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Modeling The Future: A New Approach to Military Community Health Through Community Health Councils

By

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A dissertation submitted in partial satisfaction of the

requirements for the degree of

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In the

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Of the

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Spring 2001

Modeling The Future: A New Approach to Military Community Health Through Community Health Councils

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Abstract

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By

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Doctor of Public Health

University of California, Berkeley

Professor Len Duhl, Chair

In the most recent decade, the military has undergone significant social, organizational and operational changes as it has significantly downsized personnel levels and has increased its operational tempo in world-wide peacetime operations. Healthy military members and their families are now seen as a key force multiplier. In response to these changes, a renewed interest has emerged in the importance of the status and function of the military community as a system of social care for military members and their families. Population health efforts and their focus on the social determinants of health have transformed the traditional illness-centered medical model of health into a more salutogenic or health-focused model of community health. Under the direction of a military line commander, a multidisciplinary community team formed to assess community health issues and introduce interventions to improve community well-being. This dissertation documents and assesses their team process and suggests a model for Department of Defense-wide community health councils.

The researcher actively participated on the community health process action team as a research advisor, training facilitator and survey assessor. Their process was documented and a retrospective multivariate analysis was conducted of their commander's community survey.

Among the key findings of this study were that the mental health well-being of those active duty personnel who participated in a key community intervention was significantly higher than those active duty personnel in the community who did not participate. Over 63 percent of those who attended a family communications intervention course said it improved their life, 38 percent said it improved their mental health and 69 percent said it improved their relationship with their spouse or significant other.

A community health council concept is a successful way to build community capacity, empower multidisciplinary stakeholders within a military community and redefine a system of social care outside of the dated illness-centered medical model of health to improve the well-being of our military communities.

This dissertation is dedicated to my daughter, Jennifer Hawthorne Meyers.

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In so many ways I can't put into words, I extend my appreciation to two incredibly special women in my life. Without them, this dissertation would not have been finished. To Kate Heumann, for her love, patience, endurance, and editorial support and to my daughter, Jennifer, who was always there to help me remember what is most important of all.

Modeling The Future: A New Approach to Military Community Health Through Community Health Councils

In the past 10 years, the military has undergone significant social, organizational and operational changes.

In response to these changes, there is renewed interest in the importance of the military community as a system of social care for military members and their families.

Community health is no longer viewed within a single medical model – simply the absence of illness – but is now being viewed with a community health model: the harmonious interaction of mental, physical, social and spiritual well-being.

This dissertation provides both an analysis and documentation of a unique community health approach pioneered by an Army artillery unit and a community health council model for all military communities.

The Air Force believes that one of its most important attributes is a sense of community among its members and their families. Far more than simple 'pride in the team', this factor builds the motivational identity and commitment that underlie our core values, career decisions, and combat capability....The Air Force is rededicating itself to both maintaining this sense of community and finding new and more efficient ways of providing it.

Global Engagement: A Vision for the 21st Century Air Force
Air Force Chief of Staff and Secretary of the Air Force[1]

Chapter 1

Introduction

Senior Air Force leaders view "community" as highly significant for individual and collective well-being and as a cornerstone in the realization of core Air Force values.

Colonel John P. Nelson, Ph.D.
Chief, Family Advocacy Division
Air Force Medical Operations Agency
[2]

An Army community wishes to improve their community well-being.

A community health action group is formed to define the needs of the community and develop interventions to improve well-being.

It is hypothesized that their interventions will in fact improve well-being.

The analysis and documentation of this process will inform the development of community health council model for all military communities.

The military has recently undergone significant social, organizational and operational changes as it has downsized personnel by over 30 percent and has increased its operational tempo in worldwide peacetime operations.[3] In response to these changes, a renewed interest has emerged in the importance of the status and function of the military community as a "system of social care for military members and their families".[4, 5] The Family Support Centers of the various military services have begun efforts to build community capacity through both formal and informal networks of social care.[6] Recognizing the important role of the line unit in developing meaningful cohesion[7, 8], this dissertation documents a unique approach for the military to build community capacity through a joining of informal and formal social networks in a community health council setting. It has been written as both a partial fulfillment of graduation requirements and as a useable document for our active duty military leaders.

As an introduction to this dissertation, the community that the researcher worked with is described in detail. Through that detail, the unique setting and community participation will become evident and will be a backdrop to the dissertation problem statement and study significance. Definitions of commonly used terms are provided to give context and specific meaning intended for their use in this dissertation. This chapter closes with a short description of the content of the remainder of the dissertation.

The Community

This dissertation examines a military community's efforts to improve well-being through the implementation of a community health council concept. This concept has been analyzed through documentary research of an Army active duty unit, the families and support

agencies connected to that unit and their collective efforts to improve well-being through a community process action team (PAT). Community is best defined both geographically and functionally.[9] Professor Len Duhl provided the exact definition the researcher provided to the PAT during their initial training – "community is defined as all persons and organizations within a reasonably circumscribed geographic area, in which there is a sense of interdependence and belonging."[10] The specific details of this community are described in the next two sections.

The Community Surrounding the Military Unit

The community modeled for this dissertation is physically located in and around Schofield Barracks, Hawaii on the island of Oahu. Not unlike many small communities in rural settings throughout the United States, this close-knit community has various housing options, churches, fast food, places to exercise, medical support centers, theaters, grocery stores and social support structures. The difference is, they are joined in a common purpose and under a well-defined hierarchical leadership structure. They are there in support of a U.S. Army military mission. Each element of the community, with the exception of the family members, is part of a defined chain-of-command which eventually leads to one overall responsible leader and one source of support funding.

This community setting provides a unique opportunity to study a community-based health model. The military connection brings a rigidity of hierarchy, yet it also brings a common sense of purpose and a common sense of place rarely found in a civilian setting. Support elements of the community are all under the resourcing control of one central authority,

which brings an unusual opportunity for common purpose collaboration. This dissertation will introduce a model of this community's efforts for use in other military communities.

The community, as expressed in this dissertation, is defined as the men, women and family members of the 25th Infantry Division Light Artillery (DivArty). There are over 1,100 active duty members and over 1,400 family members affiliated with this unit and over 29,500 total on Schofield Barracks (military and family members).[11] The community includes the support resources of the Schofield Barracks Army Post and the housing areas in and around Schofield Barracks where the families live. Many different agencies are introduced in this study, some of which do not report directly to the leadership of DivArty. They are included as members of this defined community because they have primary responsibilities to support this unit. Ultimately, they work for the same leader on the Army post (a general) as the DivArty commander (a colonel).

The Military Unit

The 25th Infantry Division Light Artillery (DivArty) is located at Schofield Barracks and is one part of a larger Infantry Division comprised of over 20,500 US Army soldiers. The parent 25th Infantry Division (Light) prepares for deployment to a theater of operations to perform combat operations as part of a corps counterattack. On orders, they conduct theater-wide deployment within 54 hours of notification to perform combat operations in support of Pacific theater strategies.

The Division is organized into three Light Infantry Brigades (two at Schofield Barracks and one at Ft Lewis, Washington), an Aviation Brigade, a Division Artillery, a Division Support

Command, an Air Defense Artillery Battalion, an Engineer Battalion, a Military Intelligence Battalion, a Signal Battalion, a Division Headquarters and Headquarters Company, a Military Police Company and a Division Band.

DivArty's unit assets consist of two 105mm (T) direct support battalions (3-7 FA and 2-11 FA) equipped with the M119 howitzer; one155mm (T) general support battery (F/7 FA); one target acquisition detachment and a Headquarters and Headquarters Battery for Division Artillery HQ.

Definitions

Community-based Action Research - Denzin and Lincoln have summarized the fundamental premise of community action research as:

> Community action research commences with an interest in the problems of the group, a community, or an organization. Its purpose is to assist people in extending their understanding of their situation and thus resolve problems that confront them. Put another way, community-based action research provides a model for enacting local, action-oriented approaches to inquiry, applying small-scale theorizing to specific problems in specific situations.[12]

A more in depth description follows in the next chapter with a comparison to the tenets of participatory action research found in chapter 3.

Community Capacity Building – is represented by a shared responsibility for the general welfare of the community, a collective competence in assessing, acting on and evaluating the needs of the community, and a knowledge of the collective resources individuals and

community groups can bring to bear on safety and well-being issues facing the community.[9] It is about thinking through and acting on what must be done given the strengths of the community.[13] Dr. Gary Bowen, a leading researcher on military families states, "community capacity building reflects a strengths perspective...community members are viewed as potential assets, capable of working in partnership with base agencies and leaders..."[9] Figure 1 illustrates the intended pathway from the PAT's influence on increased community capacity to increased well-being. This dissertation will report findings related to health and well-being, but it is important to note there were other areas that were potentially affected by the increased community capacity as well.

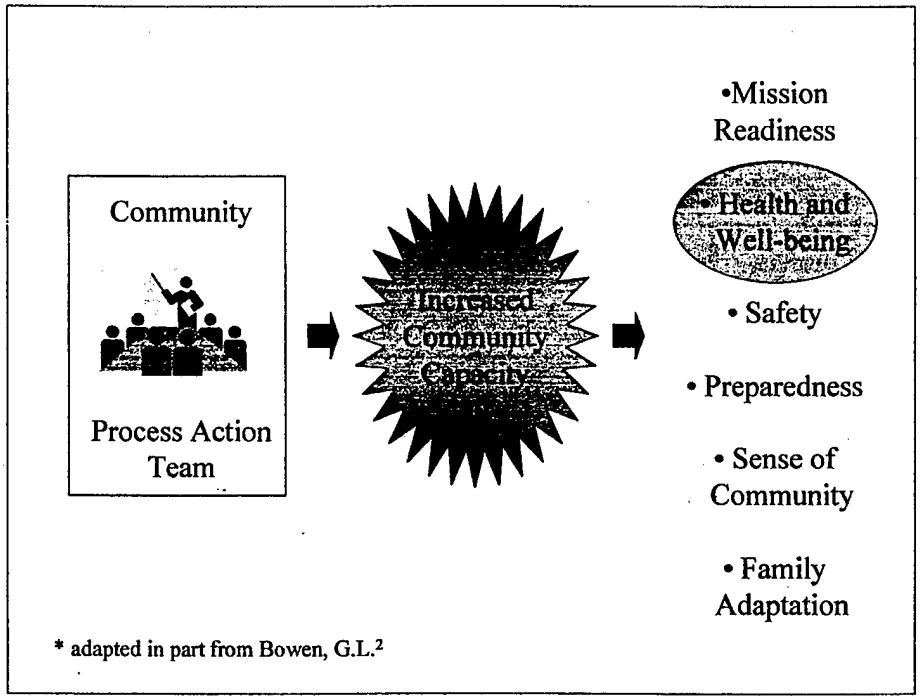

Figure 1. DivArty community capacity input and outcomes

Salutogenic model of health – is defined as the advancement of health promotion and disease prevention rather than simply emphasizing the pathogenic origins of disease (medical model of health).[14, 15] The focus of the model is on stress and its effect on human health.

Antonovsky, an often cited leader in this model, describes a continuum in which health is at one end and disease is at the other.[14] The movement along the continuum is determined by the environment, one's resistance and the strength of one's sense of coherence (SOC). The components of SOC include comprehensibility, manageability, and meaningfulness.[14]

Upstream approach to health – is the term chosen by the researcher to best reflect what has classically been known as primary prevention efforts. It refers to a popular public health parable in which personnel downstream are so busy rescuing drowning people from the water that they never have time to go upstream and intervene to prevent them from falling into the water in the first place. John Last, in his book entitled "A Dictionary of Epidemiology" used the following description to put the three levels of prevention into perspective:

> Primary prevention is aimed at reducing incidence of disease and other departures from good health, secondary prevention aims to reduce prevalence by shortening the duration, and tertiary prevention is aimed at reducing the number or the impact of complications.[16]

Figure 2 was used during PAT training by the researcher to illustrate this upstream conceptualization of their primary focus.

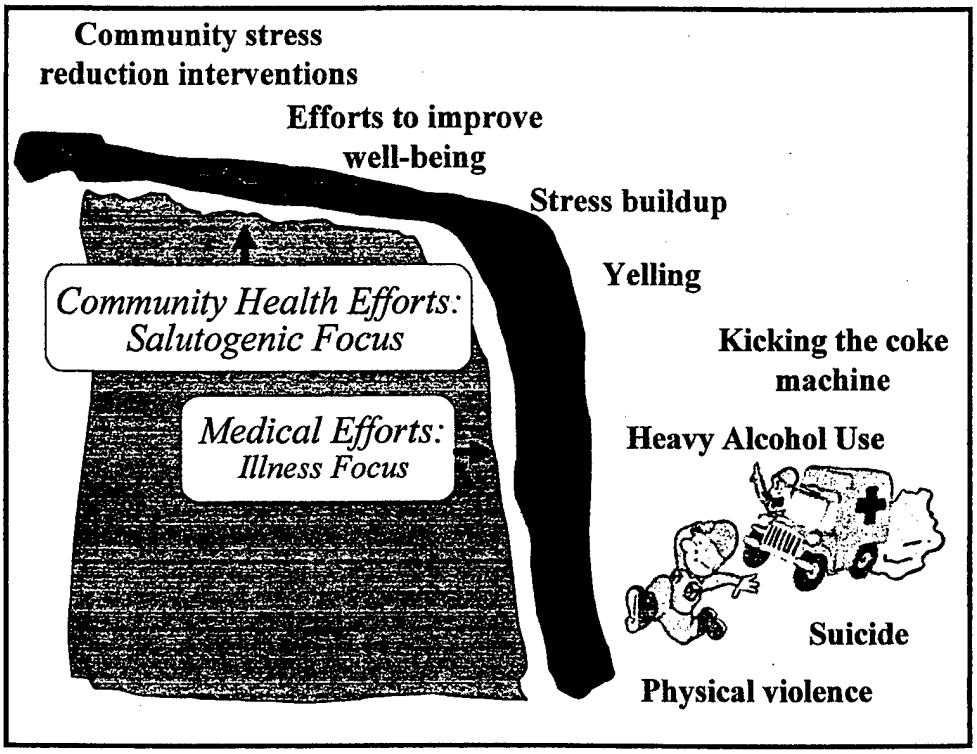

Figure 2. Upstream focus for the PAT – graph similar to this used in PAT training

Members of the PAT first reviewed the chart's downstream "illness focus". The team discussed old concepts of health. These concepts had focused on the medical system and its response to illness. Military medical treatment facilities were trained and equipped to respond to emergency medical needs, "pick them up in the ambulance" and take them to the medical facility for repair. The goal of the PAT, however, is to influence factors that are more upstream from manifested illness. A salutogenic focus (upstream focus) allows for understanding and accountability in health before illness is fully manifested. Addressing environmental and behavioral stressors and resourcing interventions are now the focus as the community attempts to improve well-being and reduce both illness and the signs of impending illness (yelling, kicking Coke machines, etc.).

DivArty Process Action Team - included members of community agencies, informal community groups and formal unit leadership. The following is a comprehensive list of members:

- DivArty commanding officer
- DivArty executive officer
- DivArty senior enlisted person
- Single soldier's group representative
- Spouse's group representative
- Fitness representative
- Nutrition representative
- Community services representative
- Community nursing representatives
- Unit Physician
- Unit Chaplain
- Equal opportunity counselor
- Researcher (facilitator to the group training/retreats)

DivArty Sub-Process Action Teams – As a direct outcome of the main PAT process, the following subordinate PATs were formed to look at main areas of interest: Transition and Information; Relationship Skills; Child and Youth; and, Soldier and Family Health

Research Context

Statement of the Problem

A community under stress has taken action to form a group to look at ways to improve well-being. This analysis will evaluate their success in both the process of forming and running this community group and outcomes for a subset of their population.

Research Questions

1. Can a military community form a community health council and successfully:

    - reframe the definition of health from illness-centered to well-being centered, with an appreciation for how health affects mission readiness.
    - conduct an accurate assessment of the health of the community,
    - direct resources to intervention programs that address the community's top health concerns,
    - reduce the factors that lead to family stress,

- build a monitoring system to track the health of their community, and
- facilitate actual improvements in the community's well-being?

2. Can a template of a model community health council be developed using the lessons learned from the DivArty community's health process action team?

Hypothesis

The DivArty process action team was formed for the purpose of improving community health and well-being. It is hypothesized that their processes and interventions will in fact increase community health and well-being. This main hypothesis has two sub-hypotheses. The first includes an analysis of the process and how it compared to processes proven successful in improving health and well-being in other community settings. The second includes a quantitative analysis of the means of SF-12 mental health scores between one sub-population who did participate in a community intervention and a sub-population that did not.

Sub-Hypothesis 1

Community-based health councils that adhere to the following action research methodologies are likely to improve the health and well-being of their community:

- gather data to build an understanding of the health issues of their community,
- explore why health issues exist as they are, and
- develop, resource, implement and evaluate community-based interventions.

Sub-Hypothesis 2

Survey data analysis will indicate that respondents who did attend a community interventions course entitled "Building Strong and Ready Families" (BSRF) have statistically significant different responses to questions of mental health than respondents who report that they did not attend BSRF. The study postulates that BSRF attendees will self-report better health and readiness on their community's survey. The null hypothesis is that no significant difference will be observed.

Dissertation Conceptual Map

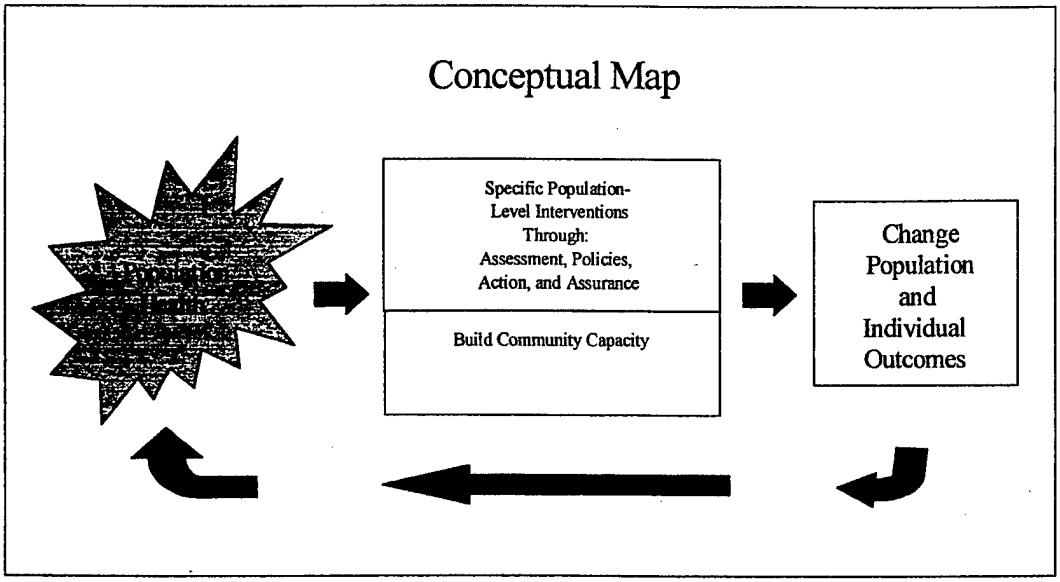

Figure 3. Dissertation Conceptual Map

Figure 3 highlights the conceptual map for this dissertation. The researcher posits a model based on the basic tenets found in the public health professional literature and built on population health-focused community-based action in a military setting. The concept is simple: population health is positively affected through increased community capacity and actions taken because of that capacity. In this case, the capacity was influenced by a community-based action group process, the process action team (PAT) in this community, and generally modeled in this dissertation as a *community health council.* Their keys to success included using tenets of action research, using basic public health skills of assessment, policy formation and assurance and choosing and implementing successful community interventions.

Significance of Study

The Department of Defense recently formed a group of 200 military and academic leaders in health to form a committee charged with predicting the healthcare environment in the year 2020 and the resultant needs of the DoD Health System (the researcher was a member of the committee). This group, called MHSS 2020, listed the community as one of the major players in health in the year 2020.[17] Active involvement of family members and line commanders in determining the health needs of the community was seen as an extremely vital role in managing health.[17] The DivArty's community PAT is an example of this desired community involvement in health. This study provides valuable feedback regarding its success and continuing challenges.

Both the Army and Air Force Surgeons General have made community involvement in well-being and readiness a major priority for this century.[5, 18] Currently, the Air Force Surgeon General has listed full involvement of the community in health issues as one of the top five objectives for his Population Health program. It is a readiness issue. The DivArty commanding officer (CO) stated, "I have the best leaders, we've got the best training and equipment needed to meet our mission,....the most influential force-multiplier left is the health and well-being of the soldiers and their families".[19] This dissertation provides insight into the successes and areas for improvement in the line unit's methods for developing a community program and addressing community well-being issues. The Army Chief of Staff and the Air Force Surgeon General have been personally briefed on this community process.[20]

Additionally, the Air Force formal hierarchy of family support services has recognized that the prevention of family violence requires a practice model that "embraces families within their social context...this context includes the nexus between formal and informal networks of social care."[4] A recent Family Advocacy training program was initiated by the Air Force under the leadership of Gary Bowen. This dissertation draws significantly from his research, from the work of Colonel John Nelson and from the results of their team's efforts to build community capacity in Air Force communities. Their recognition of the importance of diverse participation to this dissertation's model for a community health council is a key factor in the future success of the model's implementation.

