Trauma And The Vietnam War Generation

Report of findings from the National Vietnam Veterans Readjustment Study

Richard A. Kulka,
William E. Schlenger,
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B. Kathleen Jordan,
Charles R. Marmar and
Daniel S. Weiss

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With a Chapter by
David A. Grady, Psy.D.

FOREWORD BY SENATOR ALAN CRANSTON

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This report is dedicated to the Vietnam veterans who participated in the study. These veterans both represent and symbolize all of the men and women who served during the Vietnam era. Their willingness to invest the time and emotional energy required to tell their stories in the interest of increased understanding of the consequences of war demonstrates their courage, maturity, and concern for their brothers and sisters. We are deeply grateful for their participation.

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Foreword

Twenty years after "peace with honor" was declared in Vietnam, a significant number of veterans continue to wage their own battle with posttraumatic stress disorder (PTSD). While postwar psychological problems have long been known to occur among war veterans—under such labels as "shell shock," "war neurosis," and "combat fatigue"—the impact of the Vietnam War on its generation of warriors has been and continues to be extraordinary.

As this book, and the study on which it is based, reveals, 829,000 of the 3.14 million—over one-fourth—of the veterans who served in Vietnam are *currently* suffering from some degree of PTSD.

In 1980, the American Psychiatric Association officially adopted the term PTSD to denote a psychological disorder that stems from exposure to an extraordinary traumatic event. PTSD is known among clinicians as a spectrum disorder, and the effect on a person's life can vary greatly—from dampening an individual's ability to participate in life to the fullest degree to total incapacitation when suicide appears to be the only hope of escape.

The National Vietnam Veterans Readjustment Study (NVVRS) of the postwar psychological problems of Vietnam veterans, which was mandated by legislation I authored as section 102 of Public Law 98-160, indicates an alarming prevalence of PTSD among Vietnam theater veterans. According to the NVVRS data, 15.2 percent of the male Vietnam theater veterans (479,000) and 8.5 percent of the female theater veterans (610) are currently suffering from full-blown cases of PTSD. Another 11.1 percent of male and 7.8 percent of female theater veterans, or a total of 350,000 theater veterans, suffer from PTSD symptoms that adversely affect their lives but are not of the intensity or breadth required for a diagnosis of PTSD. These data indicate that, over 20 years later, psychological problems associated

with service in our nation's most divisive war since the Civil War continue to take a terrible toll on the lives of those who served in Vietnam.

The reasons for the dramatic psychological impact of fighting the Vietnam War on those who fought it remain a matter of controversy, as, indeed, does the war itself. Certainly the unrest at home played a part. Whereas veterans from other wars returned to heroes' welcomes and were allowed, if not encouraged, to discuss their war experiences, Vietnam veterans received no such welcome and little encouragement or understanding. Another factor may have been the lack of time to decompress after the war experience. Within a 24-hour period, a soldier could be transported from the jungle to the streets of San Francisco. Another factor may have been the relatively short-term, one-year experience in-country, which inhibited both the willingness of the soldiers to form cohesive bonds within their units and the natural development of those bonds.

What can no longer be in controversy is our need to respond to these problems. I have been deeply committed to finding ways to raise the public's awareness of these problems so that solutions can be found and treatment opportunities increased. This book will be another vital part of the ongoing effort to educate the public about PTSD.

SENATOR ALAN CRANSTON
Chairman
United States Senate
Committee on Veterans' Affairs

Contents

Key Acronyms and Abbreviations

ASP	Antisocial personality disorder
BLK	Blacks
CDC	Centers for Disease Control
CIV	Civilian counterparts
DIS	Diagnostic Interview Schedule
DMDC	Defense Manpower Data Center
DSM-III	*Diagnostic and Statistical Manual of Mental Disorders,* third edition
ECA	Epidemiologic Catchment Area Project
ERA	Veteran of Vietnam era who did not serve in Vietnam (except in Chapter II)
ERA	Veteran who served during the Vietnam Era (in Chapter II)
ESG	Environmental Support Group (Department of Defense)
FI	Family interview
GAD	Generalized anxiety disorder
HISP	Hispanics
HWZ	High war-zone-stress exposure
LAM	Living as though married
LWZ	Low/moderate war-zone-stress exposure
MOS	Military Occupational Specialty
M-PTSD	Mississippi Scale for Combat-Related Post-Traumatic Stress Disorder
NIOSH	National Institute of Occupational Safety and Health
NPRC	National Personnel Records Center
NS	Not (statistically) signficant
NSVG	National Survey of the Vietnam Generation
NT	Not tested for statistical significance

NVVRS	National Vietnam Veterans Readjustment Study
P	(Statistical) probability
PERI	Psychiatric Epidemiology Research Interview
POW	Prisoner of war
PTSD	Post-traumatic stress disorder
PWPP	Postwar psychological problems
RTI	Research Triangle Institute
SCPD	Service-connected physical disability
SEI	Socioeconomic Index
SMSA	Standard Metropolitan Statistical Area
S/P	Spouse or partner with whom veteran is living as though married
SUBABUSE	(Those with) substance abuse
THR	Vietnam theater veteran
VA	Veterans Administration (now Department of Veterans Affairs)
VES	Vietnam Experience Study
W/O	White/others

Acknowledgments

Reflecting on the more than four-year life of the National Vietnam Veterans Readjustment Study evokes in us a kaleidoscope of memories and their associated emotions. Conduct of the Readjustment Study has in some way recapitulated the Vietnam era, in that it has at various times been vexingly difficult, frighteningly chaotic, overwhelmingly sad, and powerfully gratifying.

From the beginning, we were firmly committed to the premise that to achieve the objectives set forth in the Congressional mandate, decisions concerning the many important technical aspects of the study would have to be made on the basis of broad consensus among experts working in the many relevant technical fields. The need for broad-based input into the design and operation of the study resulted from the confluence of several factors: the scientific complexity of the study's subject matter; the potential political and programmatic implications of the findings; and the intense and genuine emotional investment in some of our beliefs about Vietnam veterans, despite the sometimes nonsystematic basis of those beliefs.

The research team's insistence on broad input and full discussion of issues prior to the formulation of decisions reflected our commitment to the principle that the well-being of the study was more important than the narrow self-interest of any of the participating parties. Adherence to this principle made the research team shameless in the pursuit of advice and counsel from experts in the many areas in which expertise was required for the design and conduct of the study. As a result, we are indebted to the large number of consultants, collaborators, and colleagues from whose advice both the study and the research team have benefitted greatly. Also as a result of this pursuit, we believe that the credibility of the entire enterprise has been substantially enhanced.

Consequently, we want to acknowledge the important roles played by many persons and organizations in the conduct of the Readjustment Study. Our acknowledgments must begin with recognition of the wisdom and courage of the U.S. Congress in enacting the legislation mandating the study. Also, we appreciate the patience of Congress in tolerating the delays that have accompanied the evolutionary development of the research design.

The study was conducted under contract number V101(93)P-1040 from the Veterans Administration (VA). We are very grateful to the VA for providing the substantial resources required to conduct a national epidemiologic study. We are also grateful to the VA for establishing the mechanisms needed to assure that primacy was given to scientific considerations when decisions were made about major design features of the study.

Although responsibility for the scientific aspects of the study rested with the coprincipal investigators, the work was carried out by staff from a consortium of organizations. These included the Research Triangle Institute (RTI); Louis Harris and Associates, Inc. (LHA); the Graduate Center of the City University of New York (CUNY); the Langley Porter Psychiatric Institute at the University of California, San Francisco; the Hispanic Research Center at San Diego State University; and Equifax, Inc. We also want to acknowledge the participation of a number of persons in leadership roles at these organizations: Dr. James Chromy of RTI for providing overall leadership and management participation; Donald King and Michael Weeks of RTI for managing the survey data collection effort; James Batts of RTI for managing the data processing component; Frank Potter of RTI for managing the sampling component; Dr. Lisa LaVange of RTI for managing much of the statistical data processing; Dr. John Boyle, Esther Fleischman, and Alice Stackpole for managing the survey operation at LHA; and Prof. Charles Kadushin for managing the participation of CUNY.

