.

	00	0
100	10	1
200	20	2
	30	3
	40	4
	50	5
	60	6
	70	7
	80	8
	90	9

105. LDL Chol.

	00	0
100	10	1
200	20	2
300	30	3
400	40	4
500	50	5
	60	6
	70	7
	80	8
	90	9

106. Triglycerides

	00	0
100	10	1
200	20	2
300	30	3
400	40	4
500	50	5
600	60	6
700	70	7
800	80	8
900	90	9

107. Fasting Blood Sugar (mg/dl)

	00	0
10	10	1
200	20	2
	30	3
400	40	4
	50	5
	60	6
	70	7
	80	8
	90	9

108. Blood Pressure

Systolic (High No.)			Diastolic (Low No.)		
	00	0		00	0
100	10	1	100	10	1
200	20	2		20	2
	30	3		30	3
	40	4		40	4
	50	5		50	5
	60	6		60	6
	70	7		70	7
	80	8		80	8
	90	9		90	9

109. Most recent electrocardiogram results

- ☐ Normal
☐ Abnormal with LVH
☐ Abnormal without LVH
☐ Unknown

Appendix C

Origins and Credibility

Summary of HRA II Questions and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
25	Mental Health	DRRI: Combat Experience Scale	DRRI	Good	- Deployment Risk and Resilience Inventory - Multiple studies have shown the DRRI to have high internal reliability as well as face and content validity - DRRI measurement items can be used independently of the entire survey - Questions validated on a military population
26	Post Deployment	PDHRA # 6	DD 2796 Provider Part #2	Fair	- Question 26 not exact to question on DD 2796 - DD 2796 is used to document post-deployment health problems and is not necessarily a screening tool for detecting or predicting medical conditions - The validity and reliability of the PDHRA as a survey instrument is currently being evaluated at the Walter Reed Army Institute of Research - Questions 26 and 28 are from provider part of DD 2796
27	Post Deployment	PDHRA # 6 (a)	DD 2796 # 6	Fair	
28	Post Deployment	PDHRA # 7	DD 2796 Provider Part # 5	Fair	
29	Post Deployment	PDHRA # 7 (a)	DD 2796 # 14	Fair	
30	Post Deployment	PDHRA # 5	PM/PH Working Group	Poor	- Joint Preventive Medicine and Public Health Working Group - No studies regarding formal testing of questions from the PM/PH Working Group could be found - Question set does not exist in any other known survey
31	Post Deployment	PDHRA # 5 (a)	PM/PH Working Group	Poor	
32	Post Deployment	PDHRA # 3	PM/PH Working Group	Poor	
33	Post Deployment	PDHRA # 4	PM/PH Working Group	Poor	
34	Family Advocacy	Staff generated	Staff generated	Poor	- Based on AR 600-20 ch. 8. Sexual Assault - No formal testing of questions 34-35 could be identified - POC is Diane Debiec
35	Family Advocacy	Staff generated	Staff generated	Poor	
36	Medicine	Staff generated	Staff generated	Poor	- Item created by members of the physical therapy department at MAMC - No formal testing on this question could be identified - POC is MAJ Brian Jovag

Summary of HRA II Questions and Credibility

Origins and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
37	Anthropometric	HRA I # 15		N/A	Height
38	Anthropometric	HRA I # 16		N/A	Weight
39	Medicine	HEAR 3.0 # OH-1		Fair	- HEAR 3.0 is reported to have virtually all questions taken from proven, validated, national health survey instruments - No formal testing on this question could be identified
40	Medicine	Staff generated	Staff generated	Poor	- Based on literature discussing identifying the predictors for health care utilization - No formal testing on this question could be identified - POC is Dr. John Meyer
41	Post Deployment	PDHRA # 2	PM/PH Working Group	Poor	No formal testing on this question could be identified
42	Medicine	HYH #41	How's Your Health Survey	Good	- Survey designed by the Dartmouth Medical School and the Institute for Healthcare Improvement (IHI) - HYH can be scaled and modified to conform to the size and age range of various populations - HYH survey has been tested in various controlled trials and is popular among state health systems, employer groups, and the Army
43	Sports Medicine	Staff generated	Combines questions on HRA I X-questionnaire	Poor	- Created as an injury assessment scorecard for providers to use with patients during initial history questioning - No formal testing on this question could be identified - POC for questions 43-44 is MAJ David Brown
44	Sports Medicine	Staff generated	Atlas of Injuries for U.S. Armed Forces	Fair	- Flags for referral any soldier that admits to failing the run portion of the APFT - Based on finding that the strongest predictor of injury is run time on the Army physical fitness test
45	Exercise	HRA I # 18	RIWC	Poor	No formal testing on this question could be identified
46	Exercise	HRA I # 19	RIWC	Poor	No formal testing on this question could be identified