Organization of the Dissertation

The dissertation began with an introduction to the community and the context within which this research was conducted. Chapter 2 will highlight key background literature used to inform both the community group's process and the theoretical framework for this research project. The three key conceptual models described at the end of the chapter were used as a grounding for how the community group visualized their work and how the hypothesis for this dissertation was generated.

The design of the research and the survey instrument are outlined in Chapter 3. Of special note is the discussion of unique differences between community work as action research or participatory action research. The researcher had the wonderful opportunity to work as an advisor, trainer, facilitator and documentary researcher to the DivArty community and a brief description of this multifaceted role is provided along with details on specific accomplishments. At the end of the chapter, the DivArty commander's Community Well-

being Survey 2000 is described and defended as a tool for evaluating the research questions. A full copy of the survey is included in Appendix 1.

As the centerpiece of this dissertation, the community's health process action team (PAT) is described in Chapter 4. First, the data and background rationale for the community to form the team are presented. Then, the intervention used to test the dissertation hypothesis is described. The chapter ends with a detailed description of the key meetings and training of the PAT.

Findings and analysis follow in Chapters 5 and 6, respectively. Univariate, bivariate, multivariate and population-level statistical program findings are followed by a section on the SF-12 Mental Health Scores in the Findings chapter. Appendix 2 has detailed statistical program printouts for each result reported. The Analysis chapter focuses first on an analysis of the PAT's process using an appraisal tool for participatory research outlined by M. Anne George, et al.[21] Six key areas of appraisal highlight the strengths and weaknesses of the PAT in mirroring the tenets of participatory action research. The next section reviews the PAT's goals and analyzes their success in reaching or not reaching those goals. Quantitative and qualitative measures are used in the last two sections when the survey instrument and the PAT interventions are analyzed.

In Chapter 7, a community health council model is described for use by other Air Force communities. Written as a template, membership and an annual schedule are complimented with a list of options for health performance measurement.

The final chapter provides a detailed conclusion with highlights of the most important findings in the research. Lessons learned, potential benchmarks and potential next steps are addressed in the final sections on implications for military communities, public health practice and future research.

Chapter 2

Conceptual Framework

"Our leaders are the best, our training is the best, our equipment is ready...the largest remaining force multiplier is family and soldier readiness."

COL Edward Riojas
Past Commander, 25th Div Artillery (L)

First step: Reframing health from the illness-centered medical model to community health.

Community stress and its health effects, including family violence, can be influenced by community directed interventions.

Military communities and their unique hierarchical structure are well suited to assuming the largest share of the responsibility for health.

Community capacity building is possible through community-based action research.

This chapter highlights the background concepts used in the development of this dissertation. First, a literature review summary provides a historical perspective on research in the areas of study. These articles and data were often cited in preparations for and during PAT training sessions as background for the members. The final section briefly defines the key conceptual models that outlined the basic organizational and individual change concepts used by the PAT.

Literature Review

This dissertation examines a community that has identified a need to improve well-being and is journeying down a path that ideally will not only improve well-being, but will also increase community capacity and change overall perceptions of the influencers of health. This journey is breaking new ground for this community. The process has already drawn the attention of the Army Chief of Staff and the Air Force Surgeon General – initiatives started as a result of the process have been highlighted as one of five benchmarks for Air Force Medicine's new population-based health planning program.[5]

Aiming efforts at reducing bad health outcomes by influencing upstream causes makes sense – we know from current research that social factors play a significant role in health in general.[22-25] These social factors include embeddedness in the community, family communication styles and levels of external stress, which all greatly influence and are influenced by the surrounding community.[26, 27] Examining upstream causes of ill health through a new definition of health centered on well-being also makes good sense – we know that at least 70 percent of what makes us ill falls outside of our genetic makeup and our access to healthcare services.[28] Our behaviors and our environment make up that 70

percent influence. Framing community action toward that majority of influence creates avenues for making a real difference in improving community well-being and reducing poor health outcomes.[29, 30]

Healthy Cities programs and National Healthy People 2010 efforts are well-known community health efforts and they have placed a significant focus on behavioral and environmental determinants of health.[31, 32] [33] [34] Additionally, we know from the literature that using community action research methods has the potential for helping to empower and create meaningful change in communities.[13, 35-38] Studies also show, within the military, that military leadership and formal systems of social care and control are an integral part of a community bound by social norms that reinforce responsibility and mutual community support.[6-8, 39]

The DivArty community has chosen to work on improving their well-being – as a community. The methods they have chosen stemmed from a background heavily influenced by Total Quality Management techniques. The command leadership style promoted continuous quality improvement techniques through a pervasive empowerment leadership style and active use of process action teams (PATs). Community action research methods, detailed later in this dissertation, best describe their process to date. The leadership does not frame their work as community action research. This dissertation will highlight how their process action team efforts mirror tenets of this type of research. Such techniques have proven useful for identifying community health risks, improving the community's economic

and social capital, and ultimately helping to improve the community's physical, mental, social and spiritual well-being.[40]

Reframing The Definition of Health

The DivArty community has a unique level of access to medical care, and that likely influences its understanding of health. Members have medical services provided at a large tertiary care center and have a physician assigned directly to their unit. Augmenting the direct medical care is a community health nurse who provides in-house visits for families with particular high risk factors. If you are ill, and you are in DivArty, you have timely and adequate medical care readily available.

Thus, the first step in focusing this community group on improving community well-being was to reframe the concept of health. When most communities think of health, they think of medical care or simply the absence or presence of illness. This illness model fails to recognize the limited role medical care has in well-being (less than 10 percent) and the vastly more important role of environmental and psychosocial behavioral factors.[28] The focus needed to shift to a salutogenic model of health.

The World Health Organization (WHO) and UNICEF at the famous Alma Ata Conference in 1978 adopted a new definition of health as "a state of complete physical, mental and social well-being".[41] That is the same definition the PAT was trained in at their first retreat and was adopted as their own definition for their community. Just as important to the PAT's work were WHO monographs emphasizing greater control for individuals and communities over the conditions affecting their health.[42, 43]

With these perspectives on health comes the potential for a community to see the important role they play in their own health. To best help this community grasp this important role, the following graphic was presented to them:

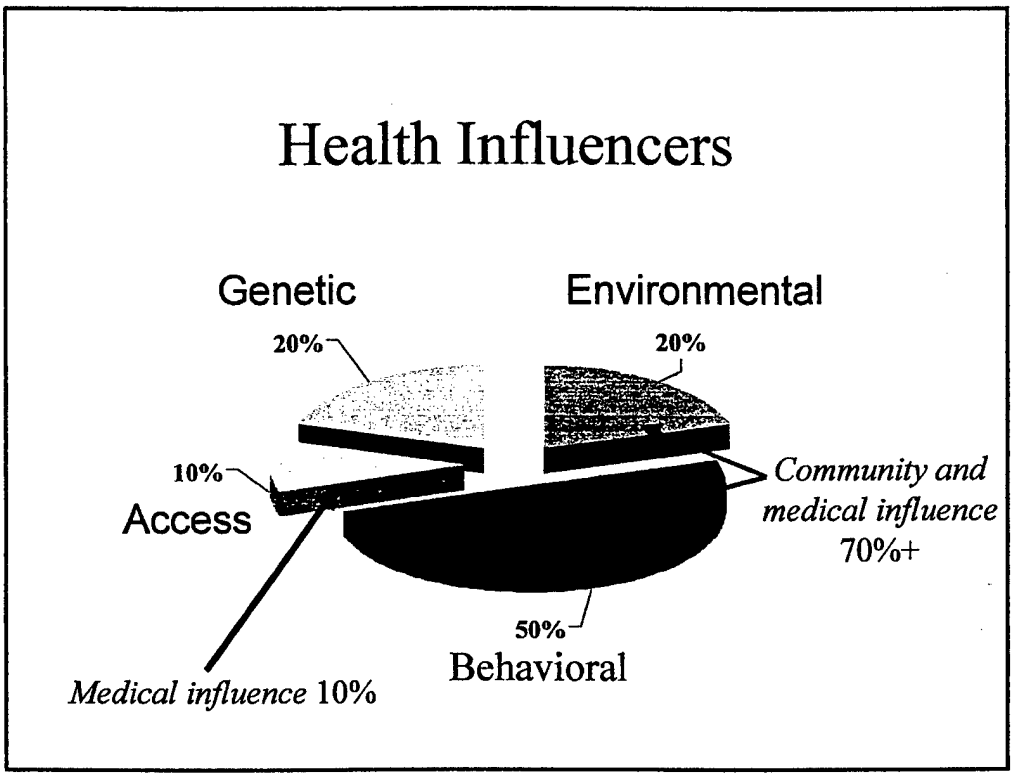

Figure 4. The Vast Majority of Health is Influenced by Factors Outside of the Medical Model[43]

Showing this to the community emphasizes the true owners of health – and that it is not just an individual phenomenon.[44] The researcher chose to highlight to the community PAT the importance of achieving a "balance between individual and social responsibility, so that simplistic either/or positions are replaced by a greater appreciation of the contributions of *both* personal behavior change and broader environmental change in facilitating health improvement".[23]

The true owners of health are not the medical care systems. Western cultures have believed for years that medical interventions have caused the decline of most of our major diseases. We now know that many of this past century's improvements in the fight against disease had more to do with improvements in things like nutrition and living conditions, and even spacing between births, than with new medical interventions.[30, 45]

The take-away lesson for the DivArty community was that *health is the result of a web of causation* - not just biological evolution and adaptation.[46] The question remaining was how can they work to improve community health.

Community Health

Community-wide efforts to address health are not new in the United States. In the 1930s, comprehensive health planning began in an effort to improve the configuration of health facilities, services and programs.[47] In the 1960s, 1970s and 1980s, comprehensive health planning groups became more formal and were supported by the federal government to "improve the availability, accessibility, cost, coordination, and quality of health care services and facilities".[48] These early efforts brought together "data on community health services, epidemiology, and socioeconomic characteristics to identify high priority health problems".[49]

The 1970s and 1980s also brought about a movement toward community-oriented primary care. This focused on the care given to an individual, but with a perspective that included the health of the community in which he or she lived.[50]

A significant movement in medical care recently influencing community health has been the growth of managed care and integrated health care systems. Population health has an even greater economic dimension when a large segment of the population is capitated by a managed care entity. Some of these organizations also have broader interests in their communities through their mission or non-profit status. Community service principles are an integral part of the Group Health Cooperative of Puget Sound, the Catholic Health Association, Kaiser Permanente and Voluntary Hospitals of America. The community emphasis was intended to demonstrate a "socially responsible managed care system".[51] Since the economic tightening of the medical system marketplace in the 1990s, many community-level interventions that have not shown immediate positive economic impact have been dropped in the interest of solvency or profit margin. Often, the requirement to show "community benefit" to maintain a non-profit status is one of the few remaining incentives to provide community-focused health services.

The medical services system has had varied success in health improvement efforts at the population and community levels. The public health sector has also had varied success in their national and international health improvement campaigns. This sector has reached more success, however, when they emphasize broad community involvement in public policies that promote health by improving quality of life.[52] Notable are the modest successes of the Healthy Cities/Healthy Communities movement (model standards and process)[49] and marginal success of the U.S. Surgeon General's Healthy People program

(helped draw attention to health promotion but failed to meet many of the national goals).[49]

The Healthy Cities/Healthy Communities movement is now an international movement providing detailed community support approaches. Communities can use a published Healthy Communities Handbook to follow a two-phase approach to action. First is a detailed planning phase, followed by an implementation phase. Key planning steps include:

- Assembling a stakeholder coalition,
- Redefining community health,
- Assessing influences on health in and beyond the community,
- Reviewing health indicators and community capacities,
- Identifying key performance areas, and
- Creating an implementation plan.

Implementation phase steps include:

- Monitoring activities, and
- Monitoring outcomes.[53]

The Healthy People movement of the U.S. Public Health Service has provided needed attention in the United States to issues of prevention and health promotion.[54, 55] The contributions of the movement included for example, the development of the Planned Approach to Community Health (PATCH) in the 1980s, the 1991 publication called "Healthy Communities 2000: Model Standards" and APEXPH: Assessment Protocol for Excellence in Public Health for communities.[49] All of these initiatives were aimed at providing templates to enhance the capacity of State and local health departments and communities to address their health needs. One of the most widely used community-based

approaches developed under the Healthy People program has been the APEXPH. This process is based on the activities of local health departments, but the initial steps are designed to be initiated by others in the community. As of 1996, over 32 percent of local health departments used APEXPH as well as several hospitals and health systems in the private sector.[49]

Community-based approaches to health improvement have been integral to several recent national health studies, including the National Heart, Lung and Blood Institute studies which test a community-based approach to primary prevention of coronary heart disease.[49] The Community Intervention Trial for Smoking Cessation (COMMIT) study, which achieved only marginal success, was designed and conducted in 11 pairs of communities to study the influence of the standardized program in various types of community settings.[49] Turning Point, a national collaboration project involving over 41 communities and Native American tribes, has provided significant lessons from attempted collaborations of public health agencies and their communities in influencing community well-being.[56]

Community stakeholders have joined schools of public health, public health departments and local healthcare businesses in coalitions aimed at improving health.[57] Additionally, examples of local efforts finding success in community based action include: Healthy Neighborhoods Project of Contra Costa County, CA[58]; Concerned Citizen's of Tillery, NC[59]; and LA VIDA of Detroit, MI.[60] All three have shown the significance that local empowerment through action research can have on public policy and improvements in local community well-being.

On the international level, a conference was held in 1986 to codify general and specific approaches to health promotion. This international conference was successful in getting 212 participants from 38 countries to adopt what was called the Ottawa Charter. That charter unequivocally declares, "The fundamental conditions and resources for health are peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice, and equity. Improvement in health requires a secure foundation in these basic prerequisites."[61] The participants set down an orientation of three interlocking health promotion components:

- Intersectoral action to achieve healthy public policy as well as public health policy,
- Affirmations of the active role of the public in using health knowledge to make choices conducive to health and to increase control over their own health and over their own environments, and
- Community action by people at the local level. Strengthening public participation and public direction of health matters is at the heart of the health promotion strategy.[29]

While the above gives context for the actions of the PAT as a community group, the next section helps to tie in how this community work might have an influence on reducing stress and possibly reducing family violence incidents.

Family Violence

The DivArty PAT got much of its initial energy from concern over family violence in the military community. This dissertation will not, however, focus on the family violence history of this community. Department of the Army directives prohibit conducting this type of research without significant oversight from headquarters personnel and a significant increase in the amount of time necessary to conduct the research. In addition, research data are very

difficult to review due to the fragmented records on family violence. Clearly, this community felt a growing concern over the levels of family violence and felt this PAT could take measures to possibly reduce both the level of violence and the incidents of violence.

The dissertation and, even more so, the work with the community did address the issue of family violence through an upstream approach focused on family cohesion and family communication through its intervention program "Building Strong and Ready Families". This dissertation does focus on this intervention. The following background research helped the PAT link their community well-being work to a possible impact on the vast causal web of family violence.

When researching family violence, one recognizes a dearth of studies of significance prior to the mid-1970s.[62] The first national survey of domestic violence in the U.S. occurred in 1975 and was conducted by Straus and Gelles. [63] Analysis of this and a second national study in 1985 (and subsequent research) has produced common themes regarding the association of environmental and social context with family violence. These associations allow for a theoretical context for the DivArty community's work.

Factors most commonly linked to increased family violence are factors that can be understood and often influenced by the DivArty community. Along with predictable factors such as family income and social class, social networks and a sense of embeddedness in the community are major predictors of violence in the family.[64] Additionally, the presence of past family violence is thought by most Americans to be the most influential factor on future

violence.[63, 65] The DivArty community health nurses have had the opportunity to gather data on this factor during their unique family screening process. The genogram used in this screening, explained later in this paper, has helped to identify family violence risk in clients' parents and grandparents.

The 1985 National Family Violence Survey revealed that husband-to-wife violence is twice as high in African American and Hispanic families as it is in non-Hispanic white families. For wife-to-husband violence, white women had the lowest rates (115 per 1000), African American women had the highest rates (207 per 1000) and Hispanic women were in the middle.[66] These data, however, are contradicted by a more recent National Victim Survey which found no significant differences among the major ethnic groups.[67] Given that the ethnic make-up of the DivArty is approximately 57 percent non-white, these data give additional context to the community's violence research.

Of significance to a study of violence are the ecological influencers on violence.[27] Research has shown that one significant influence on family violence is external stress. Factors shown to increase this stress include less education, lower occupational status, social isolation from friends and family, and whether or not one has a family member living nearby – and all influence a family's ability to cope with stress.[68] Immigrant groups are especially vulnerable, given that social ties are typically extremely important in various non-western cultures.[27] The DivArty community is at risk in most of these areas. The "overseas assignment" of Oahu is often far from community members' families and its high cost of living places an economic burden on many. This community also has a number of marriages

with spouses from foreign countries, which translates into more people far from home and increased likelihood of intra-family communication difficulties.

Other factors that influence family violence, such as joblessness and severe poverty, are also important, yet they are not as influential in the DivArty community. Despite this, the factors outlined above paint a clear picture for this community – it is ripe for family violence. The good news is, this community can take steps to reduce the impact of these factors if they recognize them and recognize how they influence the broader context of their entire community's health.

Military Communities and Health

General Framework

As far back as 480 BC, Spartans knew the importance of the warrior – the blood – and the social self – the wine.[69] Today, top military leaders, from the Marine Corps Commandant[70], to the Secretary of the Air Force[1], are endorsing the role of community in health and in mission readiness. This is especially important given the recent downsizing of the military force and military budgets – competition for scarce resources means that "hardware funding" competes even more fiercely with "people programs" for limited dollars.[3] The call is for a leaner force with more efficient use of funds. Leaders in the military are seeing cost-effective and force-multiplying opportunities through the improvement of well-being, through a renewed interest in the status and function of the community.[71]

There is a history of interest in the social welfare of military communities. In fact, social workers have been an integral part of the military for over a hundred years.[72] VanLaar and McClure have written a comprehensive report on the long tradition in the military of promoting of a sense of community and the unique role of the military family.[6, 73] Research in the 1980s and 90s included theoretical perspectives on the linkages of military work and family[74], an Army Family Research Program with over one hundred scientific and applied documents published on family issues, recruitment and retention[75, 76], trends in military family domains[77], effects of organizational support for families on work/family conflict[7], and family adaptations to relocation[78]. Well-being among military personnel has been studied in settings of conflict[79] and in peacetime operations[80]. More recently, studies have been published addressing military leader support and family adaptation[8], military unit culture and adaptation of military families during deployment situations[81], and the role of community capacity-building in the military[4].

Given this historical research background, the discussion of military communities and their health is best framed in the context of formal and informal communities and their collective influence on community capacity. This approach allows for a conceptual framework for the modeling of a community health council and gives substance to the underlying reasons the DivArty PAT was such a success, even in its naïve beginnings.

Bowen defines a renewed interest in military communities in terms of social care. His definition outlines the importance of both the formal and informal relationships: "'social care' is defined as the extent to which military members and their families are able to secure

tangible, informational, and social-emotional support from formal community resources and informal social relationships."[3]

In the late 1990s, the military funded a major study by RAND to look at the status of military communities and to suggest ways to increase a sense of community. Their findings were released in a report in 1999 entitled *Increasing a Sense of Community in the Military*.[73] They concluded that a military community's sense of community consists of two elements: social support and identification with the community.[73] In one of the nine recommended principles for enhancing a sense of community, they call for increasing modalities for two-way communication of community service needs and further suggest opinion gathering open meetings to get better feedback.[73]

In summary, current and past military research supports the general framework for this dissertation and the unique potential role of community health councils. Bowen's report in a recent research digest on military family issues provides a good overall synopsis:

> The hallmark of a healthy community network includes social relations among members who share positive values toward military service; social norms that reinforce social responsibility and mutual support for one another; and the presence of tangible resources necessary to meet the many challenges associated with military life.[3]

Potential Barriers

Potential barriers exist with all three major players in this process. Non-medical personnel are in integral part of the new alliance of responsibility for health – can they reach beyond

current constancy of purpose? Medical personnel are being asked to step outside the physician-dominated medical model – can the structure tolerate the shift in power? Patients in the military are used to seeing health as medical care – often acute/emergency room care. Can the interventions selected by the PAT engage the military population to take a more proactive role in health? Each of these barriers are important to the ultimate success of community health councils in the military – each must be considered when discussing population interventions.

The military is an institution steeped in tradition and constancy. The Air Force, in particular, is a large, technical and lethal business that demands an extraordinary level of rigid safety procedures. The tension is clear, as articulated by Dr. Todd LaPorte, a researcher of complex military organizations, "institutional constancy—faithful, unswerving adherence to commitments and effective actions over many work generations—competes with institutional flexibility as an important public value in some public domains."[82] The typical line commander faces this tension with weapons management and a zero tolerance for variation – compared to people management and the web of variation inherent in dealing with active duty members and their family support issues. The military has been training their leaders more extensively in the mastery of both sides. Mission leaders are seeing a strong community as a key to mission success. In a recent publication by the Air Force Chief of Staff and the Secretary of the Air Force, they highlighted the Air Force's ideals in this area:

> The Air Force believes that one of its most important attributes is a sense of community among its members and their families. Far more than simple 'pride of team', this factor builds the motivational

> identity and commitment that underlie our core values, career decisions, and combat capability.[1]

The barrier to overcome is the line commander's potential inability to embrace health as their responsibility (especially amid all of their other obligations) and to see that health is mostly influenced by issues under their purview, and not just under the control of the medical community. Folding the community health concept into current monthly meeting processes, especially those set up to conduct people-oriented tasks (family advocacy meetings, quality force meetings), will be seen as more incremental and likely to have the best chance of crossing over these barriers.[82] Air Force leaders might respond positively when they know that a recent Air Force report shows improving a sense of community and improving well-being in their command depends on how successfully they integrate formal and informal networks of social care.[2] The key here is that they already have activities under their command that address these networks and their needs. Integrating them into a single purpose setting, like a community health council, may simplify their need not only to master their weapon systems, but to tend to the most important force multiplier they have – their people.