Because the work was carried out under a federal contract, its conduct was overseen administratively on behalf of the government by a number of federal officials, including Drs. Nathan Denny, Arthur Blank, Thomas Murtaugh, and Terence Keane. Each of these individuals was a collaborator in the research, and each made important contributions to the study in his own unique way.

The study was also formally overseen on behalf of the government on an ongoing basis by two groups. From its inception, the scientific aspects of the study were overseen by an independent Scientific Advisory Committee, chaired by Dr. Stanislav Kasl of the Yale University Medical School. The

charge of this committee was to review study plans and progress, and to make recommendations to the government concerning the study's scientific aspects. The committee met regularly with the research team over the course of the study, and worked with us on the difficult design, operational, and analytical challenges that the study presented. The collegial nature of the interactions between the research team and the committee, which is a tribute to Dr. Kasl's leadership style, served as an effective catalyst toward the ultimate improvement of the research. We are indebted to the committee for providing a forum in which ideas and their consequences could be thoroughly and dispassionately considered, and for the many creative suggestions and sound decisions that the committee made.

The second group that provided ongoing oversight was the VA's Technical Advisory Group (TAG), chaired by Dr. Terence Keane. The TAG comprised administrators of some of the federal programs to whose missions the Readjustment Study mandate was most relevant. The TAG's charge was to oversee the administrative aspects of the research and to receive and act on the scientific advice provided by the Scientific Advisory Committee. As such, the TAG had the treacherous task of trying to implement the committee's scientific advice while simultaneously negotiating the fiscal and political realities under which the study was conducted. The research team is grateful to the TAG for its efforts to shield the study from much of the political and bureaucratic furor, and for having the wisdom to recognize those points on which compromise would have worked to the detriment of the scientific quality (and therefore the ultimate credibility) of the research.

A third federal group that provided advice, though on a more limited basis, was the Congressional Office of Technology Assessment (OTA). Acting in response to a request from the Senate and House Veterans' Affairs Committees, OTA convened a panel of experts over the summer of 1986 to review the progress of the study to date. The research team appreciated the opportunity to discuss many of the important scientific issues involved in the study with the OTA panel, and the study benefitted from the recommendations made in the subsequent staff report.

Other federal officials also contributed to the study. Invaluable assistance in developing veteran sampling frames and/or gaining access to military record information was provided by Richard Christian and the staff of the Department of Defense's (DoD) Environmental Support Group; Michael Dove and Deborah Eitelberg and other staff of the DoD Defense Manpower Data Center; Diane Rademacher and other staff of the DoD National Personnel Records Center; Major Robert Elliott and other staff of the U.S. Army Reserve Components Personnel and Administration Center; and

Drs. Patricia Breslin and Han Kang of the VA. Additionally, David Brown of the National Institute of Occupational Safety and Health provided valuable assistance in obtaining current address information for sampled veterans from the Internal Revenue Service. Also, Stephen Dienstfrey, Lynne Heltman, and Dr. Victor Tsou of the VA provided data from official VA files concerning current veteran population counts and official records of service-connected disability.

In addition to external review groups, the research team made liberal use of consultants and other collaborators in the conduct of the study. One person on whom we repeatedly called for help, and who repeatedly answered the call, was Dr. David Grady. A highly decorated Vietnam veteran who is now a practicing clinical psychologist, Dr. Grady provided both personal and professional insight into many of the important issues in the study, particularly those concerning the phenomenology of post-traumatic stress disorder (PTSD) and the conceptualization of war-zone stress. His willingness to take on difficult tasks and his ability to carry them out successfully have been a tremendous contribution to the study. We are both personally and professionally indebted to Dr. Grady for his efforts in the service of the study.

Another person to whom the research team is particularly indebted is Dr. John Boyle. Dr. Boyle participated in the study initially as part of his duties as a vice-president of Louis Harris and Associates and project director for the LHA subcontract, and later as a consultant to the research team. Dr. Boyle's extensive knowledge and experience in conducting survey research were a vital resource in the planning and execution of the National Survey of the Vietnam Generation.

Continuing advice and support were also received from our colleagues at the Traumatic Stress Study Center at the University of Cincinnati: Drs. Bonnie Green and Jacob Lindy, and Mary Grace. We consulted with them on many of the study's most difficult issues, and always received insightful advice delivered in a thoughtful and supportive way. The research team is grateful for having had the benefit of their extensive experience in traumatic stress research, and for their continuing support.

Over the course of the study, the research team relied heavily on groups of professionals to help us with specific tasks. Early in the study, we convened an ad hoc panel on the Definition and Measurement of PTSD, in cooperation with the American Psychiatric Association's Work Group to Revise DSM-III [the third edition of the *Diagnostic and Statistical Manual of Mental Disorders*]. This panel made recommendations on revisions to the definition of PTSD that were subsequently incorporated into the revision of the official nomenclature, and advised the research

team on issues of PTSD assessment. The advice of this panel was a great contribution to this study and an advance in the state of the art in diagnosis and assessment of stress disorders.

Along this line, the research team is indebted to Drs. Robert Spitzer and Janet Williams and to Miriam Gibbon of the New York State Psychiatric Institute. Dr. Spitzer, in his role as chair of the Work Group to Revise DSM-III, was very helpful in providing for coordination between the study team and the work group, helping to assure that the Readjustment Study estimates of PTSD prevalence represented the disorder as officially defined at the time results became available. Also, Drs. Spitzer and Williams and Ms. Gibbon provided valuable training in the administration of the Structured Clinical Interview for DSM-III-R for several groups of clinicians who participated in the clinical interview components of the study.

A second instance in which professionals provided invaluable assistance was in the conduct of the study's preliminary validation component. This component was conducted as a cooperative effort of the study team and teams of mental health professionals at eight sites located across the country. The preliminary validation study, which was a critically important part of the Readjustment Study, could not have been carried out without the participation of this large group of expert clinicians, site coordinators, and site activators.

A third group of professionals who made a substantial contribution to the study was the team, led by Dr. David Grady, that trained the study's survey interviewers in veterans' issues and in dealing with sensitive material, and supported them throughout the survey interviewing period. The team included Dr. George Carnevale, Joan Craigwell, and Forest Farley, Jr., and was assisted in its planning by Rose Sandecki. The low incidence of "problems" during NSVG survey interviews is a tribute to the success of this team.

A fourth group who made an invaluable contribution to the study is the over 140 professional survey interviewers who participated. Readjustment Study interviews were long and sometimes difficult to conduct. The high response rates and the low problem rates are an indication of the professionalism and care with which these interviewers took on the task.

A fifth group of professionals who made an important contribution to the study was the mental health clinicians who conducted follow-up clinical interviews with a subsample of veterans from the national survey. These clinicians, working at 28 locations across the country, made possible the Readjustment Study's multiple-indicators approach to PTSD assessment. Their sensitivity and professionalism in conducting the interviews, and

their tenacity and flexibility in making themselves available to respondents so that the interviews could be completed, assured the success of this critical component of the study. The clinicians involved were: Drs. Stephen Bailey, Roland Brauer, Raymond Costello, Yael Danieli, Kathryn DeWitt, Phil Ellis, Johanna Gallers, William Gordon, David Hansen, Carol Hartman, Ronald Kidd, Walter Knake, Charles Lawrence, Bert Levine, Richard McNally, Bruce Marcus, Mary Merwin, Phillip Ninan, Frank Ochberg, Erwin Parson, Patricia Resick, Ralph Robinowitz, Sherry Roth, Philip Saigh, Thomas Scarano, Robert Ursano, Charles VanValkenburg, Nicholas Winter, and John Zajecka.