Origins and Credibility

Summary of HRA II Questions and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
47	Tobacco Cessation	Staff generated	Stages of Change Model	Fair	- All tobacco questions created by Dr. John Meyer - Focuses on the individuals desire to change their smoking habits and then time frames upon which the respondent would like to quit
48	Tobacco Cessation	Staff generated	Stages of Change Model	Fair	Stages of Change model has been validated and applied to a variety of behaviors
49	Tobacco Cessation	Staff generated	Stages of Change Model	Fair	The Stages of Change encompasses concepts from many previously developed models such as The Health Belief model and the Locus of Control model
50	Tobacco Cessation	Staff generated	Stages of Change Model	Fair	
51	Tobacco Cessation	Staff generated	Stages of Change Model	Fair	
52	Medicine	HEAR 3.0 # 14		Fair	Question has been altered to omit wording that references blood relatives and grandparents and has two fewer response options
53	Women's Health	HRA I # 65	Carter Center HRA	Fair	Queries date of last Pap smear
54	Women's Health	HRA I # 62	Carter Center HRA	Fair	- Queries date of last mammogram - Senier et al. (2003) conclude that based on studies of similar items, questions 53-54 generally elicit reliable and consistent responses although the overall validity is only fair to good.
55	Women's Health	HRA I # 63	Carter Center HRA	Fair	- Queries family history of breast cancer - Kerber and Slattery's study found that a question about family history of breast cancer showed good validity especially among younger persons
56	Women's Health	HRA I # 66	Carter Center HRA	Poor	Data on question 56 from the CDC HRA could not be located

Summary of HRA II Questions and Credibility

Origins and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
57	Women's Health	Unknown	Unknown	Unknown	- Asks about the current primary method of birth control - Source and origin is unknown and the exact wording of the question cannot be located in any other survey
58	Injury Prevention	HRA I # 27	Carter Center HRA	Poor	- Asks about the number of times the individual has driven or ridden with a driver that has had to much to drink - Double-barreled item - No formal testing on this question could be identified
59	Injury Prevention	Unknown	Unknown	Unknown	- Clearly a hearing conservation item but the exact origin of the question could not be identified - No formal testing on this question could be identified
60	Injury Prevention	HEAR 3.0 # 1-5		Fair	Differs from HEAR 3.0 question by a slight change in answer responses and including a portion that defines the activities to working or doing hobbies outside of the primary job
61	Injury Prevention	HRA I # X-6		Poor	No formal testing on this question could be identified
62	Injury Prevention	HRA I # 25	Carter Center HRA	Poor	- No formal testing on this question could be identified - Studies of similar seat belt use questions find that the reliability of question appears high, but the validity is questionable due to a propensity for people to over-report seat belt use
63	Sexual Practices	HRA I # X-7		Poor	No formal testing on this question could be identified
64	Sexual Practices	HRA I # X-8		Poor	No formal testing on this question could be identified
65	Nutrition Care	Staff generated	JCAHO	Poor	- Asks about taking dietary supplements, herbal medications, or vitamins to determine ephedrine use - Exact individual that developed the question is unknown - Question was seen as being too generic

Origins and Credibility

Summary of HRA II Questions and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
66	Nutrition Care	HRA I # 21	RIWC	Poor	The 2003 USARIEM study concluded that no evidence exists showing the reliability or validity of questions 66 or 67 or even those they were based on from the RIWC
67	Nutrition Care	HRA I # 20	RIWC	Poor	
68	Relationship	QMI	QMI	Good	QMI scale was tested by Bliese, Wright, Adler, Thomas (2004) who found that the sensitivity and specificity of the scale was good and the risk factors are a reasonable screen for relationship problems
69	Relationship	Unknown	Unknown	Unknown	Source and origin is unknown and the exact wording of the question cannot be located in any other survey
70	Relationship	QMI	QMI	Good	QMI scale was tested by Bliese, Wright, Adler, Thomas (2004) who found that the sensitivity and specificity of the scale was good and the risk factors are a reasonable screen for relationship problems
71	Mental Health	DRRI: Deployment Social Support Scale	DRRI	Good	- Through multiple studies the measures on the DRRI have been shown to have high internal reliability as well as face and content validity - Confirmed validation of the survey on a military population - DRRI gives researchers the ability to pick and choose scales that are most relevant to their research purposes rather than selecting measures piecemeal from the literature
72	Mental Health	PHQ # 5: Anxiety Scale	PHQ	Good	- Self administered PHQ has diagnostic validity comparable to the original PRIME-MD instrument and shows good criterion and construct validity - Spitzer et al. found that the PHQ was clearly more efficient to use than the PRIME-MD - PHQ is generally regarded as superior to many other measures for mental disorders
73	Mental Health	PHQ # 3: Panic Scale	PHQ	Good	Validation studies concluded the PHQ panic disorder scale can be recommended as a valid and practicable screening instrument