Medical personnel may have an equally tough time reaching beyond the traditions of medicine-focused care. While the Air Force Surgeon General briefs and publishes direction to the medical community on population health, the measures for population health achievement are still clinically focused.[5] The concern over losing annual budget funding may also inhibit the medical community's desire to participate fully in community health councils. If the non-medical community (line community) announces their intention to fund

interventions aimed directly at improving health, will there be a *quid pro quo* dividend expected from the medical community's annual budget? Will board certified physicians who make up the upper-most levels of the Air Force Medical Service be willing to adopt a message stating access to medical care is just 10 percent of what influences health and well-being? It is a tough sell and a major barrier. The combined efforts of line commanders, the reasoning behind the population health effort and the dramatic effect community-based health focus can have on mission readiness will eventually bring the medical community in as full partners in this effort.

Other barriers are apparent upon examination of the historic role of the military patient. Military personnel and their families typically have held a view of health as the absence of illness. While many programs exist to promote healthy behaviors, military personnel still report high levels of risk behaviors.[83, 84] The work with this PAT seems to show that, given a population health data overview, the participants in the process of determining interventions see the importance of changing unhealthy behaviors. They intuitively understand the importance of upstream approaches to improving well-being. The issue of participation will always be a barrier that will need to be addressed.

Three final barrier areas might best be thought of as possible adverse consequences once a sense of community takes a stronger hold on a particular base.[73] Sub-group identification is an essential element of the military culture. One must be careful not to lose sight of the importance of this as the focus shifts to a more common community identification. Healthy

competition among units over health indicators is one example of how one might help diminish this potential adverse consequence.

As a sense of community increases, there may be a sense of a loss of freedom by some in the military. The demands of the military often dominate a military member's life and the lives of their family. Any common purpose movement that seeks to shift the behaviors of a population must balance their activities with the important right not to participate – especially when it involves broad lifestyle choices. With a health council, this can be mitigated somewhat with an emphasis on the open participatory process of any formal health council and the emphasis of voluntary participation in chosen interventions.

Finally, the brainstorming and open discussion format of a community health group must include an active task adoption and completion emphasis. The military culture is one where empowered discussion is then followed by definitive action. Gaining a sense of the needs of the community takes time and, to be successful, should involve people from all of the stakeholder groups in the community. Sometimes unscheduled operational military life preempts these types of time-intensive activities. Participants should focus on the community capacity building aspects of these activities. While the process may become interrupted from time-to-time, the resiliency built through the process should enhance the readiness for these often experienced consequences of military life.

Recent National Survey Findings

As a point of reference, overall military community health data were reviewed. In 1998, the Department of Defense (DoD) conducted the seventh in a series of DoD-wide surveys of health-related behaviors among military personnel.[84] The survey was completed by over 17,264 respondents for a response rate of over 59 percent of the active duty personnel sample set who were sent the survey. The researcher identified the following relevant background data:

- Military personnel were likely to describe their military duties as more stressful than their family or personal lives. The most frequently indicated stressor for both men (19.5 percent) and women (19.5 percent) was separation from family. More men (12.9 percent) than women (7.8 percent) experienced stress due to deployment, whereas more women (17.9 percent) than men (13.5 percent) experienced stress related to changes in the family.

- Personnel who experienced higher levels of stress were more likely than those with lower stress levels to work below normal performance levels (42.6 percent vs. 25.4 percent). In addition, injuries due to accidents in the workplace were twice as common among high-stressed personnel (12.9 percent) than among moderate/low-stressed personnel (6.4 percent).

- The three most commonly used strategies for coping with stress and feelings of depression were adopting a problem-solving approach, seeking social support, and engaging in physical activity. Nearly a quarter of military personnel, however, used alcohol to cope with stress and depression.

- Rates of depressive symptomology were higher among personnel who were women, Hispanics, less educated, younger, unmarried (or married but not living with their spouse), and (for enlisted personnel only) in lower pay grades. Personnel who met the criterion for needing further depression evaluation reported higher levels of stress at work and in their family lives, and productivity loss was higher among this group than among those who did not need further evaluation. Although productive coping strategies were fairly common among those who showed depressive symptoms, it was

disturbing to find that 18.3 percent of this group had considered suicide or self-injury as a way of coping with stress or depression.

- In the entire military health system enrolled population for Hawaii (herein called TRICARE enrollees – including active duty and all other eligible), 21 percent of active duty and 24 percent of non-active duty enrollees reported using a military emergency room at least once in the last 12 months.

- Of the TRICARE enrollees for Hawaii, the survey (using the standard SF 12 questions) found the beneficiaries to be in similar physical health and better mental health than the general U.S. population. Approximately half of the beneficiaries scored below the 50th percentile of the U.S. population for physical health (48 percent). Fewer than half had low mental health scores (35 percent).[84]

Military health has identified risk factors that have the potential to be influenced by community-based interventions. An important next step is the identification of the specific needs of a given community and the specific community capacity needed to meet those needs. A successful approach to studying the needs of a community while simultaneously building community capacity is found in community-based action research.

Community-based Action Research

The process and interventions of the DivArty PAT has strengthened their participation in the health matters of their community. Their chosen methods mirrored the proven methodologies of community-based action research, action research and participatory action research.

Action research (AR) is social research. The research is ideally carried out by a team of diverse stakeholders from the community and includes, as a team member, a professional action researcher. This approach is grounded in the belief that research in a social context is complex and that all people involved accumulate, organize and use complex knowledge

constantly in every day life.[37] The process is more aligned with democratic reforming than revolution. The researcher is a facilitator. The community conducts the research activities.

Participatory action research and action research have both international and national roots. The school of action research started by Kurt Lewin in the United States in the 1940s predated many of the more revolutionary approaches found in international settings in the 1970s.[85, 86] Born out of the organizational psychology field, his approach encouraged a "cyclical process of fact finding, action, and reflection, leading to further inquiry and action for change".[86] Paulo Friere provided critical philosophical grounding to the participatory action research movement internationally through his emphasis on co-learning and action based on critical reflection. [36, 86] This dissertation goes into depth on the differences that have emerged from these two methods of social science research and its impact on this study in the design and methodology chapter (Chapter 3).

Community-based action research has been shown to be ideally suited for its use in projects aimed at building healthy communities.[52, 58, 86, 87] Informed by this research, the DivArty community group and the researcher taught and followed Stringer's basic AR tenets closely. Those tenets included these three basic steps:

1. Look: gather data, build a picture, describe the situation
2. Think: explore and analyze (what is happening?); interpret and explain (why are things this way?)
3. Act:: plan (action plan), implement, and evaluate[36]

Key Concepts

The underlying concepts for this research are: the basic public health model expanded to a specific framework for planning (mirroring an action research model) and then linked to specific educational and ecological approaches to health promotion. These concepts were central to the DivArty community's PAT process. They have their roots in organizational change theory, specifically, Lewin's work with action research[85], the cognitive recognition of the need for change[49] and Green and Krueter's linking of organizational change theory to health promotion.[49] Although this dissertation focuses on the ecological aspects of this community, individual change models have been used by the community nursing personnel as part of the PAT interventions. The primary individual change model they used was the "stages of change" model developed often used in smoking cessation courses.[88] They were frequently referred to in preparations for retreat training and in the development of the key community PAT processes. A brief description of each is provided in next.

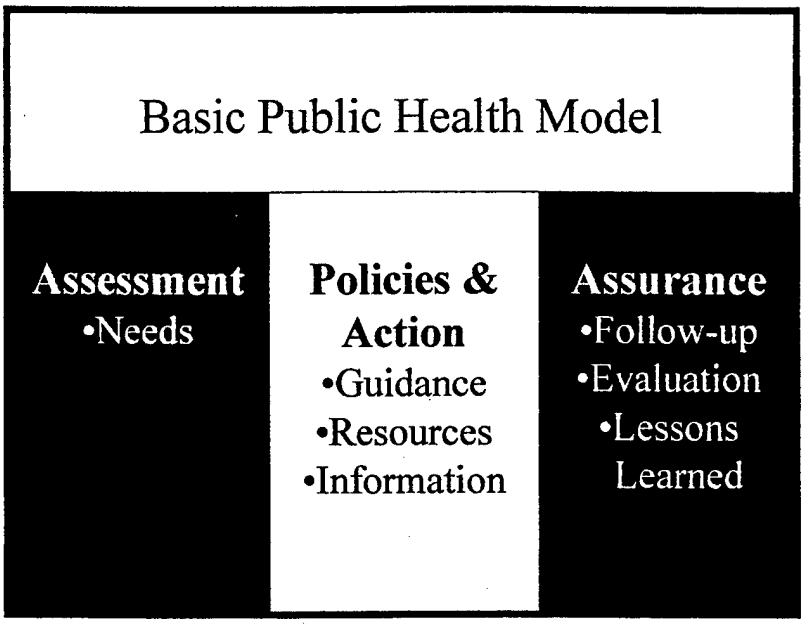

Figure 5. Basic Public Health Model

As a grounding to the overall community process is the basic public health practice model.[40, 89] Complimenting the action research process, this model continues the theme of assessing, developing policies and action, and then following-up with methods of assuring what was intervened worked as intended. It is from this framework that the community group developed its most basic processes.

Precede/Proceed Model

The adoption of the Precede-Proceed organizational change conceptual framework started with the community nursing personnel prior to the start of the PAT. Marshall Krueter was invited to provide a workshop on the Precede–Proceed model he developed with Larry Green.[40] It was fairly easy for the researcher to link the Springer action research model previously described to the group to this Precede – Proceed model (Figures 6 and 7).

The essence of the model is the inductive then deductive logic to it. One starts at the desired end and then investigates backward to the original causes. Figure 6 shows the building block of the main ecological model while Figure 7 labels each phase from end-state quality of life back to contributing factors back to quality of life again.[40]

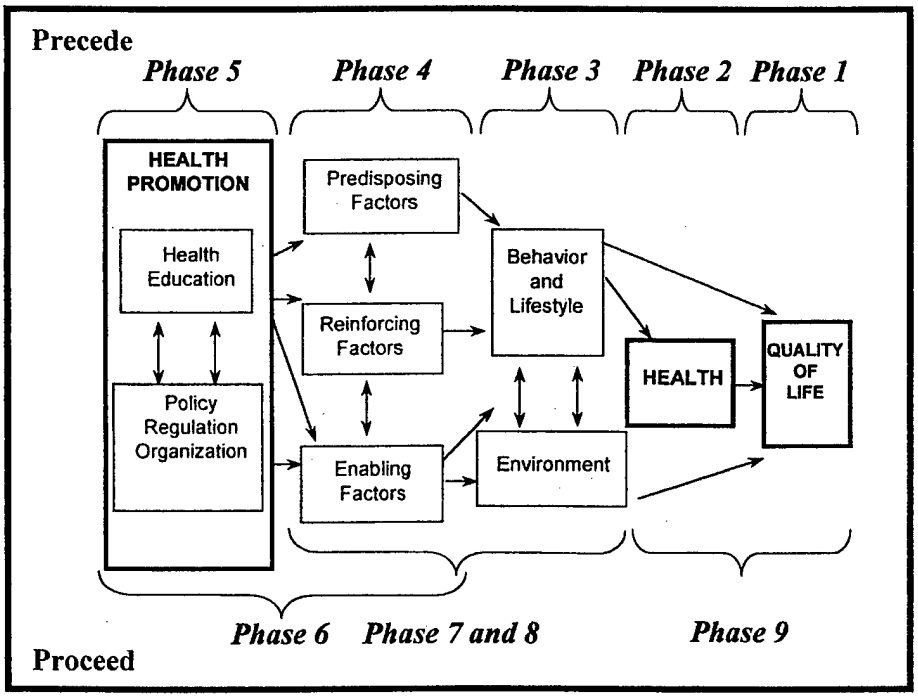

Figure 6. Green and Krueter Precede-Proceed Model

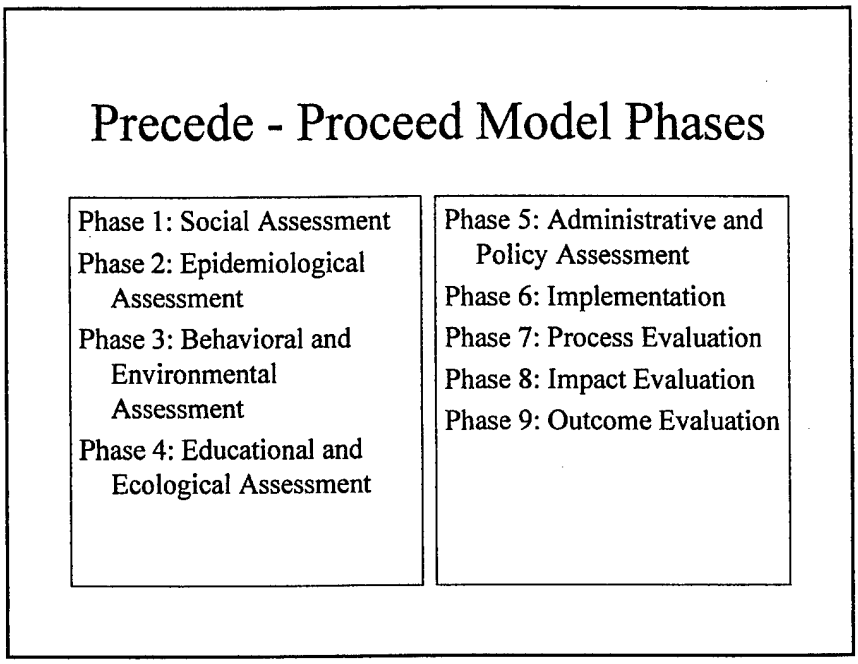

Figure 7. Precede and Proceed Phases

During initial PAT training, they were taught the importance of each phase of their process and its linkage of education, policies and intervention programs to building community capacity to enhance predisposing, reinforcing and enabling factors. They could then see how their work could provide a platform from which behavior, lifestyle and environmental improvements could impact health and improve the quality of life.

The next chapter describes the action research methods chosen to conduct this study. These key concepts are then linked to the study and action research methods in the analysis chapter.

Chapter 3

Design and Methodology

"...healthy and competent communities are not givens. They must be nourished through the deliberate actions of base and unit leaders, human services professionals, and fellow citizens—actions that promote and foster a necessary sense of community"

Gary Bowen, Communities in Blue for the 21st Century [9]

The dissertation had the primary objective of documenting a community health process action team process.

The team attempted to change the social structures surrounding the community's view of health – mimicking a participatory action approach to research.

The researcher was an integral part of the research and learning process.

A commander's well-being survey was conducted to assess the success of the team's interventions.

The primary objective of this dissertation is documentary research of a military community's PAT designed to address community well-being issues. Action research program evaluation and survey evaluation are used as the primary methods of analyzing the community process. The secondary objective was to analyze the process and outcomes from this PAT and then model the process for use by other military communities. The researcher participated in the community's PAT. The researcher's specific responsibilities included consulting to the PAT, facilitating retreats and performing statistical analysis of the community survey.

The researcher assisted the community in organizing the PAT around action research (AR) methods. This chapter highlights the background rationale for that chosen method and compares the method to participatory action research (PAR) methods. This comparison highlights the depth of organizational change embarked upon when this military community assumed responsibility for their health and well-being. While following one of the traditionally recognized action research processes, the community attempted to make strides in redefining the organizational "structure" of who is responsible for health in the community.

The researcher also assisted the community group in developing a military community commander's well-being survey. At the request of the community, the researcher conducted a statistical analysis of the survey for their review and use in designing and implementing well-being action items. The rationale for recommending certain survey questions and the process of analysis are also included in this chapter.

Action Research Methods

The PAT's efforts to improve community well-being were especially successful because the team used methods that mimic traditional action research and arguably approached participatory action research methodologies. In support of this conclusion, the first part of this section reflects on the similarities and differences between AR and PAR and how they each played a role in this research project. Of most importance are the reflections on the role of militancy and changing social perspectives versus changing formal social structures. It is on these subjects that this PAT is weakest in its defense of categorizing their efforts as PAR. The section concludes with comments on how the PAT process did or did not comply with PAR tenets. It is important to note at this juncture that within the field of social science, the terms action research and participatory action research are often interchanged by even learned experts.[86] While this dissertation will explore what some feel is a difference between the two methods based on its impact on social structures, the conceptual models outlined in a previous chapter show that the essential elements of both PAR and AR are mimicked in this community team's process. The reason the researcher is teasing out the unique differences for this dissertation is to get to the understanding that this PAT is attempting to change a fundamental social construct of health in this unique community.

Common Concepts Across AR and PAR

Central to AR and PAR are the concepts of knowledge, power and the way knowledge and power influence social change. Humans are subject to oppression, Foucault suggests, "not only because of the operation of large-scale systems of control and authority but also

because of the normally accepted procedures, routines, and practices through which we enact our daily public and personal lives."[36] In other words, it is not enough to focus on changing the physical social structures. Central to PAR, we must also change the Foucaultian basis of "truth" – knowledge and what defines that knowledge – central to both AR and PAR.

To understand the essence of both AR and PAR, the work of Kurt Lewin, an influential leader in the AR movement must be considered. His organizational psychology approach to the social sciences has connected both "scientific contributions and problems solutions and stresses the common values and standards that link researchers and clients".[86] The essence of Lewin's approach is represented in this commonly used definition of action research:

> Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework. [86]

PAR has many of its roots in Paulo Friere's work in Adult Education and experienced further enhancement (development of the principles of mutual inquiry for social change) with Fals-Borda.[90] The three common characteristics Friere taught were:

1. Oppressed people are seen as the appropriate and necessary leaders of social change.
2. The goal is to liberate people through the development of critical awareness.
3. Learning takes place and knowledge is generated through dialogue and interaction with others.[91]

The goal then in both styles of research is to influence the power and knowledge of people to create the environment for social change. The methods of influence differ in small ways and the ultimate results on the physical social structure can differ greatly.

AR and PAR – How They Differ in General

One can illustrate the difference between these research methods by describing the key tenets of PAR and then highlight the differences compared to AR tenets. Hagey suggests PAR has at its core these tenets or characteristics:

- Problem originates in the community,
- Research goal is to fundamentally improve the lives of those involved, through structural transformation,
- The people in the community or workplace are involved in controlling the entire research process,
- The focus of PAR is on oppressed groups,
- Plays a role in enabling by strengthening people's awareness of their own capabilities,
- The people themselves are the researchers, and
- The "outside" researchers with specialized training are committed learners in a process that leads to militancy (fighting for change) rather than detachment.[92]

AR follows these same tenets with the exception of the degree of structural change and the degree of militancy. While researchers using PAR often work with people being oppressed against a set of people seen as the oppressors (leaders of the structure doing the oppressing), AR is an entirely viable process that can be used for research with the complete concurrence of the social structural leadership.[37] Another key difference is the degree of militancy. Due to the inherent tension between oppressed and oppressor in a PAR situation, the ultimate goal is to "fight for change", replacing the old structural power relationships with less oppressive ones. AR seeks change as well; however, change is seen as possible within the given physical social structural relationships.

AR and PAR – How They Differ in This Dissertation

There are two areas of discussion that get to the heart of the difference between AR and PAR in this dissertation. One is militancy and one is changing social perspectives versus changing formal social structures. It is on these subjects that defending this PATs work as PAR is at its weakest. And it depends on how far one stretches the definition of militancy and social structure in this community and with this issue.

If you define the PATs focus as the improvement of well-being in the community, influenced by factors within the control of the commander and the community, then AR is clearly the only appropriate definition of this type of process. The commander and the medical care system were seen as the representatives of the social structure. The social structure was not being challenged militantly – this was a democratic attempt to find and fix a problem using the tenets of AR.

On the other hand, if one starts with the premise that the military health system was attempting to control the influencers of health in the community, then the commander and his community and their collective attempt to take responsibility for health could have been viewed as the oppressed. This level of definition may seem a stretch to traditional thinking, but it merits a few words of retrospective thought. Health was originally defined by this military community as services needed and received from medical personnel *in medical settings*. This perpetuated the common knowledge that if you had a medical problem, someone else (with the necessary knowledge) would come in and fix it. This was particularly true in a community where the medical care is provided at little or no cost.

The social structure was the medical care giver's definition of, exclusive knowledge of and control over health. It was both a physical and social construct. The PAR approach within this context was an oppressed group (the non-medical community members) creating new knowledge – a new definition of health and beliefs that tear down the illness-centered physical and social settings of health. They were taking health and health issues out of the solitary confines of the medical care community. Although this is too much of a stretch to defend as a definitive description of this PAT's work, it cannot be dismissed without discussion given the extreme hold the military medical system has on a typical community's knowledge of and definition of health. It is posited that a community that creates a new definition – one based on health being physical, mental, social and spiritual well-being – has a better chance to engage interventions (non-medical care oriented) that will have a greater impact on improving community well-being.[41]

The Researcher's Role

The DivArty community was experiencing significant well-being issues in the summer of 1999. Stories reported by the community health nurse for DivArty indicated there had been at least two notably violent family incidents including an active duty soldier killing his wife and an active duty soldier's wife burning two of her children – both occurring in the past five years. These unfortunate events gave rise to a general concern about well-being. Self-reported health risks for soldiers (both single and married) were above 50 percent for alcohol and overall stress – additional reasons for concern about well-being. The community nursing personnel sensed an increasing need for action and, along with the researcher, began collecting initial data for review by the DivArty command.