Important contributions also were made by the Vietnam theater veteran refusal conversion team. This was a group of Vietnam veterans who made calls to those Vietnam veterans who were selected in the national survey sample but had refused to participate in the interview when contacted by the interviewer. The purpose of these calls was to make sure that the potential respondent understood the nature of the study and the importance of his or her participation. The team included Daniel Cummings, William Gordy, Sr., Laurence Kolman, William Miller, Jerome Odorizzi, Linda Schwartz, and Philip Smith. Their efforts made a significant contribution to the high participation rate of theater veterans.

Another consultant who was generous with his time and expertise was Dr. W. Grant Dahlstrom of the University of North Carolina at Chapel Hill. Professor Dahlstrom arranged for us to have access to Form AX of the Minnesota Multiphasic Personality Inventory (MMPI) for use in the Clinical Interview component of the study. This allowed the study to be coordinated with the ongoing research that will result in a revised version of the MMPI. Also, the work of the National Computer Systems in scoring the completed MMPIs is greatly appreciated.

We are indebted as well to a number of experts who advised us on issues of instrumentation. These include Drs. Richard Berrego, Dan Blazer, Ghislaine Boulanger, Lois Johns, Robert Laufer, Erwin Parson, and Frank Putnam. Similarly, we greatly appreciate the invaluable assistance provided by Paul Truseck and the staff and clients of the Greensboro (N.C.) Vet Center in the development of instrumentation and of materials for use in the training of interviewers.

Additionally, we want to express our gratitude to the superb survey operations, data processing, analytic, and other support staff who have done the study's work and participated in the preparation of the various reports and other documents. They include Maggie Allison, Wendy Foran, and Susan Westneat of RTI, who participated in a variety of tasks over the course of the study; Lisa Packer and Pat Kristiansen of RTI, who were

diligent in keeping track of the study's budget and schedule; Dr. Ralph Folsom and Frank Potter of RTI, who created the study's multicomponent sampling design; and Michael Johnson, Ms. Packer, and Mr. Potter of RTI, who constructed the sampling frames, selected the samples, and computed the sampling weights; James Andrews, Anne Crusan, Michael Davis, Dan Roentsch, Kathy Rourke, Cathy Rowley, Susan Siegrist, David Wilson, and Carrotte of LHA, who participated in survey interviewer training and oversaw the interviewing for LHA; Richard Boytos, James Devore, Janice Kelly, and Ellen Stutts of RTI, who participated in the training of survey interviewers; Jerry Durham, Donald Jackson, Ms. Stutts, and Harvey Zelon of RTI, who oversaw the day-to-day survey data collection for RTI; Viviane Cobb, Susan Freeman, Tim Gabel, Mr. Johnson, Ms. Packer, and Angela Perez-Michael of RTI, who provided excellent analytical and data processing support; Pat Kerr and Karla Colegrove of RTI, who managed the field operation of the clinical subsample; Ms. Colegrove, Ms. Kristiansen, Liz Stewart, and the editing teams of LHA and RTI, who were persistent in ensuring the quality of the survey data; Judy Weir of San Diego State University, who provided analytic support and participated in the writing of parts of this report; Dr. Louise Gaston of the Langley Porter Psychiatric Institute, who provided support of the clinical interviewing effort; Donna Albrecht, Lil Clark, Linda Miller, and Brenda Smith, who prepared the manuscript for this and the many prior NVVRS documents; and Dr. Robert Kelton and the staff of the Kelton Group, who provided excellent editorial review of this report. The high level of professionalism of these and the many other persons who have worked with us on various aspects of the study has made a substantial contribution to its ultimate outcome.

Finally, we thank the spouses/partners and other family members of the research team for their tolerance, understanding, support, and constructive criticism over the years that it has taken to bring the study to its current state. They have made many sacrifices over this period, during which conduct of the study has consumed the interest and time of the research team. Though their participation was indirect, their influence on the study has been pervasive. We cannot understate the importance of their support, and we hope that they will always understand the value of their contribution to the study and judge that the outcome justified their sacrifice.

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Editorial Note

The Brunner/Mazel Psychosocial Stress Book Series is delighted, at long last, to welcome this book as the eighteenth in the Series. This book represents many, many years of work. Its beginnings can be traced to 1982 as the initial idea of Senator Alan Cranston and his U.S. Senate Veterans Affairs Committee to commission a definitive study, which would help the Committee and others develop sound policies and programs to help the Vietnam war generation. The study eventually commissioned by Congress is presented in this important book.

Well before 1982 it had become clear to both the scientific and policymaking communities concerned about Vietnam veterans that a definitive study was needed. Public and private studies of the mental health consequences of military service during the war in Southeast Asia were conclusive: the impact was significant and long-lasting for those who served in extremely stressful roles, such as combat, compared to those who did not. Moreover, one of the most pervasive problems among "theater" veterans (including female nurses who served in the war) was post-traumatic stress disorder (PTSD). This was the latest in a long series of diagnostic terms to describe the state of distress associated with being severely upset or traumatized.

In the late 1970s, President Carter and his VA Administrator, Max Cleland, established the Readjustment Counseling Service within the Veterans Administration in response to growing pressure. The RCS set up a network of "Vet Centers" across the United States. This program was an attempt to address what were seen as the unmet needs of Vietnam veterans. At the time it was created, the hope was that a Vet Center system could be put into place quickly, do its job, and then be dismantled. Over its first years of operation, however, veterans began coming into Vet Centers—

and kept coming in. As a result, Congress renewed the program in 1981 and 1983, and included the mandate for a national study in the 1983 renewal legislation.

It is important to remember that the actions by Congress did not occur in a vacuum. During the period following the war's official end in 1975, Vietnam veteran organizations became increasingly vocal in expressing their views about the needs of Vietnam veterans and their families, and their disappointment in government efforts to meet those needs. Early in 1981 the hostages in Iran were freed and the nation responded in a collective sigh of relief. Their highly publicized release and heartwarming welcome home stood in stark contrast to the "welcome home" that Vietnam veterans had received, and it served to reinforce profound questions for the Vietnam veteran. Veterans' organizations, nearly unanimously now, were moved to call for a continuation of the Vet Centers, citing the growing evidence of the lasting problems of Vietnam veterans and their families. Of special concern were the problems associated with war-related PTSD.

The decision in 1983 to mandate a definitive study of Vietnam veterans was the result of a compromise between two factions in Congress: those who held the view that the readjustment problems of Vietnam veterans were behind them, and those who believed that the effects of exposure to traumatic stress might result in chronic problems requiring long-term solutions. The former group had begun to apply pressure for the dismantling of the Vet Center program, asserting that it had done its job and should be closed. The latter group, however, saw it differently, sensing that there remained a substantial unmet need. The compromise, then, was to continue the Vet Center program until definitive information about Vietnam veterans' mental health could be developed. Thus, the fate of the Vet Center program was closely tied to the findings of the NVVRS.

For the first time we now have an understanding of the immediate and long-term psychosocial consequences of military service in a war for all races and both genders compared to those who never served in war or who never served in the military. This is the first comprehensive, published report of this study. Many less inclusive reports have already been published in scholarly journals. More will follow.

This book is a joint venture between truly outstanding groups of professionals with very different competencies: the authors and the publishers. The authors, who were forced to structure their lives around this study for over four years, spent hundreds of hours writing the final report to Congress. Then, for a little compensation, they further revised and tailored it for a more general readership.

An equally outstanding group of professionals at Brunner/Mazel Publishers (especially President, Mark Tracten, Editorial Vice President, Natalie Gilman, and Managing Editor Suzi Tucker) worked to transform an extremely technical document into a more readable and "friendly" book.