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
74	Mental Health	PDHRA # 9	PC-PTSD scale	Good	- Studies found the PC-PTSD screen provided high sensitivity, especially when a cut-off score of 3 or more positive responses is used - Prins et al. concluded that the PC-PTSD appeared to be a psychometrically sound screen for those patients with and without PTSD, and was distinguishable for its readability and brevity
75	Mental Health	PHQ9 Depression Scale	PHQ	Good	Studies show the PHQ9 is well validated and widely used as a brief diagnostic and severity measure
76	Mental Health	BHSI # 37	Staff generated	Poor	- Items 76-78 query about suicide ideation and past history of relatives who might have attempted suicide - The BHSI has not been validated as a stand alone survey instrument even though much of it is built on established practices
77	Mental Health	BHSI # 14	Staff generated	Poor	Exact individuals that developed questions 76-78 are unknown
78	Mental Health	BHSI # 31	Staff generated	Poor	POC for all BHSI questions is Dr. Barbara Lucenko
79	ASAP	PDHRA # 10 (a)	TICS	Good	- Army Substance Abuse Program - Original source for questions 79 and 80 is the two item conjoint screen (TICS) for alcohol - TICS has been shown to consistently have high sensitivity to detecting substance abuse
80	ASAP	PDHRA # 10 (b)	TICS	Good	Brown et al. found that the TICS two screening questions can select for nearly 80% of young and middle-aged adults who have substance abuse or dependence
81	ASAP	AUDIT	AUDIT	Good	- AUDIT has been validated on primary health care patients in six countries and has been found to provide an accurate measure of risk across gender, age, and culture - Studies show the validity of the AUDIT was not compromised by embedding it into a health risk appraisal - Multiple studies conclude the AUDIT to be reliable, valid, and practical - POC for ASAP questions is Jolee Darnell

Summary of HRA II Questions and Credibility

Origins and Credibility

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
82	Family Advocacy	Staff generated	Staff generated	Poor	- Wording of questions 82-85 was based on DoD directives found in AR 608-18 regarding spouse/partner maltreatment and a desire to identify emerging patterns of risk for victimization - No formal testing on this question set could be identified - POC for questions 82-85 is Diane Debiec
83	Family Advocacy	Staff generated	Staff generated	Poor	
84	Family Advocacy	Staff generated	Staff generated	Poor	
85	Family Advocacy	Staff generated	Staff generated	Poor	
86	Mental Health	DAR	DAR	Good	- Dimensions of Anger Reactions (DAR) scale has seven items measuring anger due to stress and psychological adjustment problems - In 2004 the DAR was validated on Australian Vietnam veterans and shown to be a reliable and sensitive measure of anger with high internal consistency - Forbes et al. found that the format of the DAR suggest that is has potential to be a useful measure of anger as part of a self-completed instrument battery
87	Finance	Staff generated	Staff generated	Poor	- Questions 87-91 were created by Dr. John Meyer - Questions produce Yes/No responses and are designed to generate a referral to a financial or legal specialist - Objective of questions 87-91 was too find out what soldiers get in trouble with and to perhaps determine a link between negative health behavior, domestic violence, and financial/legal problems - No formal testing on this question set could be identified - Question set does not exist in any other known survey
88	Finance	Staff generated	Staff generated	Poor	
89	Finance	Staff generated	Staff generated	Poor	
90	Finance	Staff generated	Staff generated	Poor	
91	Legal	Staff generated	Staff generated	Poor	Source and origin is unknown and the exact wording of the question cannot be located in any other survey
92	Family Advocacy	Unknown	Unknown	Unknown	

Item	Proponent	Origin for HRA II	Creation Source	Credibility	Notes
93	Mental Health	BHSI # 28	Staff generated	Poor	- Questions 93-95 ask about any current or prior use of mental health or alcohol medication or counseling - No formal testing on this question set could be identified - Exact individuals that developed questions 93-95 are unknown - The BHSI has not been validated as a stand alone survey instrument even though much of it is built on established practices
94	Mental Health	BHSI # 32	Staff generated	Poor	
95	Mental Health	BHSI # 29	Staff generated	Poor	
96	Mental Health	PDHRA # 12	PHQ # 11	Good	- Self administered PHQ has diagnostic validity comparable to the original PRIME-MD instrument and shows good criterion and construct validity - Spitzer et al. found that the PHQ was clearly more efficient to use than the PRIME-MD - PHQ is generally regarded as superior to many other measures for mental disorders
97	Self Referral	Staff generated	Staff generated	Poor	- Question gives the respondent a choice to select written, verbal, or face-to-face assistance concerning a list of seven service areas - No formal testing on this question could be identified - Question does not exist in any other known survey
98	Self Referral	PDHRA # 13		Good	- The inclusion of questions 98-101 is based on the DoD mandate requiring all post-deployment soldiers to take the PDHRA - Need for self referral questions was identified by Bliese, Wright, Adler, and Thomas (2004) through their validation study of the post-deployment short screen - Question set based on suggestions by Bliese et al. for questions that would be effective for self referral - No formal testing on this question could be identified - Question does not exist in any other known survey
99	Self Referral	PDHRA # 14		Good	
100	Self Referral	PDHRA # 15		Good	
101	Self Referral	PDHRA # 16		Good	
102	Self Referral	Staff generated	Staff generated	Poor	- No formal testing on this question could be identified - Question does not exist in any other known survey