Before a community process action team was formed, the researcher joined a group of community health nursing professionals conducting a health promotion project initiative funded by the Department of Defense (DoD) with the DivArty community. Their goals were to conduct a screening process to better understand the needs of the community members. The researcher agreed to help develop the DivArty commander's process action team style of leadership into a community health process action team concept. He was directly responsible for facilitating and conducting team training, retreats, community health risk prioritization processes and eventually conducted a study of the data collected by the commander in a survey. His secondary role was that of advisor and facilitator to the community team process and to these community nursing professionals. The role of advising and participating in the community group as more than a neutral observer mirrors the role researchers often find themselves in with community action research methods.[93, 94] Central to the experience is the expectation that both the researcher and the community learn from the process.[95] Further discussion of this role is commented on in Chapter 6.

Well-being Survey

The 2000 DivArty survey was developed under the direction of the Commander of DivArty. His choice to use a survey to assess his community follows accepted scientific practice for an ecological assessment.[96, 97] Surveys are often used to regularly assess the population's health.[98] His use of focus group results to enhance the development of the survey brought in a qualitative enhancing of the quantitative instrument.[87] The survey was designed by a multidisciplinary team and was made available both in print and online formats. The researcher provided technical assistance to this community group in their development process. In addition to questions developed to address the success of the

BSRF program in building useful life skills, the survey also included the SF-12 Mental and Physical Health measurement questions to measure overall physical and mental health. The online survey was administered in the summer of 2000 and the print survey was completed by soldiers in September, 2000. The survey was provided to all active duty personnel.

Because unit personnel did not randomly attend the BSRF program, the analysis took into consideration a significant selection bias. In fact, commanders encouraged personnel with a history of communication problems to attend the first few BSRF program offerings. Additionally, the analysis conducted was limited to non-parametric testing procedures due to the non-normal distribution of the SF-12 results. Skewness and Kurtosis statistics confirmed non-normal distribution as well. Because of these two major limitations and due to its retrospective study design, no cause/effect relationships were reported.

During the analysis, the researcher coded some survey questions to allow descriptive, bivariate and multivariate analysis. In some cases, categorical answers were coded into simple yes/no responses to allow further analysis. Twelve questions on the survey were taken from the SF-12 Mental and Physical Health instrument and, through an SF-12 algorithm, were converted into a mental health score and a physical health score. The SF-12 response means for the two response groups were compared. DivArty overall mental and physical health SF-12 scores were then compared to publicly available (via the web site for the 1998 Annual Health Care Survey of DoD Beneficiaries) SF-12 physical and mental health scores for the Tripler AMC catchment area beneficiaries and the other TRICARE Region 12 catchment area scores.

While the vast majority of the findings included are descriptive outcomes, statistical inference is identified where non-parametric testing shows statistical significance. Multivariate analysis was conducted on two dependent variables – the SF-12 mental health scores and the responses to the survey question querying satisfaction with life. The SPSS 10.0 program was used for data analysis.

The SF-12 was considered by the study co-principal investigators as a reliable measure of the mental and physical well-being of the respondents. The survey design team agreed to include the SF-12 questions due to the use of the SF-12 as part of the national health survey (Annual Health Care Survey of DoD Beneficiaries) conducted by the Department of Defense. Additionally, numerous investigators and health care delivery organizations have adopted the SF-12, including the National Commission on Quality Assurance, which chose the SF-12 for its Annual Member Health Care Survey, and also the nationally-recognized Pacific Business Group on Health, which was one of the first to use it in monitoring outcomes for San Francisco Bay Area health plans.[99] Reliability and validity are shown to be high in multiple case studies in peer-reviewed literature.[100]

The use of action research methods and a well-being survey provided the underlying design and methodology for a community group to address well-being issues. The next chapter will thread this design into a military community environment. From the inception of community concern and activity, through their team building and action process, through to their chosen interventions, this community was able to show how these basic design theories can translate into successful outcomes.

Chapter 4

The Community Health Process Action Team

The ongoing processes of bonding and bridging among members from various segments of the community form a complex union that powers community capacity and provides a means to achieve community results.

Gary Bowen, Building Community Capacity:
A Manual for U.S. Air Force Family Support Centers [9]

Initial data from community stakeholders, a new inprocessing screening program and focus groups convinced the unit they needed to take action to improve community well-being.

Through a series of retreats and meetings, a new health process action team assessed the community, identified priorities and developed interventions.

A major communications course, Building Strong and Ready Families, was offered to community members.

This chapter documents the community process action team's actions as they build community capacity through their research and interventions and achieve meaningful results. It also outlines the data collected by the researcher as background for training and assisting the PAT as it began to assume the role of defining the community's priority health risks. Initial data collected by the community nursing personnel and shown to the process action team during the retreats is presented to show the extent of data they had to assess the needs of the community. Community nursing also conducted focus groups of spouses and the results obtained were used to inform the retreat attendees – those results are also reported. The Building Strong and Ready Families Program, a pilot program at first, and then adopted formally after the retreats, is described for reference. This highly successful program was the focus of the commander's survey that was evaluated retrospectively by the researcher. Finally, the PAT process is outlined. Each of the retreats and follow-on meetings are detailed as documentation of the step-by-step nature this community took to improving community health.

Initial Data

Community Health Nurse Screening Program

Initial data was obtained from a new community health screening program initiated by the community health nursing department of the Tripler Army Medical Center. All new arrivals into DivArty were asked to participate voluntarily by filling out the standard TRICARE enrollment survey (standard for enrollment in TRICARE), filling out a genogram form (described below), and submitting their medical records for review. A nurse then took this information and reviewed it for health risk identification. Of special note was the use of

information reported on the health risks of the client's parents and grandparents. Taking advantage of knowledge gained in recent studies on the role of adverse childhood events as a predictor of future health risks, nurses used the client's genogram to discuss past risk as a potential predictor of current and future risk.[65] Clients then met with the nurse to go over the potential health risks and set up follow-on appointments as was felt necessary by the client. Since this screening was conducted for the entire family at one time (individual interviews were conducted after both spouses completed forms), the net result is a thorough look at all of the health issues in a given family. The goal is to complete this "family profile" and link community services to the identified family needs.

Figure 8 is the genogram form used for respondents to self-report health risks:

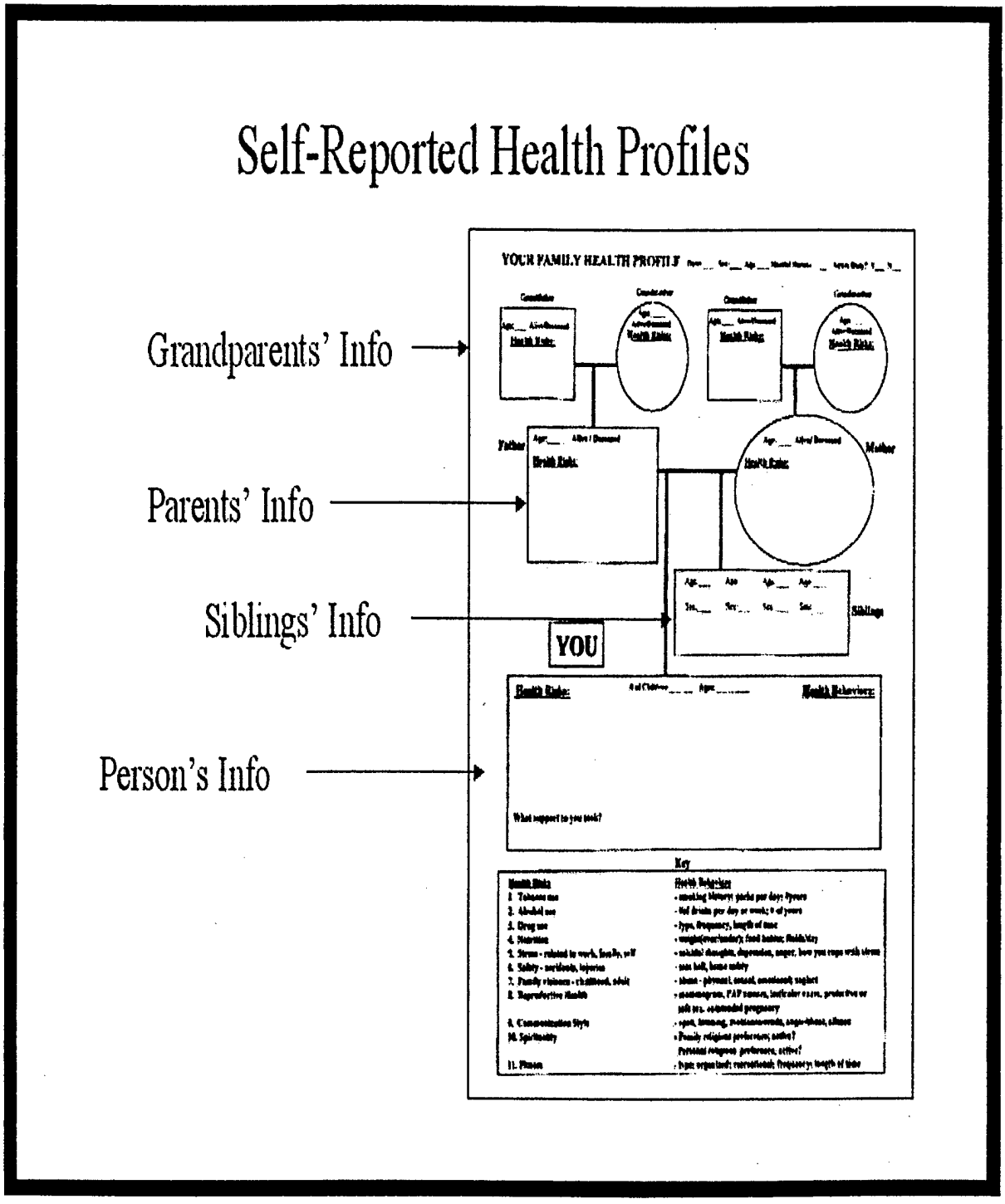

Figure 8. Genogram form

The participants were asked to list health risks for themselves, their family, their parents and their grandparents. Their listed health risks were then transferred to summary data charts for the DivArty command to review. Figures 9-11 represent the health risk responses for the client (active duty singles, active duty married and spouses), their father and their mother.

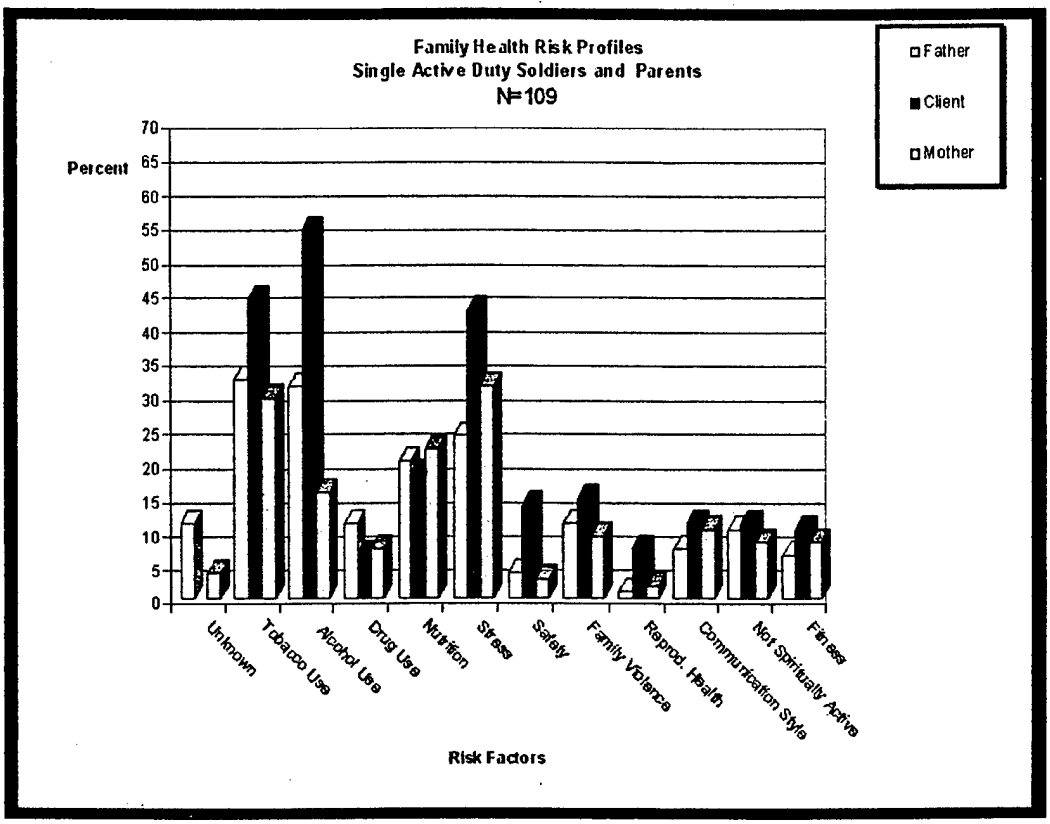

Figure 9. Self-reported health risks as identified by DivArty single soldiers during screening[83]

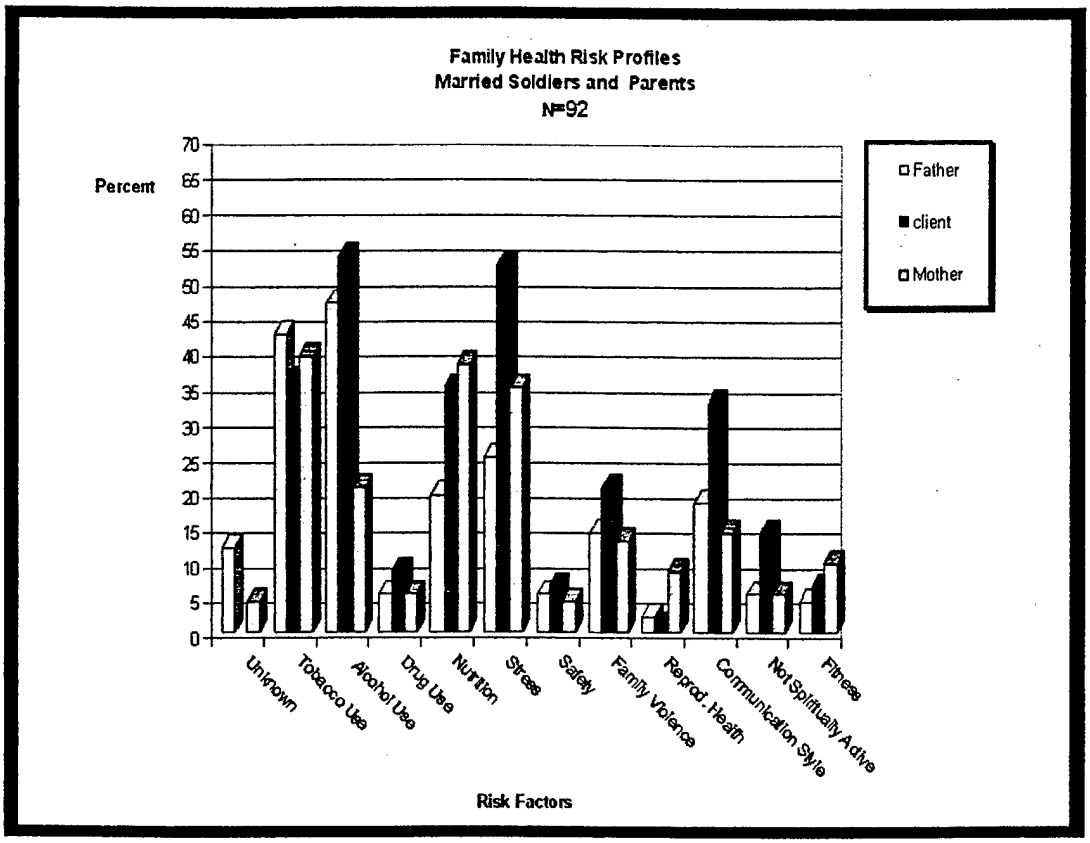

Figure 10. Self-reported health risks as identified by DivArty married soldiers during screening[83]

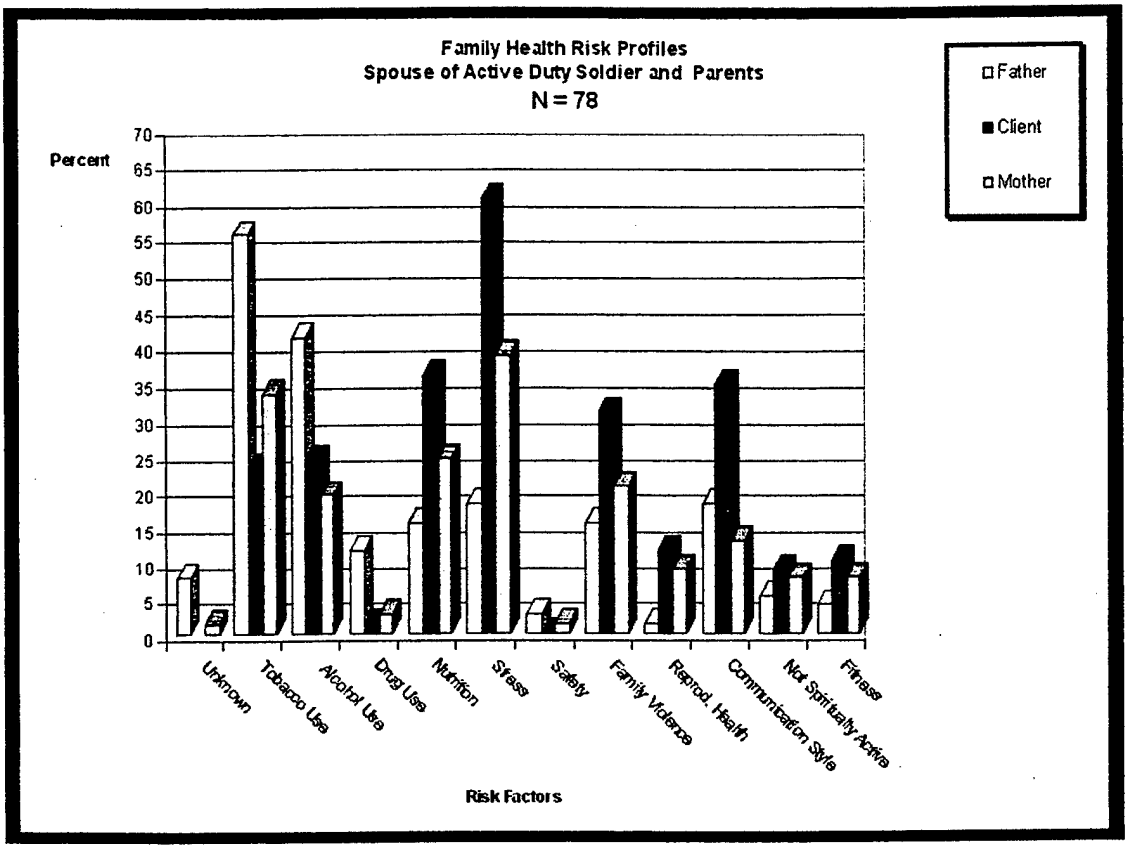

Figure 11. Self-reported health risks as identified by DivArty soldier's spouses during screening[83]

As a further effort to collect health data and describe community health status, a full-time employee of the community nursing department completed community focus groups and genograms on active duty soldiers.

Genogram Results with DivArty Active Duty

As a part of the community research for the DivArty command (funded in part by an Army health promotion initiative), genogram information was collected on the active duty soldiers during special group briefings on health. These were collected separately from those collected under the previously described screening program. Soldiers were given a briefing on the background of the genogram (briefing was anywhere from 15 minutes to 1 hour long)

and then the soldiers were asked to fill out the genogram. The results were are depicted in Figures 12 and 13. Only the responses from the client were reported to the DivArty command. These responses were later compared to responses obtained on the DivArty Commander's survey.

Figure 12. Married Soldier's Self-Reported Health Risks From 1999 Genogram Responses

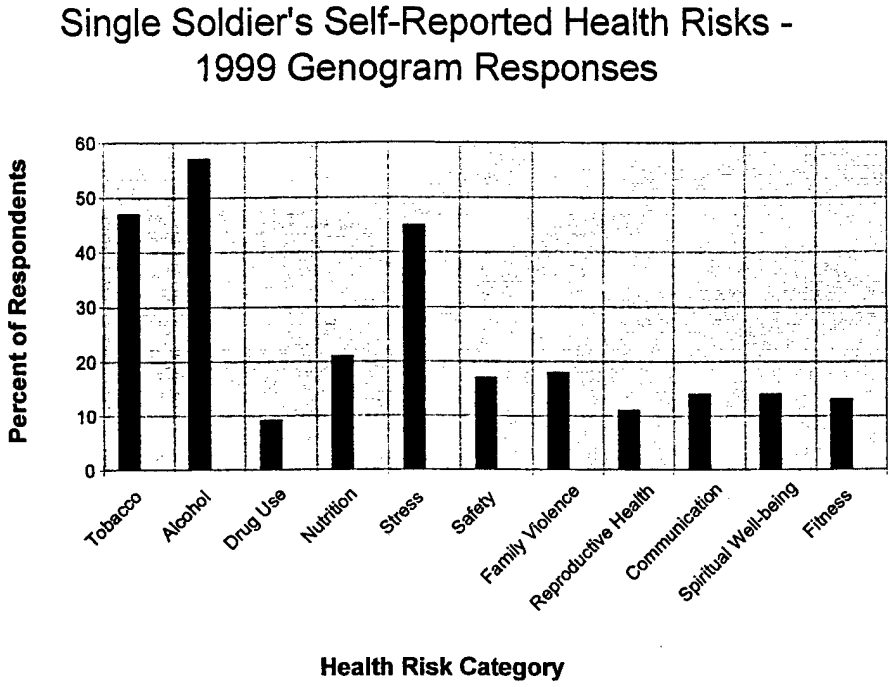

Figure 13. Single Soldier's Self-Reported Health Risks From 1999 Genogram Responses

In summary, the initial data obtained from the screening program genograms and special active duty group genograms revealed levels of health risk in stress, alcohol use, tobacco use and communication skills that concerned not only the community health nurses but also the command. To better clarify these concerns, focus groups were held.