It is especially important, finally, to note that the royalties for this book will be donated to charity. The authors named the *Vietnam Veterans Aid Foundation* as the recipient. The VVAF is the only nonpolitical, nonprofit group dedicated to helping Vietnam veterans. They have raised hundreds of thousands of dollars over the last several years to help many thousands of needy Vietnam veterans. Readers are welcome to send donations to the VVAF by writing to the Vietnam Veterans Aid Foundation, PO Box 998-237, El Segundo, California 90245, USA.

It has been far too long a wait for a definitive study of the long-term effects of the Vietnam war. It is hoped that one byproduct of this study will be that additional services will emerge to help Vietnam veterans and others who continue to suffer as a result of being traumatized in service to their country. Most important, perhaps when next confronted with the prospect of sending citizens to fight a war—the purpose of which is questionable—policymakers will consider these findings. Perhaps they will be moved to acknowledge the vast and enduring costs of such a war to an entire generation of this country's children. Perhaps.

CHARLES R. FIGLEY, PH.D.
Florida State University

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Preface

A STUDY OVER A DECADE IN THE MAKING

This book presents findings from the National Vietnam Veterans Readjustment Study (NVVRS). The United States Congress mandated this study in 1983 as part of Public Law 98–160 and directed that it establish "the prevalence and incidence of post-traumatic stress disorder (PTSD) and other psychological problems in readjusting to civilian life" among Vietnam veterans. With the evacuation of Saigon on March 25, 1973, America's direct involvement in over a decade of war in the Republic of Vietnam and its environs came to an end. Yet more than 10 years after the evacuation, the Congress was still faced with broadly conflicting testimony from experts and little "hard evidence" regarding the effects of the war on its veterans, especially the potential emotional or psychological toll that it took. In response to conflicting opinion, and lack of concrete evidence, Congress directed that a specific and comprehensive study be conducted of the mental health status and general life adjustment of Vietnam veterans, a study of sufficient size and scope to resolve this issue once and for all.

At the very least it was essential to know precisely how many Vietnam veterans continue to suffer from emotional turmoil 15–20 years or more after the end of their military service and return to civilian life? In turn, how many such veterans are seeking assistance for their problems, and how many who are not receiving help would benefit from it? These and other questions are fundamental both to understanding and to meeting the needs of the veterans who served in Vietnam and who are the principal focus of the research described in this book.

The contract to conduct this study was awarded to the Research Triangle Institute and its collaborators on September 12, 1984, and, by the time of its completion in November 1988, over four years and $9 million had been

expended. However, though the official contract period spanned over four years, the evolution or incubation period for this study was far longer. On May 7, 1975, President Gerald R. Ford officially proclaimed an end to the "Vietnam era." In the years immediately following that proclamation, the nation hotly debated the nature and extent of the problems faced by veterans in readjusting to civilian life. Since then, hundreds of articles and dozens of books on the subject have been published, and the plight of these veterans has been a popular theme in the news media, television, and motion pictures. In part, the resurgence of public interest in the Vietnam war and its veterans reflects some dramatic and precedent-setting changes in our country's socioemotional climate in recent years, changes that have gradually defused somewhat our debate over the mental health of Vietnam veterans. This gradual transformation of our nation's psyche regarding the war and its veterans may well have been a necessary, though not sufficient, condition for conducting a study of the scope, complexity, and depth of the Readjustment Study.

At the same time, it is important to note that neither the people nor research tools required to conduct such a study were fully in place much before 1983–84. In conception, spirit, and method the research team—all members of which were working independently of one another, at widely scattered sites, and using quite different approaches—was, in effect, preparing for such a study over a decade ago. For example, one of us (Kulka) had the "good fortune" both to serve in Vietnam in 1970–71 and to subsequently join a research team at the Survey Research Center at the University of Michigan in 1976 to repeat a survey originally conducted in 1957, a nationwide survey of how Americans themselves viewed their mental health—their worries and problems, the extent to which they felt anxious, depressed, or otherwise psychologically distressed, and their feelings of general happiness, satisfaction, and well-being.

In 1979, when the National Institute of Mental Health (NIMH), the principal federal agency charged with stimulating research and disseminating research knowledge on mental health and illness in the United States, issued a special request for proposals to conduct research on the mental health and illness of Vietnam veterans, no one was especially surprised that a proposal surfaced from Michigan to conduct a national survey of how "Vietnam Veterans View Their Mental Health." This study would be modeled on the one of the general public still under way, once again focusing on worries, unhappiness, and reports of problems in work, marriage, and family, as well as feelings of anxiety, depression, and psychological distress or well-being. Although a team of experts reviewing

the proposal strongly suggested that the study would be of little value unless it was redesigned to assess the prevalence of specific mental disorders among Vietnam veterans, the investigators balked, for two basic reasons.

First, the "diagnosis" of specific psychiatric disorders (such as panic or major depressive disorders) requires the application of very specific rules or "criteria," as defined by the American Psychiatric Association. Since, at that time, no appropriate survey interview or questionnaire existed with which one might carry out such an assessment, it was impossible to conduct a nationwide survey of any population (either veterans or the general public) that would tell us the numbers or proportions of persons suffering from specific psychiatric disorders. Second, it was assumed that the majority of Vietnam veterans would not (at least at the time of our survey) have any specific diagnosable mental disorder. Yet it was thought that a study focusing on perceived problems, worries, and inadequacies, and feelings of anxiety, depression, and psychological distress among this group (and in comparison with other veterans and nonveterans) would still have considerable merit in its own right—though not quite enough merit apparently to be approved and proceed at that time.

However, during this same period (1979–1980) a questionnaire explicitly designed to detect specific mental disorders gleaned from interviews conducted by survey research interviewers, rather than by mental health professionals, was under development and testing at Washington University in St. Louis. The Diagnostic Interview Schedule (DIS), a standardized questionnaire designed for use by survey research interviewers to gather information on symptoms of a broad range of major mental disorders, was first used in the NIMH-sponsored Epidemiologic Catchment Area (ECA) program, which surveyed the mental health status of people living in five specific geographic areas (New Haven, Baltimore, St. Louis, the Piedmont area of North Carolina, and Los Angeles). Members of the Readjustment Study research team were active directly in the ECA studies in North Carolina (Jordan) and at UCLA (Hough), as well as in other studies using the DIS, including a study of the prevalence of mental disorders among men in prison (Schlenger and Jordan) and the development and testing of a new set of questions to detect symptoms of post-traumatic stress disorder (Hough).

Parallel to the development and use of these innovative survey research methods to detect the presence of mental illness in the general population were the intensive efforts of others to better understand one specific psychiatric disorder—post-traumatic stress disorder (PTSD). Of special note were a series of clinical studies at the Langley Porter Psychiatric

Institute of the University of California, San Francisco (Marmar and Weiss) which examined the nature and causes of "stress response syndromes," responses to extremely stressful experiences or circumstances, and clinical research with Vietnam veterans suffering from PTSD at the Veterans Administration Medical Center in Jackson, Mississippi (Fairbank). Moreover, it is important to realize that the official nomenclature and diagnostic criteria ("rules") which are used to define PTSD as it is known today were first published only in 1980, as part of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) of the American Psychiatric Association.

Thus, by 1984 several key elements had come together that made it possible for the first time to seriously *think* about doing a nationwide survey of Vietnam veterans capable of providing valid estimates of the prevalence of PTSD and other mental disorders among them, a study that was essentially not even conceivable just five years earlier. These elements included: (1) the formation of a team of social and clinical psychologists, sociologists, and a psychiatrist, all bringing different perspectives to the study; (2) the availability of specific published criteria or rules for the diagnosis of PTSD; (3) new survey and clinical research methods; and (4) a rapidly accumulating knowledge of the nature of extreme stressors and PTSD. Thinking about such a study and actually doing it are entirely different matters, of course, and this book basically describes the results of our efforts to translate this potential—this concept—into reality, while also revealing some of the problems encountered along the way.