Focus Groups

Two focus groups were conducted with volunteer spouses from the community to give input to the community health nurses on issues facing community families. Two groups of 10 spouses met on 13 May and 9 June, 1999. The selection of spouses was non-random – the community was asked for volunteers and these spouses self-selected. The purposes of the focus groups were to:

- Value the necessity to conduct a family skills building course,
- Brainstorm issues confronting military families, and
- Brainstorm ways to strengthen access to information, support services and resources.

Key findings:

- A family skills building course was needed and would be highly valuable,
- Sponsorship programs were not meeting the needs of new families,
- Information gaps existed and were serious, especially with regard to access to resources, support services, spiritual support, employment opportunities and community connections,
- Isolation upon arrival in Hawaii was very high, and
- There were severe child care and transportation problems.[100]

Recommendations offered by the focus groups attendees:

- Make the "Building Strong and Ready Families (BSRF) Program mandatory, keep using the Family Health Risk Profile tool,
- Have child care available at the BSRF program,
- Continue this process of focus groups to get continuing input from spouses,
- Strengthen the formal Army Family Support Group – make it mandatory for soldiers,
- Focus more on new arrivals – make them feel more welcome,
- Have a web site available on DivArty,
- Have a flyer with spiritual services information on it available to new families, and
- Create a new family fact sheet on the web, have new assignees fill it out prior to coming to the island, match their needs to service personnel before they arrive on island.

Building Strong and Ready Families Program

In response to community needs identified by the family profile screening, the active duty genograms and the focus groups, a trial pilot program was improved and formalized by the community called Building Strong and Ready Families (BSRF). Administered cooperatively by the chaplains and the community health nurses, this program was piloted in response to

the growing concerns about family stress and family communication weaknesses in the community. The stated purpose of the program was to:

- Institute a program that focused on proactive and preventive efforts versus reactive – "reorient the team" – this would be a time issue for commanders,
- Focus - Develop self sufficient families ....eradicate domestic violence, and
- Tackle the issue of domestic violence. These cases directly affected readiness and were generally complicated with numerous underlying direct and indirect causes.[83]

Conducted in three distinct instructional levels, the program was open to all personnel in the DivArty community. The levels consisted of the following topics depicted in Figure 14:

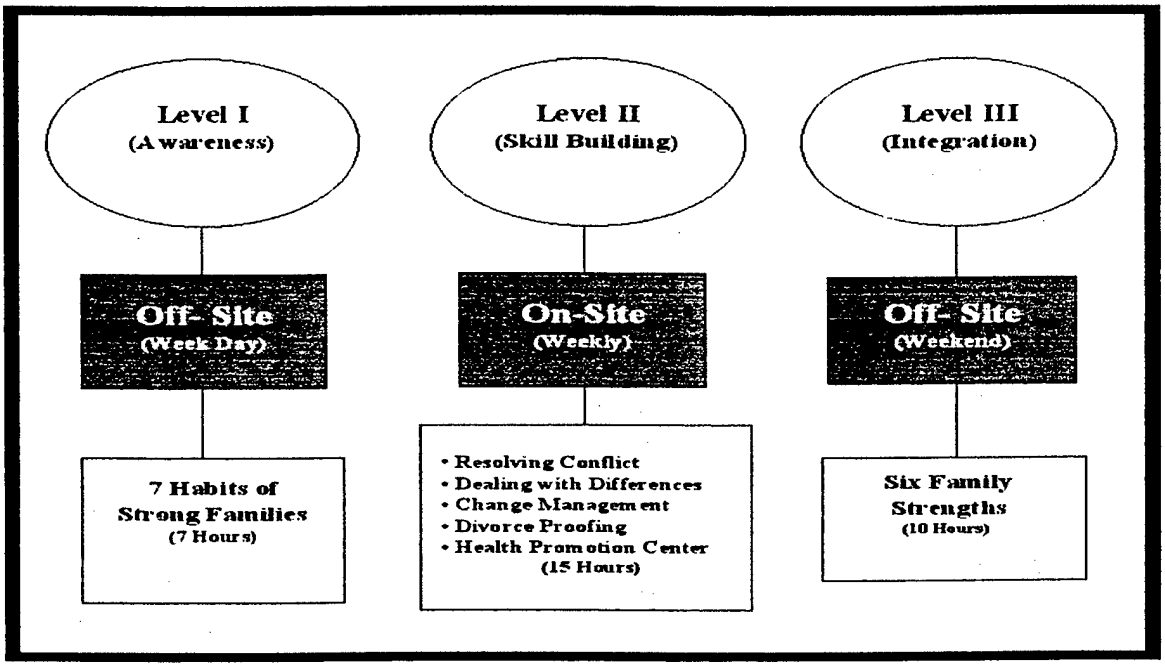

Figure 14. Building Strong and Ready Families Program Levels[83]

DivArty Process Action Team

In response to indications that well-being within the DivArty community needed immediate attention, the commander of the unit called together the PAT. The goals of the team were to:

- reframe the definition of health from illness-centered to well-being centered, with an appreciation for how health affects mission readiness
- assess the health of the DivArty community,
- redirect resources to programs that address the community's top health concerns,
- reduce factors that lead to family stress,
- build a monitoring system to track the health of their community (a Commander's Health Status Report), and
- improve the community's well-being.

The membership reflected all elements of the community with a direct impact on health – the commander and his senior executive officer, the senior enlisted person in the command, and representatives from community services, the single soldier's group, the spouses group, the fitness center, nutrition services, Equal Opportunity counseling, chaplain services and the troop physician. The commander decided to have two retreats to get things started (run by the researcher) and then formed sub-PAT teams to work on the resulting action items.

Retreat #1

The purpose of the first retreat was to train PAT members on a broader definition of health, discuss the role they play in community health, brainstorm their collective thoughts on the health concerns facing their community and identify next steps.

The researcher started the retreat with the newly formed PAT team with a discussion of the definition of health. After brainstorming discussions on what they felt health was, the

following definition (adapted from the World Health Organization definition) was then outlined for them: health is a balanced state of well-being involving harmonious interaction of body mind social/spirit ***not merely the absence of illness or disease.***

Within this context, the team was asked to think about the role medical providers, genetics, behavior and environment play in their attainment of this definition of health. The researcher's goal was to get the team to recognize the relatively minor role medical care and genetics play in health. They were informed of CDC reports that show over 70 percent of what contributes to one's health comes from one's environment and behavior – both under the direct influence of the community and community leaders.

When asked to list their health risks - risks that they should now look at within the context of owning responsibility for health - the team identified the following list:

- Smoking
- Stress
- Attitude
- Reproductive issues
- Access to health care
- Finances (bills)
- Relationships
- Depression
- Pollution/high temperatures
- Spiritual void/disconnect
- Alcohol
- Social stress
- Exercise
- Diet/food
- Drugs
- Stress in the family
- Genetics
- Operation tempo
- Bad command climate
- Policies that are unhealthy

The team then decided they needed to have another retreat to prioritize their top community health issues and develop action plans.

Retreat #2

The same members of the PAT met again for a second retreat. The following rules were adopted by the team to guide brainstorming: (1) capture thoughts, (2) no interrupting, (3) no story telling.

They then discussed the various health risks faced within their community. The researcher played the role of facilitator again along with the support of the Chief of Community Nursing. Each member was asked to think not only for themselves when listing their opinion of community health risks, but to also think of the response they would get from the members of the part of the community they represented. The following represents the areas they outlined and discussed. After the list was completed and every member had spoken, the facilitator guided them through consolidation of like items. The group was then asked to voice their opinion of what problems were most critical to community health and the findings were:

- Transition Issues
- Using Services on a Reactive/Crisis Mode
- Poor tools for "good marriage" skills
- Depression/Loneliness
- Family Violence
- Tobacco use
- Alcohol use
- Drug use
- Fitness / Nutrition Problems
- Reproductive Health
- Spirituality Issues
- Communication Problems
- Lack of Knowledge of Post Information/Services
- Very young group from different life experiences
- Children's education program is poor
- Lack of places for teens to go

The team then was guided by the researcher through a nominal group process to prioritize the community health risks: each member was given 30 points (used numbered stickers).

Each person was limited to putting no more than 10 points on any one item. The final prioritized categories according to vote were:

87	Transition issues
52	Lack of knowledge
39	Children's issues
34	Alcohol
29	Fitness/Nutrition
25	Marriage skills
23	Spiritual issues
21	Communication
19	Reactive/crisis responding
15	High expectation among young
14	Depression/loneliness
14	Lack of place for teens to go
11	Family violence
11	Tobacco use
8	Drug use
0	Reproductive health

Action Planning

The commander then assisted the group process by authorizing sub-process action teams to look at these issues. Four sub-teams were formed with membership selected by the commander (appointed team leaders) and team leaders (appointed team members). The sub-teams were:

Team 1: Transition and Information - Key issues were:

- Sponsorship broken
- No welcome
- Young sponsors
- Non-caucasian spouse issues
- Hawaii is like foreign country
- Sense of isolation

- Lack of information on how to find a job
- Lack information on community services
- Not recognizing individual needs
- Fragmentation
- High expectations – some given poor information on what to expect
- Do not know what to expect
- Realistic expectations training

Team 2: Relationship Skills - Key issues were:

- Marriage skills
- Communication skills
- Spiritual issues
- Crisis response
- Depression & loneliness
- Family violence

Team 3: Child and Youth - Key issues were:

- Poor education in schools
- Bad conditions in school
- Special education needs
- Youth activities
- Need better behavioral medicine help at TAMC

Team 4: Soldier and Family Health, (focused on the unhealthy behaviors detracting from family wellness and unit readiness) - Key issues were:

- Alcohol
- Nutrition
- Fitness
- Tobacco

These key issues highlight many of the same issues faced in civilian populations – especially those in poorer neighborhoods.[60, 101, 102] The analysis chapter will link the previously discussed theory and research on these issues to this military community and their chosen key health issues.

Program Interventions

The interventions that emerged from these four teams were identified in 2000 as the following[103]:

- Establishment of a permanent Building Strong and Ready Families Program based on the pilot program, which included the chaplains and community nursing personnel in the process and received funding for all levels of the program into FY 2001.
- Establishment of a new family newcomer's tour: built awareness of support services among the newly arrived families – tour included visiting the health clinics, chapels, family fitness center, and daycare.
- New family health inprocessing: several of the DivArty batteries (sub-elements) were directed to start a "family inprocessing" link to the community nursing center. Inprocessing checklists now included this site to encourage awareness of the community nursing services and allowed family health profiling.
- A new information fact sheet/form was introduced into the welcome packet to provide better information on support services in DivArty.
- A web site was found to be needed by the PAT and sub-PATs, but a DoD–wide initiative to make information available online for all bases solved the problem. This data link included DivArty's community (Schofield Barracks) and had useful links to information on schools, healthcare, housing and employment opportunities.

These interventions continues throughout the first year of the PAT. A new commander joined the organization and he called a planning conference to discuss the organizational climate.

2000 DivArty Planning Conference

As a follow-up to the PAT activities and as a welcome briefing to the new commander on the issues facing DivArty, a planning conference was held in August 2000. The formal PAT team did not meet. Instead, a one-time well-being sub-group met including selected members of the community to reaccomplish the activities completed in the first two retreats. This new look at the issues facing the DivArty was seen by the new command as the best way to follow-up the earlier PAT activities. The results of the meeting were:

Initial discussions included a brief revisiting of the meaning of health in a community well-being context. The group then brainstormed what their current key community wellness issues might be. The following areas were identified:

Feelings of Isolation
Nutrition/Fitness
Lack of Knowledge about Single Soldier's Programs (BOSS)
Information Flow about Unit is Poor – lots of rumors
Lack Basic Life skills (children's health, finances)
Money Management
Family Readiness Group – FRG
Marital Issues
Housing
Substance Abuse (Alcohol/Drugs)
Transition Issues

Modified Nominal Group Technique: members of the group placed post-it notes on each item to vote for the most critical wellness issue, each member got 20 yellow and 4 green notes– the green were worth 5 points each and the yellow were worth 1 point each. They

were asked to place no more than 10 points on any one item and to not be influenced by the number of points already placed on an item by other voters.

Results

1.	Housing	120
2.	Soldier/family have poor life skills/lack of knowledge	115
3.	Information Flow	58
4.	Isolation	55
5.	Transition Issues	52
6A.	Marriage issues	50
6B.	Alcohol/Drugs	50
7.	Money Management	40
8.	Nutrition Fitness	26
9.	Spouse Employment	6

The top four were discussed for an additional few minutes and theses clarifying comments were added:

1. Housing – Need to better prioritize new housing
2. Poor life skills/lack of knowledge – need better family in-processing through Community Health Nursing
3. Need better support agency information for new family members
4. Isolation – need field trips at battery level.

Three single soldiers were asked to represent the singles and asked their three most important issues. Their responses were:

1. Lack of knowledge	1. Housing	1. Lack of knowledge
2. Housing	2. Lack of knowledge	2. Marriage skills
3. Information flow	3. Information flow	3. Information flow
4. Money		4. Money

They then brainstormed how these issues lead to downstream problems. They came up with this graphic depiction:

Figure 15. Single soldier's graphic depiction of how key stress issues lead to problems

SUMMARY:

Last year's issues	This year's issues
Transition issues	Housing
Lack of knowledge	Lack of knowledge/family skills
Children's issues	Info flow
Alcohol	Isolation
Fitness/Nutrition	Transition Issues
Marriage skills	Marriage issues
Spiritual Issues	Alcohol/drugs
	Money management
	Nutrition/fitness
	Spouse employment

August 2000 Commander's Meeting

The new commander met with the researcher and members of the community nursing department from Tripler Army Medical Center. The intent was to brief him on the community process action team process to date and to suggest two studies. The first study suggested was a retrospective analysis of the commander's survey. The community nursing department also requested permission to conduct another case/control study of the BSRF program. Both studies were approved.

February 2001 Commander's Meeting

In February 2001, the survey study conducted by the researcher was completed and an outbrief was given to the commander. The details of the survey study are contained as a separate chapter to this dissertation.

The commander found the data "extremely useful" and decided to continue the BSRF program and to take immediate steps to reduce the unit's problems of excessive alcohol consumption and driving while intoxicated.[71]

Chapter 5

Findings

♦

BSRF [Building Strong and Ready Families Program] made a very positive impact in my life and marriage. We learned how to communicate better in our marriage and reduced stress at home. It also let me know that the chain of command cares for me as a soldier and my family. The spiritual emphasis was helpful too.

Anonymous survey response
DivArty Community Well-being Survey 2000

♦

A retrospective analysis was conducted on the DivArty commander's Community Well-being Survey 2000

Descriptive findings indicated overall positive outcomes related to attendance in the family communications course

The attendees to the course had higher reported mental health scores than those who did not attend – a striking finding given the initial attendees were often the more stressed families

This chapter outlines the findings from a retrospective analysis of the DivArty commander's 2000 DivArty Survey data set. The co-principal investigators received permission from the Tripler AMC Clinical Investigations Institutional Review Board to proceed with a study of the survey data and were assigned study number TAMC 78S00. In November 2000, final data and comments from the survey were forwarded to the investigators for study. Of the initial data received, survey responses from non-active duty and survey responses with incomplete SF-12 data were removed from the data set. Of the active duty population of approximately 1200 soldiers, a total of 675 complete surveys were used for this analysis for a response rate of 56 percent. Query into any definitive difference between the respondents and non-respondents failed to turn up any specific pattern of difference. Approximately 104 surveys were found to have incomplete SF-12 questions or were from non-active duty members. The remaining missing surveys were thought to be mostly members of DivArty on leave or off-post training on the days the hard copy surveys were first distributed. There was no indication of one specific population non-volunteering for the survey, although, the lack of specific knowledge in this area is a weakness of the survey methods.

The retrospective nature of the survey, the lack of normal distribution on the SF-12 scores and the nonrandom nature of participation (selection bias) prevented a valid quantitative causational interpretation of the results. The accuracy and credibility of these findings were interpreted by the DivArty command in light of the multi-factorial nature of health in the social and environmental setting of the DivArty community.

For the analysis reporting, any results shown with a significance value greater than .05 but at or less than .1 were annotated as "questionable significance". It was expected that this level of significance, while exceeded in most cases in the results shown, was appropriate for social science use and provided helpful information to the DivArty audience.[38, 87, 96, 104, 105] This study was meant to inform a community process action team of survey results that had a potential to inform the original goals of their survey – knowledge of the success of their group's interventions and understanding their community's overall health. To be a successful study, useable for their purposes, the DivArty commander was instructed to view the results in the context of all of his data and knowledge concerning the community. Appendix 2 contains the detailed SPSS statistical runs used in developing these findings. The specific details are provided for each finding listed in the following section.

Major Univariate and Bivariate Descriptive Findings

- Respondents were 95 % male, 61% married, 92% enlisted, and 43% white (non-Hispanic)

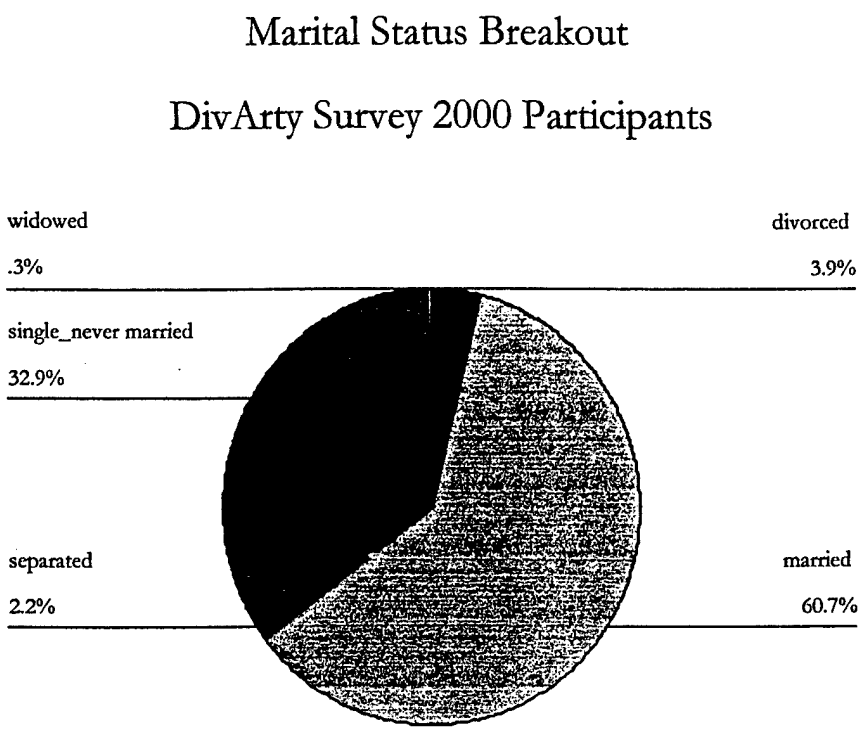

Figure 16. DivArty Survey Participant Marital Status

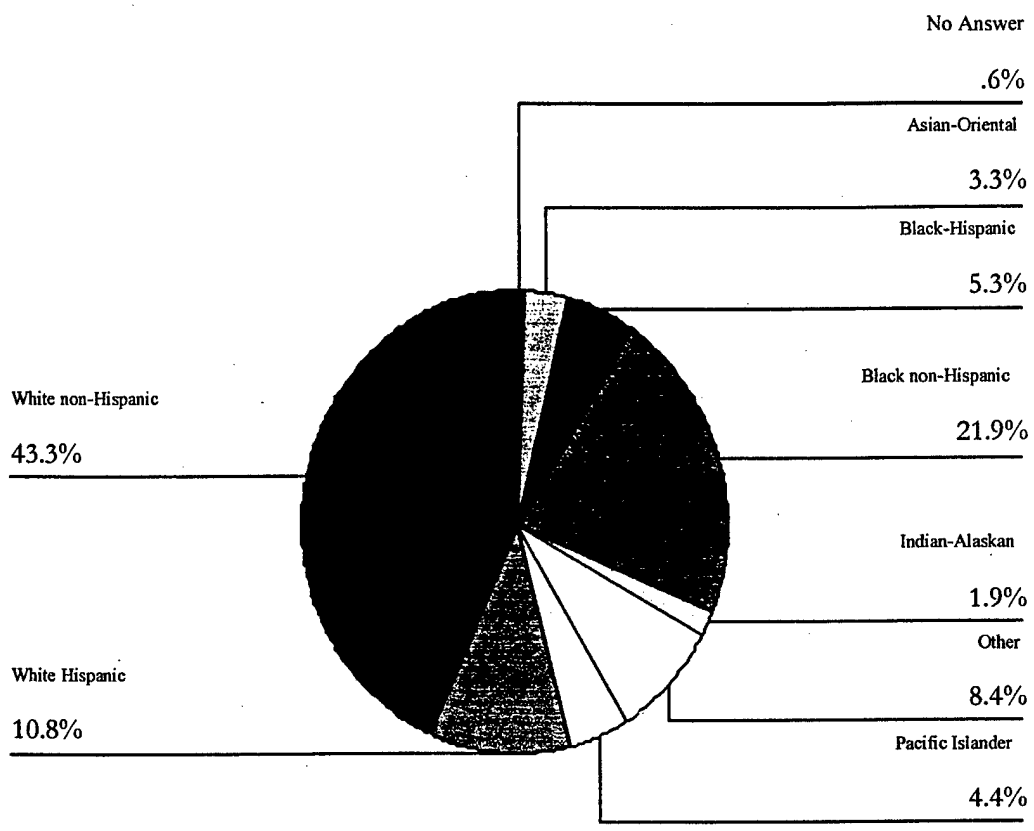

Figure 17. DivArty Survey Participant Ethnicity

- 26% of respondents had attended BSRF (n=174)
- Of those who attended BSRF, the graph below shows the total attendance by level:

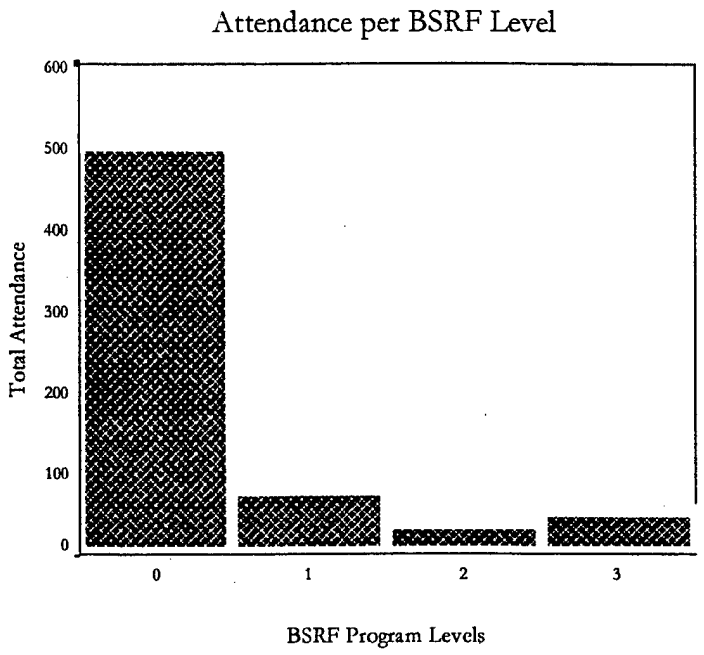

Figure 18. DivArty Survey Participant Reported Attendance per BSRF Level

- 69 percent of those who attended BSRF said it improved their relationship with their spouse/significant other
- The BSRF program is administered in three phases or levels. The survey allowed for analysis across various participation levels. Respondents reported an improvement in relationships with their spouse/significant other due to skills learned in the BSRF program in the following reported percentages by BSRF participation level: level 1 at 58%, level 2 at 80% and level 3 at 79%
- 49% of those who attended BSRF said it improved their work relationships
- BSRF learned skills improved work relationships of attendees in the following reported percentages: level 1 at 46%, level 2 at 44% and level 3 at 59%
- 63.7% of those who attended BSRF said it improved their life

- BSRF learned skills improved the life of attendees in the following reported percentages: level 1 at 55%, level 2 at 62% and level 3 at 78%
- 38% of BSRF attendees reported BSRF improved their mental health
- Participants who attended at least two levels of BSRF were 4.7 times more likely to report improved mental health than those who attended just one BSRF level (p=.03)
- The people who reported they attended BSRF attendees were likely sicker than those who had not yet attended BSRF – they were 9 times more likely to visit the ER or acute care in the past year (p=.003) and 13 times more likely to be taking six or more prescription medications (p<.001).
- 76 people (11.3%) self-reported they had driven after drinking too much in the past month (11 people reported doing it over 7 times in the past month)

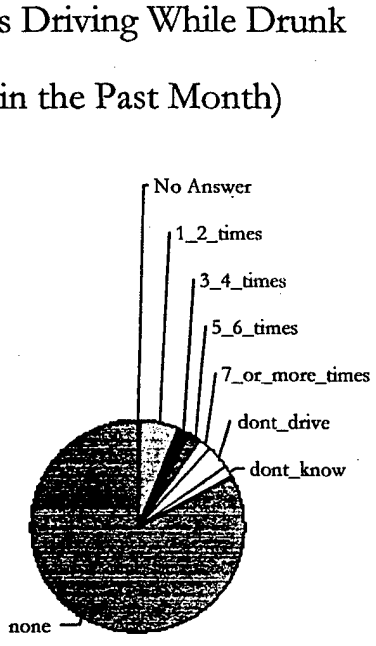

Figure 19. Reported DUIs per Month

- The following highlights all of the percentages of survey respondents who reported driving after drinking too much in the past month: overall: 11.3% (76 people); 1-2 times: 5.8% (39 people); 3-4 times: 1.9% (13 people); 5-6 times: 1.9% (13 people); 7 or more times: 1.6% (11 people).
- Survey respondents who reported a need to cut down on their drinking in the past month: 14.6 % (95 people)
- Those who attended BSRF were 7.1 times more likely to report driving this past month after drinking too much ($p=.008$). Selection bias is an obvious potential reason for this. The higher risk personnel were encourage to attend BSRF first and it makes sense this group would have higher levels of risky behavior.
- Those who attended BSRF reported a decrease in inappropriate alcohol use in the following percentages by level of BSRF training: level 1: 5%; level 2: 8%; and level 3: 12.5%.
- When asked to report their level of worship, 56% reported they do not attend any worship service, 15% attend infrequently, 19% attend off post and 10% attend on post
- Personnel who attended BSRF were 21 times more likely to seek assistance from a chaplain this year ($p<.001$). The value of this result is questionable given the selection bias present. Chaplains did encourage higher risk families who were seeking their assistance prior to the introduction of the BSRF to attend the BSRF program. The question that remains, then, is whether BSRF attendees were 21 times more likely to seek assistance *prior* to the BSRF program. Research without selection bias would be needed to answer this question thoroughly.

- BSRF-learned skills improved reported spiritual health of attendees in the following reported percentages: level 1 at 22%, level 2 at 23% and level 3 at 31.5%
- Compared to white (non-Hispanic) respondents, all other races are 3.8 times more likely to report a "fair" or "poor" general health status. (p=.051 – of questionable significance)
- 57% of BSRF attendees were non-white – similar to the percentage of the unit
- Enlisted personnel were 6.685 times more likely to report a "fair" or "poor" general health status than officers. (p=.01)
- 92% of BSRF attendees were enlisted

Multivariate Findings

Multiple regression analysis was conducted on two models. The first model used the SF-12 Mental Health Score as the dependent variable and gender, race, military status, marital status, level of worship, BSRF attendance, utilization of acute health services, time on the island, satisfaction with work relationships and satisfaction with partner relationships as the independent variables. The results showed only a very small R^2 of 12% (percentage of change in mental health score explained by this model) and three statistically significant relationships: the longer one is on the island, the better the mental health score (p=.03); the less satisfied one is with work relationships, the lower the mental health score (p<.001); and, the less satisfied one is with partner relationships, the lower the mental health score (p=.021).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.349[a]	.122	.098	8.7932163

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, Are You Married, Are You an Officer, TIMEOAHN

b. Dependent Variable: SF-12 Mental Health Score

Table 1. Multivariate Model R-Squared Summary with Dependent Variable SF-12 Mental Health Score

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3942.343	10	394.234	5.099	.000[a]
	Residual	28376.679	367	77.321		
	Total	32319.022	377			

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, Are You Married, Are You an Officer, TIMEOAHN

b. Dependent Variable: SF-12 Mental Health Score

Table 2. Multivariate Model ANOVA Summary with Dependent Variable SF-12 Mental Health Score

Coefficients

Model		Unstandardized Coefficients B	Std. Error	t	Sig.
1	(Constant)	49.806	1.509	33.007	.000
	Gender	-1.774	3.217	-.551	.582
	Are You Married	.518	1.208	.429	.668
	Did You Attend BSRF	.497	1.001	.497	.620
	Are You an Officer	1.802	1.641	1.098	.273
	Are You White (Non-Hispanic)	3.589E-02	.944	.038	.970
	TIMEOAHN	.140	.065	2.165	.031
	Ever Active in Worship?	.387	.940	.411	.681
	Any Visits to ER or Acute Care in Past Year	-.648	.983	-.658	.511
	Are You Happy With Your Spouse/SO Relationship?	-3.015	1.299	-2.321	.021
	Are You Happy With Your Work Relationships?	-5.015	.937	-5.356	.000

a Dependent Variable: SF-12 Mental Health Score

Table 3. Multivariate Model Variable Summary with Dependent Variable SF-12 Mental Health Score

The second model used the survey respondent's satisfaction with life as the dependent variable. The independent variables were gender, race, military status, marital status, level of worship, BSRF attendance, utilization of acute health services, time on the island, satisfaction with work relationships and satisfaction with partner relationships. The results showed only a very small R^2 of 14% and four statistically significant relationships: the longer one is on the island, the better one's satisfaction with life ($p=.001$); the less satisfied one is with work relationships, the less satisfied one is with life ($p<.001$); the less satisfied one is with partner relationships, the less satisfied one is with life ($p=.059$ – questionable significance); and, if one is an officer, one is more likely to report being more satisfied with life ($p=.067$– questionable significance).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.368[a]	.136	.112	.80

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, TIMEOAHN, Are You an Officer, Are You Married

b. Dependent Variable: Satisfaction with Life

Table 4. Multivariate Model R-Squared Summary with Dependent Variable Satisfaction With Life

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.914	10	3.691	5.730	.000[a]
	Residual	235.126	365	.644		
	Total	272.040	375			

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, TIMEOAHN, Are You an Officer, Are You Married

b. Dependent Variable: Satisfaction with Life

Table 5. Multivariate Model ANOVA Summary with Dependent Variable Satisfaction With Life

Coefficients

Model		Unstandardized Coefficients B	Std. Error	t	Sig.
1	(Constant)	2.791	.138	20.156	.000
	Gender	.154	.294	.525	.600
	Are You Married	-3.428E-02	.111	-.308	.758
	Did You Attend BSRF	.120	.092	1.306	.192
	Are You an Officer	.276	.150	1.840	.067
	Are You White (Non-Hispanic)	1.165E-03	.086	.013	.989
	TIMEOAHN	1.990E-02	.006	3.362	.001
	Ever Active in Worship?	-9.764E-02	.086	-1.135	.257
	Any Visits to ER or Acute Care in Past Year	-.121	.090	-1.344	.180
	Are You Happy With Your Spouse/SO Relationship?	-.224	.119	-1.891	.059
	Are You Happy With Your Work Relationships?	-.465	.086	-5.424	.000

a Dependent Variable: Satisfaction with Life

Table 6. Multivariate Model Variable Summary with Dependent Variable Satisfaction With Life

Due to selection bias for those who participated in the BSRF, a multiple regression model was not seen as a valid model when attendance at BSRF was used as the dependent variable.

Population-Level Findings

One survey question was developed to assess various health risks that respondents felt they currently face - soldiers responses to the question "identify where you believe you are at health risk at this time" were:

Health Risk Category	Single Respondents Reporting Belief They Have This Health Risk	Married Respondents Reporting Belief They Have This Health Risk
Stress	35%	31%
Tobacco	33%	32%
Alcohol	14%	9%
Nutrition	13%	10%
Spiritual Well-being	9%	8%
Fitness	7%	11%
Communication	7%	5%
Safety	7%	5%
Reproductive Health	3%	2%
Family Violence	1%	2%
Drug Use	1%	1%

Table 7. Single and Married Survey Responses to Self-Perceived Health Risks

The intent of the survey developers was to ask this question as a close approximation of the responses to self-reported health risks taken from the genograms through August 1999.

Discussions with the briefing teams and developers of the genogram during this study has led to the belief that comparing the responses from these two sources is now thought to be of questionable value. The genogram-reported health risks were reported by personnel after a 15-60 minute advance briefing on the health risks. The survey, however, did not have any advance briefings prior to the respondents recording their answers. While both give a population-level view of self-perceived health risks, any presentation of this information must inform the audience of the two very distinct methods by which the data was collected. This study will not draw conclusions from the difference in the two population level results. It should be left to the DivArty community PAT to determine the comparative value of these data.

The previously shown 1999 genogram results are shown again to allow for a cross-table comparison of reported health risks. Married soldiers are shown matched on the first page (Figures 20 and 21) and single soldiers are matched on the following page (Figures 22 and 23).

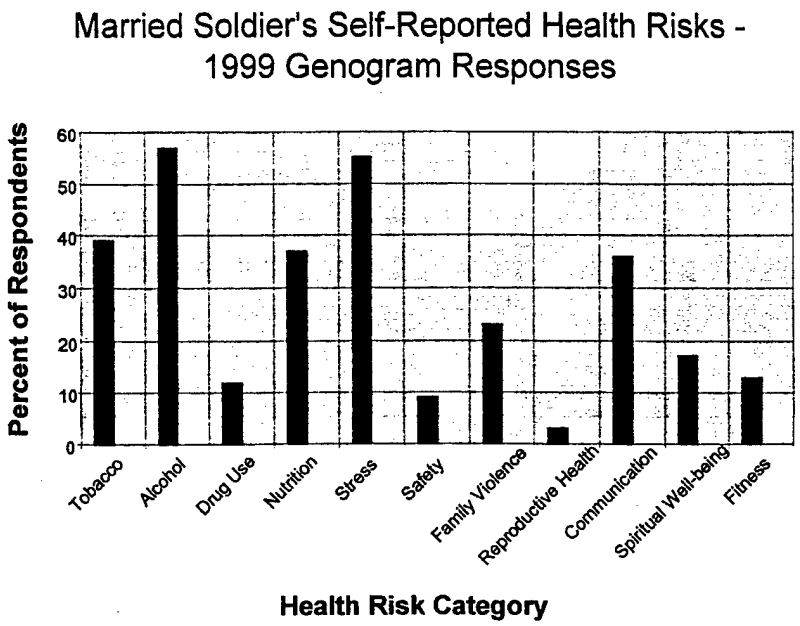

Figure 20. Married Soldier's Self Reported Health Risks – 1999 Genograms

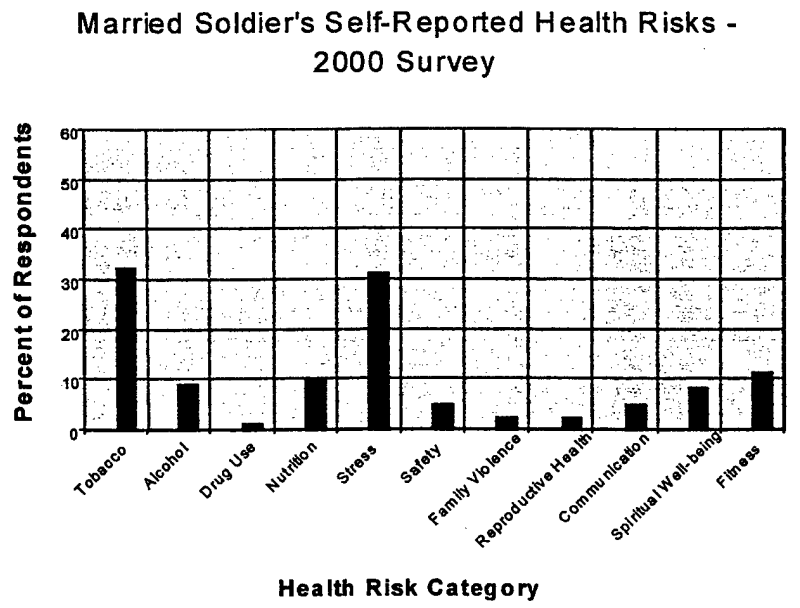

Figure 21. Married Soldier's Self Reported Health Risks – 2000 Survey

Figure 22. Single Soldier's Self Reported Health Risks – 1999 Genograms

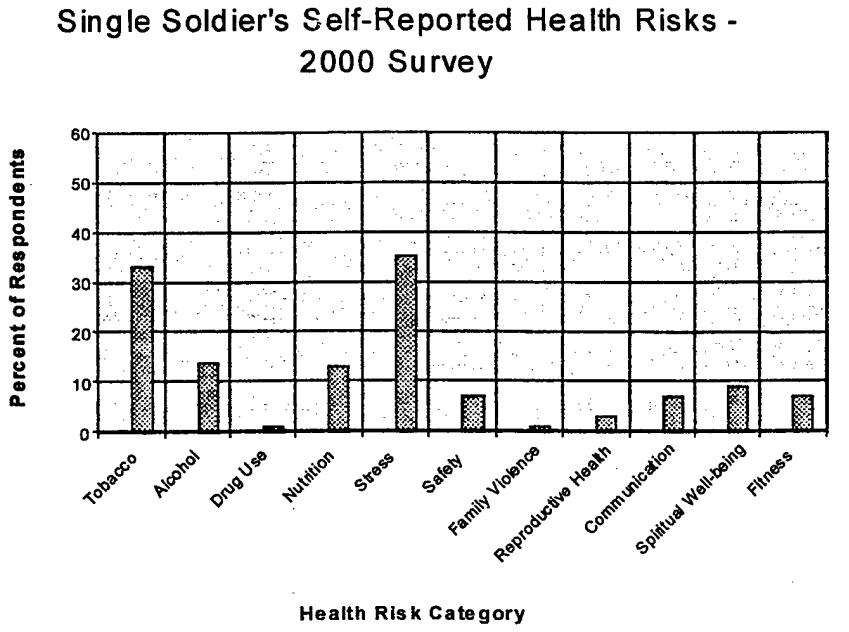

Figure 23. Single Soldier's Self Reported Health Risks – 2000 Survey

The last population-level comparison is that of the SF-12 mental and physical health scores compared across TRICARE Region 12 catchment areas. During the analysis it was found that only "all beneficiary" tallies of scores were available for comparison. The active duty DivArty scores (indicated by the "*") are shown in Figure 21 next to the all beneficiary results for the catchment areas in DivArty's TRICARE region. When reviewing this data, keep in mind the chart is comparing active duty only in DivArty to active duty and dependents/retirees for the other points on the graph.

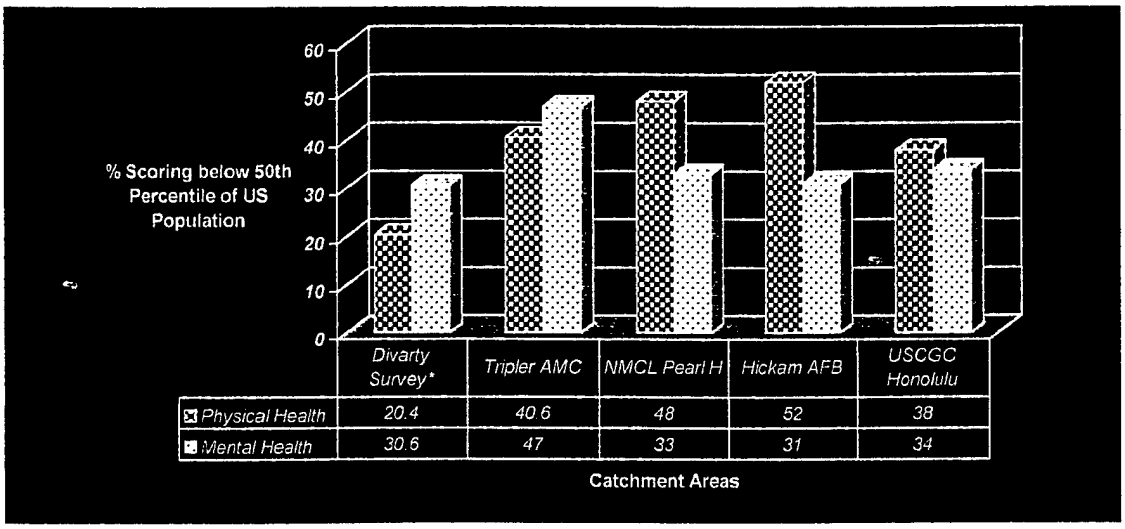

Figure 24. SF-12 Scores For DivArty and the Entire Oahu Military Beneficiary Population

BSRF and SF-12 Mental Health Score Association

The analysis of the SF-12 scores was influenced by the finding of non-normal distribution of the scores. Figure 22 illustrates the frequency distribution overlaid with a normal curve.