Overall, we have often described the National Vietnam Veterans Readjustment Study as perhaps the most far-reaching and ambitious national mental health epidemiological study ever attempted with any population. We believe that this study has "pushed the outside of the envelope" in survey, clinical, and epidemiological research, in much the same way that America's early astronauts probed the outer limits of their craft in flight-test and in the exploration of outer space. We have learned a great deal in the process about how *not* to do things, and some about how to do things better. We are pleased to provide in this forum both the fruits and "other by-products" of our efforts. We also understand that the Veterans Administration is currently making arrangements for the production and distribution of a public-use data tape from this study for use by others in the research community who seek to better understand the current circumstances of Vietnam veterans and the nature, distribution, and causes of PTSD. We welcome that initiative and we are pleased to have participated in this very important enterprise.

HIGHLIGHTS OF FINDINGS

- Conducted in response to Public Law 98–160, the National Vietnam Veterans Readjustment Study (NVVRS) is the most rigorous and comprehensive study to date of the prevalence of post-traumatic stress disorder (PTSD) and other psychological problems in readjusting to civilian life among Vietnam veterans.
- The sample of veterans examined in the NVVRS was broader and more inclusive than those of past studies. As a result, the descriptions of Vietnam theater and era veterans found in this report are in some ways different from, but more representative than, descriptions provided in previous research.
- The majority of Vietnam theater veterans have made a successful reentry into civilian life and currently experience few symptoms of PTSD or other readjustment problems.
- Although, in general, male Vietnam theater veterans do not differ greatly in their current life adjustment from their era veteran counterparts, there is some evidence that female theater veterans currently experience more readjustment problems than Vietnam era veteran women of similar age and military occupation.
- NVVRS findings indicate that 15.2 percent of all male Vietnam theater veterans are current cases of PTSD. This represents about 479,000 of the estimated 3.14 million men who served in the Vietnam theater. Among Vietnam theater veteran women, current PTSD prevalence is estimated to be 8.5 percent of the approximately 7,200 women who served, or about 610 current cases. For both males and females, these rates of current PTSD for theater veterans are consistently and dramatically higher than rates for comparable Vietnam era veterans (2.5 percent male, 1.1 percent female) or civilian counterparts (1.2 percent male, 0.3 percent female).
- An additional 11.1 percent of male theater veterans and 7.8 percent of female theater veterans—350,000 additional men and women—currently suffer from "partial PTSD." That is, they have clinically significant stress reaction symptoms of insufficient intensity or breadth to qualify as full PTSD, but may still warrant professional attention.
- NVVRS analyses of the *lifetime* prevalence of PTSD indicate that over one-third (30.6 percent) of male Vietnam theater veterans (over 960,000 men) and over one-fourth (26.9 percent) of women serving in the Vietnam theater (over 1,900 women) had the full-blown disorder at some time during their lives. Thus, about one-

half of the men and one-third of the women who have ever had PTSD *still* have it today. These findings are consistent with the conceptualization of PTSD as a chronic, rather than acute, disorder.

- NVVRS findings also indicate a strong relationship between PTSD and other postwar readjustment problems: having PTSD increases the likelihood of having other specific psychiatric disorders and a wide variety of other postwar readjustment problems. These findings confirm that, in addition to the painful symptoms of PTSD itself, the lives of Vietnam veterans with PTSD are profoundly disrupted, in that they experience problems in virtually every domain of their lives.
- The prevalence of PTSD and other postwar psychological problems is significantly, and often dramatically, higher among those with high levels of exposure to combat and other war-zone stressors in Vietnam, by comparison either with their Vietnam era veteran and civilian peers or with other veterans who served in the Vietnam theater and were exposed to low or moderate levels of war-zone stress. This suggests a prominent role for exposure to war stress in the development of subsequent psychological problems, and confirms that those who were most heavily involved in the war are those for whom readjustment was, and continues to be, most difficult.
- Among men who served in the Vietnam theater, substantial differences in current PTSD prevalence rates were also found by minority status. The current prevalence of PTSD is estimated to be 27.9 percent among Hispanics, 20.6 percent among Blacks, and 13.7 percent among Whites/others. Analyses of several factors that may account for these differences suggested that differences between Blacks and Whites/others may be attributed to their differing levels of exposure to war-zone stress, but differences between Hispanic men and the other two groups could not be explained by this factor. More generally, the evidence suggests that Black and Hispanic Vietnam theater veteran men have experienced more mental health and life-adjustment problems subsequent to their service in Vietnam than White/other veterans.
- Interviews conducted with the spouses or partners of Vietnam theater veterans with and without PTSD revealed that PTSD has a substantial negative impact not only on the veterans' own lives, but also on the lives of spouses, children, and others living with such veterans.
- Vietnam veterans with postwar psychological problems are more likely to have sought mental health care provided by the VA than

those without such problems. Such veterans have also made greater use of mental health services in general, both from the VA and from other sources (e.g., private physicians or clinics), with non-VA sources accounting for the majority of their total mental health service use. Nevertheless, very substantial proportions of Vietnam veterans with readjustment problems have *never* used the VA or any other source for their mental problems, especially during the previous 12 months.

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CHAPTER I

The Challenge: Finding and Studying the Vietnam War Generation

COMMENTARY

In the years that followed termination of U.S. military involvement in Vietnam, Congress found itself faced with conflicting testimony about the fate of the men and women who had served in the war. Though the military had maintained an accurate record of the numbers who had died fighting the war, no one was keeping track of what happened to those who had survived it. Each time that Congress held hearings concerning programs for veterans, witnesses presented contradictory accounts of veterans' problems and needs. On the one hand, some testified that Vietnam veterans were "doing just fine": they had responded to their country's call, had done their duty, and had returned smoothly to civilian life. However, others testified that for at least a significant minority of the men and women who served during the Vietnam war, "the war was not yet over"; in other words, they continued to suffer from emotional turmoil long after the end of their military service and reentry into civilian life. But estimates of the numbers of veterans suffering readjustment problems varied widely, from as few as 250,000 (a not insignificant number), to over two million. The fundamental problem was that all of these estimates were based on expert opinion rather than on sound epidemiologic research.

Recognizing this lack of reliable, research-based information and the critical importance of such information for the planning of service programs to meet the needs of veterans, Congress took action in 1983 to resolve this apparent conflict. In Public Law 98–160, Congress mandated that a comprehensive study be conducted of the mental health status and general life adjustment of Vietnam veterans. The study was to be of sufficient size and scope to provide accurate national

estimates of the extent of Vietnam veterans' mental health and other health needs and to permit sophisticated analyses of the nature, extent, and causes of their readjustment difficulties.

To assure that the study was conducted impartially and according to the highest scientific standards, a competitive bid process was established through which a research team would be selected to conduct the study. The government issued a Request for Proposals, which invited scientific organizations to submit proposals describing their ideas about how best to accomplish the objectives that Congress had specified. A group of distinguished scientists representing the many fields in which expertise would be needed was established to review the proposals. On the basis of this competitive process, in September 1984 the Veterans Administration awarded a contract to the Research Triangle Institute and its collaborators to conduct this mandated study, which subsequently became known as the "National Vietnam Veterans Readjustment Study" (NVVRS).

By the time it was over, the study had taken more than four years and $9 million to complete. Major collaborating organizations included Louis Harris and Associates, the Langley Porter Psychiatric Institute at the University of California, San Francisco, and San Diego State University, and the Hispanic Research Center at San Diego State University. The scientists who had reviewed the proposals formed the nucleus of what became the Scientific Advisory Committee that advised the VA on scientific issues relating to the study and made a substantial contribution to the process through which the study's design and implementation evolved.

Thus the NVVRS was born out of a need to know—the need to know the effects of Vietnam service on the subsequent lives of those who had participated in it. This knowledge was necessary to enable Congress to make informed policy decisions concerning veterans' programs.

In this introductory chapter, we describe briefly the background, objectives, and design of the study.

CHAPTER OVERVIEW

This report presents findings from the National Vietnam Veterans Readjustment Study (NVVRS). Congress mandated this study in Public Law

98-160 and directed that it address "the prevalence and incidence of post-traumatic stress disorder (PTSD) and other psychological problems in readjusting to civilian life" among Vietnam veterans. Our report concentrates on the issues specified in the Congressional mandate.

The NVVRS had three broad goals, as mandated by the Congress and evolved by the Veterans Administration (VA), its consultants, and the research team:

1. To provide information about the incidence, prevalence, and effects of PTSD and related postwar psychological problems among Vietnam veterans.
2. To describe comprehensively the total life adjustment of Vietnam theater veterans and to compare their adjustment with the adjustment of era veterans (persons who served in the Armed Forces during the Vietnam era but did not serve in the Vietnam theater) and nonveterans.
3. To provide detailed scientific information about PTSD in particular.

To meet the Readjustment Study's ambitious informational and methodological objectives, the NVVRS research design contained a number of components. The component designed to meet the study's major informational objectives was the National Survey of the Vietnam Generation (NSVG). The NSVG research design involved in-depth face-to-face interviews averaging three to five hours in length with samples of respondents drawn to represent the study's three major groups of interest. These are:

1. *Vietnam theater veterans.* Persons who served on active duty in the U.S. Armed Forces during the Vietnam era (August 5, 1964, through May 7, 1975) in Vietnam, Laos, or Cambodia, or in the surrounding waters or airspace of these three countries.
2. *Vietnam era veterans.* Persons who served on active duty in the U.S. Armed Forces during the Vietnam era but did not serve in the Vietnam theater.
3. *Nonveterans* or *civilian counterparts.* Persons who did not serve in the military during the Vietnam era. We matched members of this group to the theater veterans on the basis of age, sex, race/ethnicity (for men only), and occupation (for women only).

WHY ANOTHER STUDY?

In preparing this report, we have made a conscious effort to focus the text on the study's findings and their implications, and have discussed the study's methods and other technical details primarily in appendices and in separately bound volumes. Because tabular presentation of NVVRS

findings and technical aspects of the study (Appendices A through G) are extensive, the basic tables and appendices have been bound separately as Volume II of the report.* By binding these separately, we have tried to make it easier for the reader to reference the information while reading the text. As an aid to interpretation, we have also included exhibits in Volume I that summarize important findings.

The following chart summarizes the organization of Volume I.

Chapter I	• A brief description of the background of the NVVRS. • An overview of its design. • The standard format for the presentation of findings and statistical tests of the differences among study groups.
Chapter II	• Definitions of the study groups. • Description of the characteristics of those groups.
Chapter III	Findings about the prevalence of the component symptoms of PTSD.
Chapter IV	Findings about the prevalence of PTSD.
Chapter V	Contribution of differences in premilitary characteristics and Vietnam experience to group differences in current PTSD prevalence.
Chapter VI	Findings on the prevalence of other psychiatric disorders.
Chapter VII	Findings on the prevalence of other readjustment problems.
Chapter VIII	Findings on the prevalence of physical health problems.
Chapter IX	Findings about the use of health and mental health services.
Chapter X	Impact of PTSD in theater veterans on their spouses or partners and their children.
Chapter XI	Directions for the future analysis of the NVVRS data in light of what we have learned from the primarily descriptive analyses presented in this report.
Chapter XII	General overview of findings
Chapter XIII	• Clarification of presented topics. • Comprehensive list of veterans' services nationwide.

**The National Vietnam Veterans Readjustment Study: Tables of Findings and Technical Appendices,* is available through Brunner/Mazel Publishers.

WHAT WE ALREADY KNOW

With the evacuation of Saigon on March 25, 1973, the role of overt American intervention in the Republic of Vietnam ended. On May 7, 1975, President Gerald R. Ford proclaimed an end to the "Vietnam era." The Vietnam era had officially begun on August 5, 1964.

By September 30, 1983, an estimated 8,238,000 men and women who served in the U.S. Armed Forces (both in the Vietnam theater and elsewhere) during the Vietnam era had returned to civilian life (U.S. Veterans Administration, 1984). During the years since the Ford proclamation, the nation has hotly debated the nature and extent of the problems faced by these Vietnam era veterans in readjusting to civilian life. Hundreds of articles and dozens of books concerning Vietnam veterans' readjustment to civilian life have been published, and the plight of these veterans has been a popular theme in the news media, television, and motion pictures. In part, the resurgence of public interest in the Vietnam war and its veterans reflects some dramatic and precedent-setting changes in the country's socioemotional climate in recent years, changes that gradually have depoliticized somewhat the debate over the mental health of Vietnam veterans.

During the years following the termination of U.S. military involvement, evidence began to mount suggesting that (1) a substantial number of Vietnam veterans continued to experience problems of readjustment, and (2) many Vietnam veterans either could not or would not avail themselves of services within the traditional VA system. For a significant minority of the men and women who served during the Vietnam war, "the war is not yet over," because they continue to suffer from emotional turmoil 15–20 years or more after the end of their military service and return to civilian life. However, previous estimates of the actual numbers of veterans suffering from readjustment problems have varied widely, from as few as 250,000 (for example, Wilson, 1978) to over two million (Egendorf, 1982). Although the consensus today is that some Vietnam veterans suffer from PTSD and other psychological problems in readjusting to civilian life, precise national estimates of the number of Vietnam veterans experiencing such problems simply have not been available.

In response to the mounting evidence and public concern, Congress enacted legislation in 1979 (Public Law 96-22) directing the VA to establish a readjustment counseling program, frequently referred to as the "Vet Center" program, separate from the existing VA medical center system. At the time of its enactment, the Vet Center program was expected to be a short-term program to deal with what was believed to be a temporary

quirk in the demand for services. However, demand for Vet Center services continued to exceed expectations. Consequently, Congress renewed the program in 1981 (Public Law 97-72), and again in 1983 (Public Law 98-160).

At the time of the 1981 renewal, Congress mandated that the VA evaluate the readjustment counseling program and formulate plans for meeting Vietnam veterans' future mental health needs through the regular VA system. To comply with these mandates, the VA created a Readjustment Counseling Planning Task Force and contracted for a study to evaluate the effectiveness of the Vet Centers in meeting the needs of the clients served. These efforts helped keep the program's attention focused on meeting the needs of those veterans who came to it seeking service.

By the time of the 1983 renewal, the Vet Center program had been in operation for four years and had provided services to a substantial number of Vietnam veterans. Although it seemed to serve the needs of those veterans who used it, the program prompted an additional question: How many more Vietnam veterans are experiencing significant readjustment problems but have not yet sought help? To address this question, the 1983 legislation mandated a study of the prevalence, incidence, and effects of PTSD and related postwar psychological problems in Vietnam veterans. The study was to be of sufficient size, scope, complexity, and design to provide national estimates of the extent of Vietnam veterans' mental health and other health needs. The study also needed to permit sophisticated analyses of the nature, scope, covariation, and etiology of Vietnam veterans' readjustment difficulties.

On September 12, 1984, the VA awarded a contract to the Research Triangle Institute (RTI) to conduct the mandated study, which became known as the National Vietnam Veterans Readjustment Study (NVVRS).

WHAT WE HOPED TO FIND

The NVVRS had three broad goals, as mandated by the Congress and evolved by the VA, its consultants, and the research team (see Exhibit I-1). The first major goal of the study was to provide information about the incidence, prevalence, and effects of PTSD and related postwar psychological problems among Vietnam veterans.