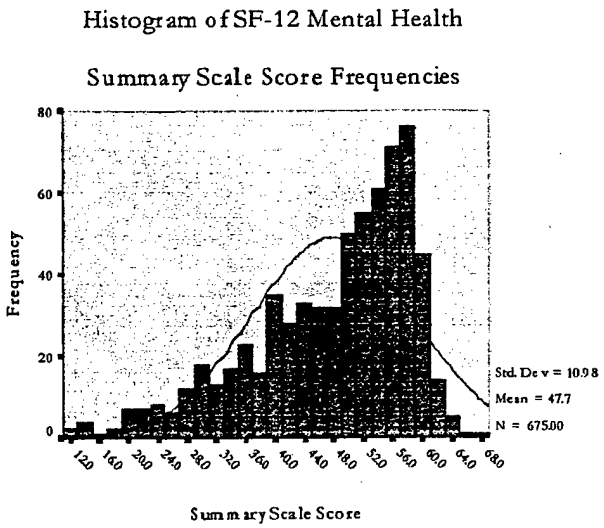

Figure 25. Histogram of DivArty Survey SF-12 Mental Health Scores

Testing analysis confirmed the non-normal status of the data – skewness was -.926 with a standard error of .094 and kurtosis showed the responses were clustered and had longer tails than a normal distribution with a kurtosis statistic of .264 with a standard error of .188.

For statistical significance, the analysis was limited to a comparison of means. The comparison of SF-12 physical health scores did not show a statistically significant difference. Despite what appears in survey results to show a sicker population attending BSRF, the SF-12 mental health score mean of the BSRF attendees was minimally statistically significantly better than the mean of those who had not attended BSRF (p=.08, of questionable

significance). Why show these results when there was a strong selection bias and non-normal presentation of sample SF-12 mental health scores? The answer is in the theory. One would expect the mental health scores for those who have attended the BSRF program to be biased in just the opposite direction from the results found. Those who attended BSRF in the first groups were often higher risk soldiers who were asked to attend. The Command Sergeant Majors who attended a debriefing of this data concurred – they "sent high risk soldiers first".[71] The theory was – high-risk, more troubled, higher healthcare utilizers equals lower mental health than the population as a whole. It was therefore determined that this information was significant enough to present to the command and the community. For this audience, a finding that the BSRF attendees actually have a median mental health score higher than the non-attendees was significant – even at .08 level of significance. Despite typical research that often uses .05 as a yard stick for statistical significance, our ability to state that, "the probability the difference in mental health score means in due to chance is 8 in 100" is a finding the researcher felt was worthy of this audience's review. In fact, the commander of DivArty did find this significant given his knowledge of the community.[71]

These findings reflect an overall set of outcomes from the commander's survey. The following analysis section contains an in-depth analysis of the BSRF program and the entire PAT process in the context of the chosen action research methodology.

Chapter 6

Analysis

♦

BSRF is a great cornerstone to helping soldiers acquire the skills they need to be successful. I feel that more parenting skills need to be taught to [soldiers] and spouses to decrease home-life stress which directly affects work performance. Too many soldiers and spouses are without the requisite skills to be successful, productive ...in a high-stress occupation such as the Army.

Anonymous survey response
DivArty Community Well-being Survey 2000

♦

The PAT process closely followed the tenets of PAR

The PAT was partially successful in reaching all of its goals.

The data support the conclusion that the PAT process is a successful methodology of improving the well-being of a military community through a community health planning process.

The DivArty PAT was successful in positively addressing the well-being issues of their community. The success was obtained, in part, due to their close adoption of process techniques that complied with the tenets of action research. Additionally, an analysis of the survey data indicated a rise in mental health well-being for those who participated in their main community intervention. The results allowed for a rejection of the dissertation null hypothesis. This chapter outlines the specific details of the analysis of these findings.

This Research Project and Its Compliance With PAR Tenets

This section of the dissertation will center on the PAT process and how it compared to an appraisal process for participatory research outlined by M. Anne George, et al.[21]. Each of the following six subsections addresses her array of appraised activities necessary for success with this type of research. Each subsection contains a few representative questions from the appraisal guidelines.

Participants and the Nature of Their Involvement

Guideline questions: Is the community clearly defined? Do all members of the community have an opportunity to participate? Does the community group understand the role of the researcher?

The community is clearly defined in this project as the DivArty unit and their families. Given the highly publicized nature of two recent family violence incidents, this community and their commander feel the incidents are out of character for their community, they have a

mutual desire to stop the violence and they want to set an example for other communities. The community leadership sees it as an overall well-being issue. A voluntary community council was formed from leaders of different agencies and organizations in the community. An appraisal of this activity does reveal weakness. There was not enough publicizing of the council and its availability for all to participate in. Although focus groups of volunteers provided input to the council on issues facing the community, there was limited attendance at the council meetings beyond the formal members. Potential underserved members of the community were not given targeted attention for feedback. This community had a high level of interracial, interethnic and international marriages and their unique stress factors should have been specifically queried.

Origin of the Research Question

Guideline questions: Did the impetus for the research come from the community? Is the effort supported by the community?

This community rose up quickly to seek attention for the family violence levels in their community and to focus on improving the well-being of their community. The commander was very people- and community-oriented and provided immediate organizational support for the process action team. The origins of the concern over stress and ill health in this community came from the community – not just from the leadership of the community.

Purpose of the Research

Guideline questions: Does the research facilitate learning among community participants about individual and collective resources for self-determination? Is the purpose of the research to empower the community to address determinants of health? Are political, social and economic determinants of health included in the analysis?

The first efforts of the council were to redefine health. They wanted new sources of knowledge about their community's health and were open to definitions that did not center on the illness model of health. All saw a need to seek more proactive approaches to well-being issues in the community. By redefining health using the World Health Organization's definition – "physical, mental, social and spiritual well-being" – they began to see *their* collective role in improving community member's health.[41] This opened a new view of the determinants of health, to include ill health brought on by poor transition issues, family communication issues, child care issues, fitness issues, etc. This then allowed the PAT to form to look at these specific issues and focus on solutions.

Resources external to the community were eager to assist, including information data experts and local businesses. As an example, if a community member participated in a health screening, they got discount coupons for the local department store. If a community member attended training on wellness, they got access to free over-the-counter drugs at the hospital. The commander also awarded promotion points to any soldier who went through all three training levels for a program instituted called "Building Strong and Ready Families".

Political, social and economic determinants of health were evaluated by this PAT. Members included most facets of life in the community. Weaknesses include a lack of representation by the unit's community banking, educational institutions, youth groups, local civilian community stakeholders in health and random voluntary attendees. These other attendees could provide a greater source of individual and collective community resources and talents to build even greater community capacity.

Process and Content – Methodological Implications

Guideline questions: Is there flexibility in the research methods and focus? Are the community members participants in planning, implementation and evaluation? Are participants involved in analytical issues: interpretation, synthesis and verification of conclusions?

Research methods used have included analysis of survey data, completed genograms, family profiles, combined family records reviews, and the aggregation of this data into a single graph for the entire population showing community common areas of ill health. These graphs also differentiated issues for single soldiers, married soldiers and spouses. This has allowed four subordinate sub-PATs to provide targeted interventions to specific segments of the community.

Uniquely successful was the subordinate sub-PAT teams and their immediate implementation of interventions. They complimented their success by using short questionnaires and focus groups after implementation to ensure the interventions were producing the desired results. The most notable intervention was the Building Strong and

Ready Families (BSRF) Program. The survey analysis in the previous chapter highlights the success that was achieved through this program in addressing issues influencing overall well-being. The higher SF-12 mental health scores of the BSRF participants over non-participants was especially noteworthy given the higher health risk of that group prior to entering the program.

Weaknesses in this area include a certain sense of rigidity in the survey methods. To gain a better comparison for pre- and post- intervention analysis, survey questions were often the same from one administration to the next. This provides greater reliability and validity, but, in order to keep the survey short, additional questions were kept to a minimum. This did not allow for enough flexibility in the questions as different intervention needs arose from month to month. The community PAT, however, developed a new community-wide well-being survey. The analysis of that survey was analyzed retrospectively and the results are in the previous chapter. The PAT has also begun a prospective, case/control study to attempt to develop causal relationships between their BSRF program and improved well-being.

The retrospective analysis of the survey was completed with very little input from members of the PAT. When results were reported to the DivArty commander and some of his key leaders, they took immediate action. The major weakness of the researcher doing the survey analysis is the loss of input from the PAT members. Future surveys should be evaluated by the entire group to determine the link of the results to the actual issues of the community.

Opportunities to Address the Issue of Interest

Guideline questions: Does the research process allow for learning at the individual and collective level? Does the process allow for action on the issues of interest?

The council had clear power brokers on it and could amass almost immediate responses to intervention suggestions. The PAT process allowed thoughtful brainstorming and empowered participants – regardless of standing in the community – with an equal voice to help prioritize community action. By having a community with such cohesion in social, individual and cultural dimensions, learning was quick and momentum was gained at surprising speed. This process was made possible by a community focused on a key problem, determined to make health better, ready to assume that responsibility (and take the responsibility from the medical care system) and, importantly, led by a commander who empowers all levels of the community to take action to improve health. The background research identified in the first chapter gave the theoretical context for this success in building community capacity. PAT members produced knowledge, acknowledging the strengths of their community and facilitated processes that empowered people to construct, use and build on their own knowledge.[21]

Weaknesses included the lack of total community participation in the PAT process. Not all PAT meetings were well publicized and not all community members participated. This limited optimal success and individual and collective learning. New leadership came to the DivArty command and some of the original momentum was naturally lost. Inherent in most military units, the changing of commanders brings varying methodologies in leadership to

reach the same goals. The new commander has chosen to keep the interventions and promote continual evaluation of their success. The PAT process continues with attendance now limited to line unit leaders – senior officers and senior enlisted personnel. While this decision has not eliminated the larger PAT from meeting, the effect of not including a larger group (more representative of the entire community) on a regular basis may hamper their effectiveness at understanding all of the well-being issues facing the community.

Nature of Research Outcomes

Guideline questions: Did the community benefit from the outcomes and interventions? Is there a clear agreement on the process of dissemination of the research outcomes?

The net effect of the work of this PAT on well-being is highlighted in the next section of this chapter. It was clear to the researcher that the PAT participants benefited personally from the process. The PAT now sees community health as belonging within their jurisdiction and not just the medical system. The next step toward improvement should now be a more formalization of community health indicators. These will include options available from the Healthy People 2010 guidelines[55], the Health Cities guidelines[53] and existing data collected by the community's military medical system and local civilian managed care system. The model found in chapter 7 includes several additional options for community health indicators.

The weaknesses in the research data ownership are somewhat profound. Due to the hierarchical nature of the military, several layers of bureaucracy desire approval authority over the final research data and its release. Although this community is using the data to

quickly resource innovative interventions, the process and outcome analysis cannot be made available to other communities without considerable effort to obtain release authority.

Summary

This project has the elements of PAR if one this community's success in shifting the social structure of the responsibility for health away from the medical care system. In the true Foucaultian sense, this community has changed the way they "know" health. It has changed their daily personal and professional lives. The militancy of the fight is somewhat tame at this point – but not for long. The medical care establishment will likely see this control of interventions aimed at improving health as a "stepping onto their turf". Hopefully, however, the momentum will be too great to stop this important health paradigm shift. It is this social structure transformation, if allowed to occur, that will take this current action research effort into a closer representation of participatory action research.

Process Action Team Analysis

Success in Reaching Goals

This section reviews each of the stated goals developed by the PAT and links the data findings with a review of their success in reaching those desired goals. Each of the stated goals of the PAT team are listed below along with an analysis of the success in meeting those goals:

1. Reframe the definition of health from illness-centered to well-being centered, with an appreciation for how health affects mission readiness

The PAT process began with a retreat to focus directly on this goal. The researcher was both instructor and facilitator of this retreat and the entire team participated in the reframing of the definition of health. It was evident in follow-on discussions with the commander that he was now more aware of his role in health. The second retreat's success in identifying broad reaching health risk issues built on the reframing that occurred during the first retreat. The new commander began his tour with a strategic planning day and included a sub-group to look at well-being in the community. This same retreat-based reframing of health process was also used successfully with them.

The link to mission readiness is still weak. The PAT needs to focus on more mission-related performance indicators in the context of the other data shown to the PAT.

2. Assess the health of the DivArty community

The initial data shown for the DivArty PAT was heavily weighted toward data collected by the community health nurses. These data were rich in indicators of several elements of health risk behavior and that continues to be valuable to the PAT. Other indicators of community health were presented by each member of the PAT. The members were selected because of the community stakeholder group they represented. The nominal group technique allowed for brainstorming additional community health risk issues and was a successful method of gathering issues from all segments of the population.

The assessment could be much more comprehensive and reliable if data from other sources of health indicators were used. Examples could be:

Data from the security police
Data from the medical decision support systems
Data from the Operations Group/G-3 on key mission readiness indicators
Data from the local community support services on adverse incidents
Data from the local police
Data from the local and on-base school systems on truancy and standardized test scores
Data on regional economic conditions
Data on regional social conditions

3. Redirect resources to programs that address the community's top health concerns

The four sub-PAT teams began the process of reviewing key health risk categories and brainstormed interventions. The development of the "Family Super-supper" and the child care at the fitness center are examples of ideas that would have been resourced as a direct

result of the sub-PAT work. These programs, however, never got off of the drawing board. Other interventions did see funding and adoption, including the new web site, a new tour of the post for incoming families and the linking of inprocessing functions at the unit level with the community nursing programs.

The most successful intervention was clearly the Building Strong and Ready Families Program. This multi-phased family communications course became a formal unit program after the first two retreats and is now a remarkable and mature program. At the time of the survey, 26% of all active duty personnel had attended the course. Over 78% of those who attended all three sessions reported they had learned skills to improve their lives. The post general officer has requested all of the units on the post develop a similar program and the US Army Chaplain service is soliciting a research proposal to conduct the same program in several bases in the continental US.

4. Reduce factors that lead to family stress

It is known from DoD-wide surveying that high levels of stress increase injury, increase alcohol use and increase the risk that military members would consider self-injury or suicide. This stress is both work and family related. The BSRF program addressed mechanisms for improving communication in the family and workplace. Additionally, coping strategies were discussed and support services highlighted – all in an effort to improve physical, mental and social/spiritual well-being. The survey results indicate the BSRF program did reduce many of the factors that can lead to family stress. Specifically, 69 percent those who participated

reported it improved their relationship with their spouse; 49 percent said it improved their work relationships and 64 percent said it improved their overall life. While the BSRF program is just one successful program developed out of this PAT process thus far, it clearly did reduce factors that lead to family stress.

As stated in the literature review, military members have predisposing factors including high work stress. Members describe their military lives as more stressful that their family or personal lives.[84] The survey showed the interventions introduced by this PAT improved their work relationships. This has an immediate impact on job performance as well given military personnel with higher levels of stress are more likely to work below normal performance levels.[84]

We know from the Precede – Procede model[40], that improving communication skills enhances the enabling factors that bring about healthier behaviors and ultimately better quality of life. This is suggested to have occurred as the SF-12 Mental Health scores were higher for those who had attended the family communications course over those who had not.

The process of forming a community group with the express purpose of improving community well-being is likely a strong reinforcing factor in this community for a healthier environment.[40] Subordinate leaders have seen the top leaders embrace the importance of recognizing the social networks and building community capital. The linking of a strong and resilient military member and family to better readiness is an important reinforcing factor.

The strengthening of the importance of social networks and a sense of embeddedness, major predictors of violence in the family, has a positive effect on reducing family stress and family violence.[64] The inclusion of single soldiers and spouse's group members was an important link to the informal social networks of this community. Conducting focus groups with spouses likely raised awareness and increased participants sense of embeddedness. One survey respondent stated, "BSRF made a very positive impact in my life and marriage. We learned how to communicate better in our marriage and reduced stress at home. It also let me know that the chain of command cares for me as a soldier and my family. The spiritual emphasis was helpful too."

It is known that past violent behavior is a strong predictor of violence in the future.[22, 65] Hopefully, the inprocessing changes enacted by the PAT will afford the opportunity for community nursing personnel to meet with new families, review their past health history and hopefully proactively provide targeted social system assistance for those with a past history of high family stress and violence.

The PAT interventions also likely reduced the level of social isolation felt by its members – a key ecological factor influencing the likelihood of violence.[27] A focus group member commented, "isolation on the island is high", and suggested, "focus more on new arrivals – make them feel more welcome". The new web site and welcoming process are both interventions started as a results of the PAT and they are likely to specifically address these concerns. This is especially important given the geography (tropical setting unlike that found

in the continental US) and the higher mix of ethnicities on the island – both influencers on vulnerabilities to coping.[68]

5. Build a monitoring system to track the health of their community (a Commander's Health Status Report)

This area has not been developed as of the time of this dissertation writing. Changes in leadership and a major accident involving the crash of two helicopters resulting in the loss of several lives has put the next phase of the PAT on hold. The commander has met with the researcher and the community health nurse to discuss options for next steps including several ideas for a Commander's Health Status Report.

6. Improve the community's health and well-being

While a retrospective data analysis can provide insights into associations, measures of success in improving well-being is harder to quantify without studies that provide causal relationships. The command has used the PAT process for two consecutive years and has identified their key health issues as a community. They had never done that before – no unit in the military has done that before. A continuation of this process along with better data collection and a prospective study would give a better indication of the success this process had in actually improving community well-being. Previously mentioned survey results showing improvements in relationships at work and at home are strong indicators that the process has improved lives. They have taught each PAT participant a new definition of health, has directed resources toward a prioritized list of community interventions and has

shown that issues relating to health are not solely the domain of the medical community, but the entire community.

This community-based health council has embraced a unique opportunity to enhance the salutogenic model of health and build on this community's capacity. Social relationships and experiences have been built and, according to Bowen, "social relationships and experiences, especially those that are unit-based, represent the core components of quality of life in the military. These social relationships and experiences are both a part of and a consequence of community capacity."[9]

The PAT has provided a common platform from which formal and informal networks can exchange ideas. This has likely enhanced military readiness. When the system of formal and informal networks are fully operative and complementary in a military community, a protective and resilient web of support surrounds and sustains members and families.[9] According to Bowen, "community capacity is the link of these networks of social care to community results."[9]

This chapter has summarized many of the successes of the PAT and its likely influence on building community capacity. The net results are likely a stronger, more resilient community and one that is better prepared for the realities of military life. The next chapter outlines a model for other military units to potentially achieve the same results.

Chapter 7

Air Force Community Health Council Model

There is no cookbook or recipe for either 'doing' community-based PAR or 'creating' a healthy city…'no health city prototype exits' but rather a set of values and processes' that provide guidelines for communities that would engage in this type of inquiring, systematic, and continuously learning and changing endeavor.

Meredith Minkler and Len Duhl
Professors, UC Berkeley School of Public Health

Membership in the Community Health Council should include all major stakeholders in the community

The annual schedule of activities should be action oriented.

Selecting a health performance measurement set should be a unique decision of each individual council.

One of the outcomes from this dissertation has been a modeling of the PAT into a concept called a community health council. The researcher has chosen to develop a specific set of guidelines for model as it would be operationalized in the Air Force. It is assumed this chapter could be copied as a direct guide to Air Force communities on the membership and annual schedule. Selected nationally recognized community health performance measures are outlined at the end of the chapter for consideration by the community health council.

Membership

The key to membership is inclusion of the major stakeholders of the community – both in and outside the military unit.

Unit-Level Members

-- Unit Commander
-- Unit Deputy Commander
-- Unit First Sergeant
-- Unit Single Airman's Group Representative
-- Unit Spouse's Group Representative
-- Unit Physician or Physician Extender (if assigned)
-- Unit Community Health Nurse (if assigned)

Community Members

-- Integrated Delivery System Representatives
    --- Family Support Center Representative
    --- Family Advocacy Representative
    --- Children and Youth Services Representative
    --- Wellness Program Representative
    --- Chaplain Services Representative
    --- Mental Health Services Representative
-- Security Police Representative

-- Nutrition Services Representative
-- Fitness Services Representative
-- Equal Opportunity Services Representative
-- Housing Services Representative

Schedule

The annual schedule provided below allows for continuous improvement, appraisal and benchmarking of success throughout the year. Additionally, the process fits with the budgetary cycles of the Department of Defense.

January

Setting: An off-site retreat, civilian clothes, relaxed environment

Goals:

1. LOOK: Review data, build a picture and describe the community health situation.

2. THINK: Explore and analyze: what is happening

Interpret and explain: why are things this way?

3. PRIORITIZE: Use a nominal group technique to give every one equal voice and to set a priority for all key issues.

4. ACT: Establish strategic action plans (similar to Family Support Center Community Action Plan[9]) with a problem statement, list of comments on the issue from the retreat, brainstormed intervention ideas from the retreat, selected Office of Primary Responsibility (OPR), selected Offices of Coordinating Responsibility (OCRs) and reporting deadlines.

Example Data (varies each year at the request of members of the council –goal is to get complete picture of well-being of the community):

- Results of annual well-being survey survey/population health performance measurement
- Results of any climate assessments completed
- Results of any Community Needs Assessments
- "Commander's Health Status Report" – all anonymous population-level data
    - -- Adult Immunization Compliance Data
    - -- Early Return of Dependents
    - -- DUI rates
    - -- Family Advocacy cases
    - -- Urgent Care/ER Utilization Data
    - -- STD rates
    - -- Reportable Injuries
    - -- AWOLs
    - -- Drug Offenses
    - -- Traffic Violations
    - -- Crimes
    - -- Financial Problems
    - -- Admin and Legal Actions
- Indicators of mission readiness
- Indicators of medical compliance (examples)[106]
    - -- Breast cancer screening
    - -- Cervical cancer screening
    - -- Childhood Immunizations compliance
    - -- Diabetic Retinal Exam

Example Prioritization Nominal Group Technique Process:

1. Brainstorm health risk issues in the community – one person at a time presents their ideas for health issues to be addressed during the year. Representatives from organizations present the issues their specific constituents would want presented.