A second major goal of the study was to provide a comprehensive description of the total life adjustment of Vietnam theater veterans and to compare their adjustment with that of era veterans (i.e., persons who served in the Armed Forces during the Vietnam era but did not serve in the Vietnam theater) and nonveterans. It was intended that this description

EXHIBIT I-1
NVVRS Objectives
Conduct a Comprehensive Study in the Population
of Vietnam Veterans (VVs) of:

I.	Prevalence and incidence of: A. Post-traumatic stress disorder (PTSD) B. Other psychological problems of readjusting to civilian life—other "postwar psychological problems" (PWPPs) 1. Other DSM-III psychiatric disorders 2. Malfunctions in: A. Marital roles B. Familial roles C. Vocational roles and careers D. Educational roles and careers 3. More general and subjective disturbances A. Life satisfaction, dissatisfaction, quality of life B. Demoralization or nonspecific distress
II.	Effects of PWPPs on such veterans, especially: A. Those with service-connected disabilities B. Women veterans
III.	Assess correlations between PTSD and other PWPPs: A. Physical disabilities (by type) B. Alcohol and drug abuse C. Minority group membership D. Incarceration in penal institutions
IV.	Evaluation of long-term effects of PWPPs on: A. Families B. Others in primary social relationships
V.	Extent to which VVs with PWPPs use VA and other resources

document in the aggregate the course of the lives of these three groups: the problems they have faced, the ways in which they have coped, and the quality of their lives. The description was to cover many dimensions of life—education, work, family, interpersonal relations, emotional stability, etc. The aim was to look at the broad spectrum of adjustment, and to identify factors that have made both positive and negative contributions to these citizens' lives.

A third major goal of the study was to provide detailed scientific information about one specific type of postwar psychological problem: PTSD. Of particular interest are its antecedents, its course, its consequences, and its relationship to other physical and emotional disorders. Relationships between PTSD and other postwar psychological problems, physical disabilities, substance abuse, minority group membership, and criminal

justice involvement were all to be examined. Additionally, information describing the impact of postwar psychological problems on veterans' families and on their use of VA facilities was to be developed.

In short, the Congressional mandate was both detailed and far-reaching. Fulfillment of that mandate required perhaps the most ambitious national mental health epidemiologic study ever attempted on *any population.*

HOW WE PLANNED TO FIND IT

Overview of Major Components

Clearly, to achieve these broad and very ambitious objectives, we needed a rather extraordinary research design. This design required careful attention to sampling and location procedures, instrument development and validation, data collection, and numerous other special methodological issues. In addition, the controversial nature of some of the study's subject matter (for example, PTSD), the intense interest in the study on the part of groups across the political spectrum, and the programmatic implications of the study's findings have all intensified the importance of the design to the ultimate utility of the study's findings. If the findings are to be useful to policy makers, they must be credible to the scientific community, to various political interest groups, and ultimately to the Congress. As with all research projects, the credibility of the findings from the Readjustment Study is predicated on the rigor of its research design.

To ensure that critical statistical comparisons could be made reliably, certain subgroups were oversampled, including females, Black and Hispanic males, and theater veterans with service-connected physical disabilities.

The survey interview was designed to cover the broad spectrum of adjustment, including such topics as:

- marriage and family
- education and occupation
- military service and Vietnam experience
- stressful and traumatic life experiences
- substance use
- psychiatric disorder
- physical health
- use of health and mental health services

A summary outline of the topics covered and the average number of minutes of interview time allocated to each is shown in Exhibit I-2.

EXHIBIT I-2
National Survey of the Vietnam Generation
Average Interview Times by Section
for the Household Interview

Section/Title	Time in Minutes		
	Vietnam Theater Veterans	*Vietnam Era Veterans*	*Civilian Counterparts*
Section A: Preamble and Eligibility	2	2	2
Section C: Marital History and Adjustment	10	10	10
Section D: Parenting History and Adjustment	10	10	10
Section E: Educational History	6	6	6
Section F: Occupational History and Work Role Adjustment	9	9	9
Section G: Childhood and Family History	12	12	12
Section H: Military Service History	16	16	12
Section J: Vietnam Experience	60	—	—
Section K: Postservice	22	22	—
Section M: Stressful and Traumatic Life Events	22	18	10
Section N: Self-Perceptions, Attitudes, and Nonspecific Distress	18	18	24
Section P: Physical Health Status	9	9	9
Section R: Diagnostic Interview Schedule (DIS)	79	73	72
Section S: Use of Health and Mental Health Services	16	15	13
Section T: Social Support	6	6	5
Section U: Demographics	11	11	11
Total	308	237	195
	(5 hours, 8 minutes)	(3 hours, 57 minutes)	(3 hours, 15 minutes)

Three additional components of the NVVRS that are closely related to the NSVG were also of key importance in meeting the study's objectives:

1. Preliminary Validation Study component, conducted and analyzed in preparation for the NSVG.
2. Clinical Interview component conducted after the NSVG interview.
3. Family Interview component, also conducted after the NSVG interview.

Because at the time this study was initiated none of the measures currently available for a survey-based assessment of PTSD had yet been validated, an integral part of the study design was the completion of an

elaborate Preliminary Validation Study component. We administered candidate PTSD measures to 225 Vietnam theater veterans whose mental health status with regard to PTSD and other psychiatric disorders was already known. The validation study determined how well diagnostic decisions about PTSD made on the basis of information from a survey interview would correspond with diagnostic decisions made by trained clinicians with extensive experience in diagnosing and treating PTSD. By providing information about the ability of the candidate survey interview instruments to identify true cases of PTSD, this validation component provided a scientific basis for selecting the actual PTSD instruments to be used in the NSVG.

For the Clinical Interview component, we selected a subset of more than 300 theater veterans and 100 era veterans to undergo a follow-up Clinical Interview with an expert mental health professional. This semistructured diagnostic interview was designed to provide additional information about the validity of diagnoses made on the basis of information collected in the survey interview, particularly the diagnosis of PTSD. The clinical interviews were conducted by mental health professionals located in 28 specific geographic areas around the country who were experienced in diagnosing and treating stress disorders. The Clinical Interview sample was drawn from among NSVG theater and era veteran respondents who lived within "reasonable commuting distance" of these 28 areas; the sample included all those who appeared on the basis of their survey interview to be PTSD positive and a sample of those who appeared to be PTSD negative.

The Family Interview component involved one-hour follow-up interviews with the spouses or other coresident partners (that is, someone with whom the veteran was living as though married) of over 450 theater veterans. The purpose of these interviews was to collect information about the veteran from someone close to him or her, and to assess the impact of postwar psychological problems of Vietnam theater veterans on persons sharing their lives. The Family Interview subsample was selected from the entire theater veteran sample. The subsample was designed to include adequate numbers of both spouses or partners of veterans whose survey interviews suggested substantial levels of postwar psychological problems and spouses/partners of those without such problems.

Sample Design of the NSVG

Two important requirements in the design of the NSVG were (1) that the sample of persons interviewed be nationally representative of the

corresponding populations, and (2) that the survey include adequate comparison groups to provide a context for understanding the current adjustment problems of Vietnam veterans. To meet these requirements, the NSVG design specified the selection of national probability samples of Vietnam (theater and era) veterans and their civilian counterparts of sufficient size to support estimates for and contrasts among the groups of interest. For example, the study design contrasts Vietnam theater veterans with other Vietnam era veterans (male and female) and theater veterans with nonveterans (male and female). The study also contrasts racial/ethnic subgroups of male theater veterans (Black, Hispanic, and White/other) and subgroups exposed to different levels of combat or war-zone stress.

Operationally, the NSVG sample design combined (1) a military-records-based sample designed to yield 1,500 Vietnam theater veterans and 730 era veterans, (2) a household sample of 450 male and 50 (nonnurse) female civilian counterparts, and (3) a list sample of 150 female civilian registered nurses. The Vietnam theater veteran sample was augmented with 100 theater veterans with service-connected disabilities, for a total of 1,600 theater veterans.

The veteran respondent universe was defined as all persons who served on active duty in the military forces of the United States during the Vietnam era (August 5, 1964, through May 7, 1975), except those currently on active duty. Under this definition, career retirees, enlistment terminations, and persons who served on active duty during the Vietnam era and are now reservists or National Guard personnel are all included. By this definition, the study population contained an estimated 93 to 94 percent of all living persons who served on active duty during the Vietnam era, the most comprehensive coverage of the Vietnam veteran population of any study conducted to date.

The task of selecting the veteran samples was complicated by the fact that no master list existed of the over eight million veterans who served in the military during the Vietnam era. As a consequence, one of the study's initial tasks was to create such a list (or sampling frame), from which the samples of veterans could be selected. The most common means for creating such a list in past studies had been to screen households either by telephone or in person to identify Vietnam era veterans. However, this approach necessarily relies on self- or proxy reports to identify veterans, and the screening rates obtained by the most rigorous surveys employing this method (Fischer, Boyle, Bucuvalas, & Schulman, 1980; Rothbart, Fine, & Sudman, 1982) suggest significant underreporting of Vietnam theater and era veteran status, resulting in undercoverage of the order of 32 to 38 percent relative to 1980 Census findings. To avoid this problem of

undercoverage, the NVVRS sampling frame for veterans was compiled directly from military personnel records, using three sources:

- The National Personnel Records Center (NPRC)
- The Defense Manpower Data Center (DMDC)
- A special list compiled for the VA by the Department of Defense's Environmental Support Group (ESG), purported to contain the names of all female theater veterans

From a sample of 34,000 accession numbers selected from the NPRC Chronological Model (which includes accession numbers assigned to personnel records received between January 1966 and June 1977), 25,000 personnel records were fully abstracted. From the DMDC master files, we selected a total of 966 cases. These two sources served as the basis for the male theater and era veteran samples. These abstraction samples were designed to include sufficient numbers of minority members to produce the required oversamples of Blacks and Hispanics. Although the number of Black veterans available was enough to produce the Black oversample, the number of Hispanics was insufficient to provide an adequate yield. As a result, we had to include a supplemental sample of 6,800 accession numbers from NPRC to obtain sufficient numbers of Hispanic male theater veterans to meet the statistical requirements of the study.

The NPRC and DMDC files were also the basis for the female era veteran sample. However, because more than 80 percent of female veterans serving in the Vietnam theater were nurses, we modified the sample design for these female veterans to produce a similar proportion of nurses in that subsample to ensure more valid comparisons between these two groups. To obtain adequate numbers of era veteran nurses for that purpose, we screened a sample of 205,000 accession numbers from the NPRC Chronological Model to identify all of those with potentially female names. We then retrieved the military records for all those with potentially female names and examined the records to determine the veteran's gender. All records verified as identifying female veterans were abstracted to identify nurses on the basis of the recorded military occupational specialty (MOS). This procedure resulted in a pool large enough to provide sufficient numbers of era veteran nurses.

We also used the ESG list of female theater veterans to select the female theater veteran sample.

Implementation

Implementing this complex, multiple-component research proved to be especially challenging—indeed, it proved to be a formidable test of some

of the hypothetical limits of survey research. For example, although identification of the veteran samples from military records provided the advantage of a more representative sample than could have been achieved through identification via household screening, it had the distinct disadvantage of requiring the research team to track down all sampled veterans wherever they were currently living to interview them. The resulting sample literally was scattered throughout the world, and address information in their military records was often up to 20 years old. However, through an interagency agreement with the National Institute of Occupational Safety and Health (NIOSH), it was possible to obtain current addresses for most veterans from the Internal Revenue Service (IRS). Those for whom the IRS-supplied address was inaccurate, or for whom the IRS could not supply a current address, were located by specialized tracing procedures.

Even when located, the sample was very widely scattered, and interviews were conducted in virtually every part of the 50 states and Puerto Rico. This resulted in an unusually high level of interviewer travel (averaging 200 miles and seven hours per case for theater veterans) in conjunction with the administration of a highly sensitive interview averaging three to five hours in length. In turn, the complexity and sensitivity of the latter required ten full days of training and a special certification procedure for over 140 interviewers.

In spite of these and some other formidable challenges, the NVVRS achieved virtually all of its performance objectives. In the NSVG, over 95 percent of the veterans sampled were located (over 96 percent of the theater and 93 percent of the era veterans). The 3,016 total interviews conducted exceeded the targeted number of 2,980. For Vietnam theater veterans, over 83 percent of those sampled and eligible (87 percent of those located and eligible) were interviewed, ranging from 81 percent among Hispanic male theater veterans to 86 percent for female theater veterans. Response rates for Vietnam era veterans and nonveterans were 76 and 70 percent respectively, reflecting, in part, the lower salience of the survey to these groups in relation to the level of burden required for their participation.

Similarly, 344 of the 403 Vietnam theater veterans selected for the Clinical Interview component (85 percent) were successfully interviewed. Response rates for demographic subgroups ranged from 80 percent among Hispanic males to 97 percent among women. Among era veterans, 96 of the 116 era veterans selected for the Clinical Interview subsample (83 percent) were interviewed.

Finally, of the 557 spouses or partners of theater veterans who were selected for the spouse/partner interview, 474 were interviewed, for an

overall response rate of 85 percent. Response rates for the demographic subgroups ranged from 83 percent for Black and Hispanic males to 91 percent for female theater veterans.

A WORD ABOUT VOLUME II

The basic NVVRS findings described in this volume that are presented in tabular form in Volume II are always referred to as "Tables." Summary findings presented in *this* volume are always referred to as "Exhibits." And the appendices presented in Volume II are referred to by letter—Appendix A, B, and so on. (Also see p. 4 for other information about Volume II.)

Most of the findings in Volume II are presented in a standard tabular format that consists of two parts. The first part of each table presents the NVVRS *estimates* (that is, the findings) for each of the study's groups and subgroups; the second part presents the results of *statistical contrasts* between selected study groups or subgroups.

Each table presents the NVVRS findings for one characteristic, or "outcome," that was included in the study. Examples of the outcomes include current PTSD diagnosis, educational attainment, and use of mental health services. Tabulations are provided for the outcomes for each study group and subgroup, and are always presented separately for men and women. For example, the table of findings about current PTSD diagnosis shows separate prevalence rates for male and female theater veterans, era veterans, and civilian counterparts.

The tables provide estimates for the study's major groups: theater veterans, era veterans, and civilian counterparts. For men, estimates are also provided for racial/ethnic subsets of the major study groups: Hispanic, (non-Hispanic) Black, and White/other. Additionally, within the theater veteran group, estimates are provided for some specific subgroups, selected because of their relevance to the Congressional mandate. These include subgroups based on level of exposure to war-zone stress (high and low/moderate; see Appendix C in Volume II for details); current PTSD diagnosis (positive and negative; see Appendix D in Volume II for details); level of service-connected physical disability (SCPD) as indicated in official VA records (none, 0–20 percent, and 30–100 percent); and lifetime substance abuse diagnosis (ever met the criteria for alcohol or drug abuse or dependence, positive and negative).

In addition to estimates, the tables also present the results for a standard set of "contrasts." These contrasts are statistical tests of the differences in the outcome between specific pairs study groups or subgroups (for example, male theater veterans versus male era veterans) in terms of the outcome

being tabulated. Each table shows, for example, the contrast between theater and era veterans, separately for men and women. Results of these statistical tests tell whether the findings indicate that the groups being contrasted are or are not different in terms of the outcome being examined.

The Introduction to Volume II provides a more detailed explanation of the table structure and of the statistical tests used to evaluate the contrasts.

Epilogue

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