2. Facilitator helps group link the issues that are similar enough to be addressed as one item

3. Each member of the council gets 30 points – all represented by post-it paper sheets. No member can put more than 10 points on any one issue – all members decide where to put their votes prior to actually voting – each member goes up to the butcher paper with the issues on it and puts their post-it note points on the issues they feel most impact well-being in the community.

4. A priority list is derived from the final point tally.

January/February

Each action officer meets with his or her team and reviews the action item notes from the retreat. Action item interventions are brainstormed and tentative support requirements are drawn up. Metrics are identified to monitor intervention outcomes.

The council meets to review, prioritize and resource selected interventions presented by the strategic action item teams.

March/June/September/December

Conduct Quarterly Meeting – Example Agenda:

1. Review and approval of past minutes
2. Report of each strategic action item group, review of actions taken, metrics analyzed
3. Open discussion of issues not currently addressed by strategic action items

November

Conduct annual well-being survey/population health performance measurement

Selected Options for Health Performance Measurement

Each individual council should conduct a community assessment prior to deciding on a systematic and ongoing set of health performance measures. Health is a local issue and the appropriate measures varies with the local health condition. The following are examples of potential measurements.

1. Community Assets Inventory: a "framework for informing and monitoring the effects of community building and for sustaining interventions and prevention activities in Air Force communities".[9] This 36 asset indicator draws from three specific dimensions of community capacity: personnel preparedness, family adaptation, and base sense of community, and three program results dimensions: leader support, informal community connections and interagency collaboration. This inventory is currently a new product being introduced at Air Force Family Support Centers.[9]

2. National Health Performance Measures: Under the direction of the U.S. Department of Health and Human Services, a Panel on Performance Measures and Data for Public Health Performance Partnership Grants developed an analytic framework for use by states and the federal government in assessing the appropriateness of outcome, process and capacity

measures for use in federal-state performance agreements.[107] Specific performance measures were developed in the following categories:

Chronic Disease
- Tobacco
- Nutrition
- Exercise
- Screening and Tests

STDs, HIV Infection, and Tuberculosis
Mental Health
Immunization
Substance Abuse
Sexual Assault Prevention
Disabilities
Emergency Medical Services

3. Air Force Surgeon General's Population Health Plan Guidance: The plan identifies five specific areas to be measured and gives examples in each area.

Clinical-outcomes indicators (processes)
Clinical outcomes
Patient-centered outcomes
Systems-performance outcomes
Non-medical metrics using Healthy People 2000 guidelines[108]

4. The Civic Index (CI): The CI focuses on how communities come together to solve problems. It measures infrastructure; that is, "the capacities, formal and informal processes and networks through which communities make decisions and attempt to solve problems". [109] Additionally, the CI looks at the "relationships and responsibilities of citizens, local government, business and non-profits in addressing community challenges". [109]

5. Assessment Protocol for Excellence in Public Health (APEXPH): A guide for assessing and improving organizational capacity and working with community groups to assess and improve the health status of citizens. The specific indices could include[110]:

Demographic profile: age and sex

Male, Female, Total
Age less than 1, 1-14, 15-24, 25- 44, 45- 64, 65- 74, 75& older, Total

Demographic profile: race/ethnic distribution

Socioeconomic profile

Percent of population below poverty level
Percent of population unemployed
Number of Food Stamp recipients
Number of persons in the WIC program
Number of Medicaid recipients
Estimated number of homeless persons
Percent with less than a high school education
Percent with less than a college education
Percent with a college or higher level of education

Years of potential life lost (YPLL)

Access to primary health care profile

Private providers
Community and migrant health care centers
Local health department
Other sources
Uninsured/underinsured

Other health indices:

Occupational health and safety

Work-related Injuries - Deaths
Work-related Injuries - Nonfatal
Cumulative Trauma Disorders
Occupational Skin Disorders
Occupational Disease (e.g., Hepatitis B)

Substance abuse

Alcohol-related Accidents - Deaths
Alcohol-related Accidents - Nonfatal
Cirrhosis Deaths
Drug-related Deaths
Drug Abuse Emergency Room Visits
Lung Cancer Deaths
Current Smokers

Mental health/ mental retardation

Suicides
Teenage Suicides
Child and Adolescent Mental Disorders
Adult Mental Disorders
Stress-related Health Effects
Serious Mental Retardation - School-aged Children
Serious Mental Retardation – Non-institutionalized Population

Other risk factors

Not Using Seat Belt
Overweight
Sedentary Lifestyle
Ever Had Cholesterol Checked
Diagnosed with Diabetes
Being Treated for Hypertension
Current Smokers

Perinatal indicators

Live Births

All ages
Maternal age <18 years

Prenatal Care of Women

First care in 3rd trimester
Fewer than seven prenatal visits

Low Body Weight Live Births

<2500 grams (low birth weight)
<1500 grams (very low birth weight)

Live Births with Mortality or Birth Defects

Perinatal mortality
Fetal mortality
Neonatal mortality
Congenital anomalies

Leading causes of mortality

Estimated prevalence of disease

Leading causes of hospitalization

Environmental Profile

Air Pollutants
Water Contaminants
Food Contaminants
Land Pollution (human and industrial waste, pesticides, etc.)
Other environmental hazards including work environment or conditions, radiation, climate, etc.

As stated earlier, there is a long history in military of promoting a sense of community and caring for the unique role of the military family.[23, 55] Military commanders have lead successfully for years through a collaborative team approach to the mission and accomplishing its objectives. This community health model is an adaptation of a familiar leadership *gestalt* with the focus this time on the health and well-being issues of the community.

Chapter 8

Conclusions/Implications

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...there is much the civilian sector can learn by examining human service initiatives in the military sector. Research that examines variations in community results in the context of policy, programs, and practice interventions to strengthen formal and informal networks and the nexus between them will inform community practice in both the military and the civilian sector.

P.C. Twiss and J.A. Martin
Social Science Review, 1999[111]

♦

The community health council concept has implications for improving both personnel readiness and mission readiness

Civilian communities can learn from this research the net benefits of a community health focus in an environment of equal access to health services

Further research is needed to assess the impact of this type of community health council on mission readiness, safety, preparedness, sense of community and family adaptation

This dissertation has documented a military community's efforts to address community well-being and has identified the conceptual framework for how their efforts may be successful. As a conclusion to the dissertation, this chapter highlights implications for other military communities, public health practice at large and future research.

Implications for Military Communities

The DivArty command's success in forming and developing their community health PAT is encouraging as one looks to replicate this activity on other military settings. DivArty's process of redefining health beyond simply medical care, seeking input on the reasons for stress in their community, and then developing teams to come up with programs to help their community's well-being - this has not been documented in any literature. Yet it may very well be a key feature of improved readiness for DoD communities of the future.

The most current training being given to Air Force Family Support Centers (starting in April 2001) has "Building Community Capacity" as its title and main thrust. The work of Dr. Gary Bowen at The University of North Carolina on military families has informed this training and he has built it on the importance of a web of involvement – from the line commander to formal and informal social structures.[9] This new training does not, however, provide a mechanism for every stakeholder in these social structures to participate in influencing well-being in one structured setting. The community health council concept is an example of how this community capacity training can directly link to this new health council model.

Implications for Public Health Practice

This PAT was uniquely positioned in an environment where the stakeholders all had a hierarchical relationship to a single community leader. This is not normally found in a civilian community. This research has provided an opportunity to develop lessons learned in this atypical laboratory of community. The outcomes of the study can be viewed with the understanding that this was a community group where political, ideological and participatory differences were mostly benign in their influence. There is a common good value set that seems to override other influences with regard to participation and the importance of the effort. The community is also diverse in its racial and ethnic makeup. These unique community factors combined with this PAT effort provide research results that are tremendously important for communities who are encouraging their health groups to put their individual political and ideological differences aside in an effort to fully participate in the collective good of improving community well-being.

This study was also conducted in a highly integrated delivery system of care. Each community member had equal access to medical care and community support resources. The positive outcomes of this study should help inform the public health profession of the greater potential of community health efforts in an environment of equality of access to health care.

This research also has implications in the broader public health/pubic policy arena. As a society is encouraged to move from an illness-centered model of health to one that encourages a look at everything else we do in society that impacts health, this new focus

brings on new challenges. A more holistic approach has implications for a society that is accustomed to single response action to specific medical concerns. Upstream views of health look at treating large groups of people while downstream medical model health is focused on individual and episodic care. The implications are significant and will likely shift the balance of power in health and in resource allocation. The challenge is for communities to work with local government and medical infrastructure and push the view of health upstream. The community-based action research exemplified in this research shifts the control over health from the medical community to the community as a whole. This more comprehensive view of health will likely influence the development of transportation policy, housing policy, and even community policing efforts.[112, 113] When the view of health is not merely the absence of illness, but the mental, physical, social and spiritual health of all individuals, community-based involvement in health will thread itself into many new elements of the governing of society.

Implications for Future Research

This dissertation work dealt primarily with participation in an ongoing research process with the PAT and with a retrospective review of a historical survey. It would be very useful to conduct more prospective studies to measure more causal relationships. Fortunately, a case-control study is currently being conducted on the same post with participation in the BSRF program as the study intervention. Further study is needed also in the areas of mission readiness, safety, preparedness, sense of community and family adaptation and the effect this community health council model might have.

In the analysis of the process action team and their interventions, the threshold of the effect was not studied. From an operational standpoint, further research into the cost-benefit analysis of varying levels of community interventions would be beneficial to military commanders. It is recommended that further prospective studies include an analysis of varying levels of interventions to gain a perspective on the curve of effect for these interventions.

In the area of public health/public policy, the work of researchers like Nancy Milio at the University of North Carolina could be enhanced in the area of empowerment and health in communities if the military community was studied.[114] The military community provides a research laboratory that allows for a level of participation and centrality of focus not often found in the civilian sector. In addition, the role of Total Quality Management has been infused in many of the leadership practices of the military and their understanding of empowerment is likely higher than that of the civilian sector.

The results of this dissertation can now be used to make a difference in DoD community health and mission readiness. There is a dearth of research in the area of improvements in health through community action and impact on military mission readiness. The challenge of future work in this area will be to link readiness variables into the study of the impact of health interventions. It is likely that research funding will be easier to obtain when the link to mission readiness is a key aspect of the study.

The following was the summary graph used by the PAT to highlight their belief on how addressing well-being has improved their lives and their readiness for their military mission.

It is a good summary of the potential of refocusing the attention of the military on the health of the communities that make it so strong.

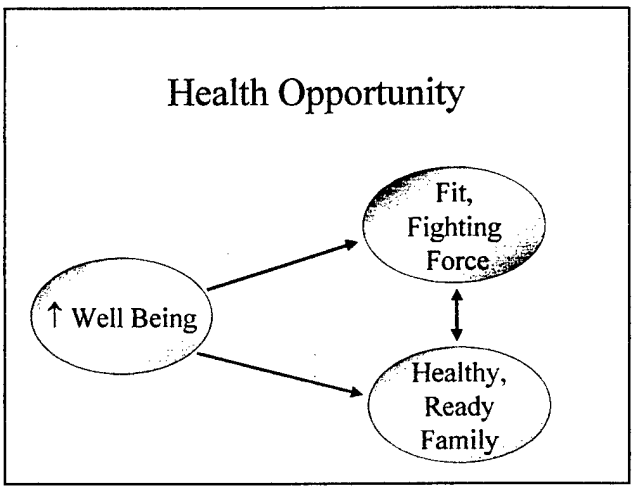

Figure 26. Graphic linking of improved well-being to improve family and mission readiness

Conclusions

The most important finding outside of the noted improvement in mental health well-being of BSRF participants might well be a more subtle change in the community. The most important result of this dissertation work and the development of the PAT might be the incremental assumption they have made of the responsibility for health. Social transformations in health take time. A history of medicine shows the rise of physician authority over health has occurred over the entire past century.[115] Their medical model emphasized the absence of illness. This focus began an incremental change in the era of managed care. Capitation had the unexpected consequence of viewing health from a covered lives population perspective. Our most significant future advances in the health of individuals may now, however, reach beyond a mere absence of illness and seek to improve the mental, physical, social and spiritual well-being of our entire population. And, the community-at-large may very well be the best to assume the responsibility for that.

The challenge to this movement in health will continue to be the desire for constancy. This is especially important in the high stress world of the military.[82] Physicians are used to controlling health. The military has physicians in almost all of their key leadership positions. Leaders in the non-medical military sectors look to the medics to address their health needs. This model of health must be slowly torn down and replaced with a better understanding of that which truly influences health. Busy military commanders, through efforts like this community health council, will likely see their role in health changing. The PAT commander recognized after the first two retreats that this one area of his command may have the most important effect on his mission readiness. He recognized that his doctor's treatment of illnesses was only a small percentage of what influenced his soldier's lives. His influence on behavior and environment, through the community health council and its formal and informal networks, was the most important influence on the well-being of his people and his unit's readiness to meet their mission.

Appendicies

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DivArty Survey

Survey Data Analysis Details

Bibliography

Appendix 1

DivArty Survey

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DIVARTY COMMUNITY WELL-BEING SURVEY 2000

Thank you for taking the time to fill out this survey. The survey is completely anonymous. Please feel free to give your most complete and honest answers. Each DivArty soldier is being asked to take this survey to assess the active duty community's well-being and the effectiveness of programs recently put in place to improve community well-being. If you are not a DivArty soldier, do not fill out this survey. If you have already filled out this survey on-line this year, please do not complete this paper survey. Again, thank you for your time in filling our this important survey.

Privacy Act Statements:

AUTHORITY: 10 U.S.C., 8013

PURPOSE: Each DivArty soldier is being asked to take this survey to assess the active duty community's well-being and the effectiveness of programs recently put in place to improve community well-being.

ROUTINE USES: The information will be used to assess the state of well-being in the community and to report the findings to the command and the unit's process action teams. All reports will reflect only the unit-wide level data and will not report any one individual's well-being status. This survey is being conducted using only anonymous input.

DISCLOSURE: Completion of this survey is highly desirable, but not mandatory. Completion of the survey will help your unit direct resources appropriately to improve your well-being, your family's well-being and the community's well-being.

Thank you for completing this survey.

DIVARTY COMMUNITY HEALTH SURVEY
March 2000

Please take a few minutes to fill out this important survey. This survey is being conducted to evaluate community health improvements over the past year. The results will be used to evaluate and improve services for next year.

Your Status

1. Gender:

- [ ] Male
- [ ] Female

2. Marital Status:

- [ ] Single/never married
- [ ] Married
- [ ] Separated
- [ ] Divorced
- [ ] Widowed

3. Racial/Ethnic Background:

- [ ] Amer. Indian or Alaskan Native
- [ ] Asian/Oriental
- [ ] Black, Hispanic
- [ ] Black, Non-Hispanic
- [ ] Pacific Islander
- [ ] White, Hispanic
- [ ] White, Non-Hispanic
- [ ] Other

4. Are you:

- [ ] Active duty service member – enlisted
- [ ] Active duty service member - officer
- [ ] Retired service member
- [ ] Family member of active duty service member - enlisted
- [ ] Family member of active duty service member - officer
- [ ] Family member of retired or deceased service member
- [ ] Other

5. How long have you been in Oahu?

- [ ] Less than 6 months
- [ ] 6-12 months
- [ ] One year to less than 2 years
- [ ] 2 years or more

6. How long have you been in DivArty?

- [ ] Less than 6 months
- [ ] 6-12 months
- [ ] One year to less than 2 years
- [ ] 2 years or more

Assessment of Building Strong and Ready Families Program

7. Are you aware that in the past year your unit has researched, evaluated and implemented programs to improve the well-being of individuals, families and the community (BSRF/Ready Family Program, three process action teams designed to address top community issues)?

- [ ] Yes, I am aware of at least some of these efforts
- [ ] No, I am not aware of any of these efforts

8. Have you participated in the BSRF/Building Strong and Ready Family Program?

- [ ] Yes, I have attended *all three* levels of training
- [ ] Yes, I have attended *two* levels of training
- [ ] Yes, I have attended *one* level of training
- [ ] No, I have not attended training

9. If you have attended BSRF training, when did you attend the first level of training?

- [ ] Have not attended any BSRF training
- [ ] Attended prior to 1 June 1999
- [ ] Attended between 2 June and 31 Dec 1999
- [ ] Attended since 1 Jan 2000

10. If you have participated in this program (BSRF), have the skills you learned improved your health? (Mark all applicable answers)

- [ ] N/A, I have not attended the BSRF program
- [ ] No, I have attended the BSRF program and have not used the skills to improve my health
- [ ] Yes, improved my physical health
- [ ] Yes, improved my spiritual health
- [ ] Yes, improved my mental health
- [ ] Yes, improved my eating habits
- [ ] Yes, improved my exercise habits
- [ ] Yes, reduced my inappropriate alcohol use
- [ ] Yes, reduced my work stress
- [ ] Yes, reduced my level of stress in the family
- [ ] Yes, reduced my level of smoking

11. What agencies on post have you used for assistance with a personal issue this year (mark all that apply)?

- [ ] None
- [ ] AFTB
- [ ] Community Health Nurse
- [ ] Army Community Services
- [ ] Chaplain
- [ ] Other:

12. Are you currently active in a religious worship service?

- [ ] Yes, on-post
- [ ] Yes, off-post
- [ ] I attend infrequently (less than once a month)
- [ ] No

13. In general, how satisfied are you with your current relationship with your spouse/significant other?

- [ ] Not in a significant personal relationship at this time
- [ ] Perfectly Happy
- [ ] Mostly Happy
- [ ] Somewhat Happy
- [ ] Happy
- [ ] Somewhat Unhappy
- [ ] Mostly Unhappy
- [ ] Very Unhappy

14. In general, how satisfied are you with your current work relationships?

- [ ] Not in an out-of-home work situation
- [ ] Perfectly Happy
- [ ] Mostly Happy
- [ ] Somewhat Happy
- [ ] Happy
- [ ] Somewhat Unhappy
- [ ] Mostly Unhappy
- [ ] Very Unhappy

15. In general, how satisfied are you with your life (e.g., work situation, social activity, accomplishing what you set out to do)?

- [ ] Not satisfied
- [ ] Somewhat satisfied
- [ ] Mostly satisfied
- [ ] Totally satisfied

16. Have you used the skills learned in the BSRF to improve your spouse/significant other relationship?

- [ ] Yes
- [ ] No

17. Have you used the skills learned in the BSRF to improve your work relationships?

- [ ] Yes
- [ ] No

18. Have you used the skills learned in the BSRF to improve your life?

- [ ] Yes
- [ ] No

General Health Assessment

19. In general, would you say your health is:

- [ ] Excellent
- [ ] Very good
- [ ] Good
- [ ] Fair
- [ ] Poor

20 and 21. The following questions are about activities you might do during a typical day. Does you health now limit you in these activities? If so, how much?

20. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf?

- ☐ Yes, limited a lot
- ☐ Yes, limited a little
- ☐ No, not limited at all

21. Climbing several flights of stairs?

- ☐ Yes, limited a lot
- ☐ Yes, limited a little
- ☐ No, not limited at all

22 and 23. During the past *4 weeks*, have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

22. Accomplished less than you would like?

- ☐ Yes
- ☐ No

23. Were limited in the kind of work or other activities?

- ☐ Yes
- ☐ No

24 and 25. During the past *4 weeks*, have you had any of the following problems with your work or other regular daily activities as a *result of any emotional problems* (such as feeling depressed or anxious)?

24. Accomplished less than you would like?

- ☐ Yes
- ☐ No

25. Didn't do work or other activities as carefully as usual?

- ☐ Yes
- ☐ No

26. During the past 4 weeks, how much did pain interfere with your normal work (including work outside the home and housework)?

- [ ] Not at all
- [ ] A little bit
- [ ] Moderately
- [ ] Quite a bit
- [ ] Extremely

27, 28, 29. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

27. Have you felt calm and peaceful?

- [ ] All of the time
- [ ] Most of the time
- [ ] A good bit of the time
- [ ] Some of the time
- [ ] A little bit of the time
- [ ] None of the time

28. Did you have a lot of energy?

- [ ] All of the time
- [ ] Most of the time
- [ ] A good bit of the time
- [ ] Some of the time
- [ ] A little bit of the time
- [ ] None of the time

29. Have you felt downhearted and blue?

- [ ] All of the time
- [ ] Most of the time
- [ ] A good bit of the time
- [ ] Some of the time
- [ ] A little bit of the time
- [ ] None of the time

30. During the past 4 weeks, how much of the time has you physical health or emotional problems interfered with your social activities (like visiting a friend, relatives, etc.)?

- [ ] All of the time
- [ ] Most of the time
- [ ] Some of the time
- [ ] A little of the time
- [ ] None of the time

31. During the past month, how many times have you driven when you've had perhaps too much to drink?

- [ ] None
- [ ] 1-2 times
- [ ] 3-4 times
- [ ] 5-6 times
- [ ] 7 or more times
- [ ] Don't drive
- [ ] Don't know

32. During the past month, have you thought you should cut down on your drinking of alcohol?

- [ ] Yes
- [ ] No

33. How often do you have any serious problems with your husband or wife, parents, friends, or with your children?

- [ ] Often
- [ ] Sometimes
- [ ] Seldom
- [ ] Never

34. During the past year, have you been separated from your family for a block of at least 30 days?

- [ ] Yes
- [ ] No

35. How many different prescription medications are you currently taking?

- [ ] None
- [ ] 1-2 medications
- [ ] 3-5 medications
- [ ] 6 or more medications
- [ ] Don't know

36, 37. Excluding visits for pregnancy, medication refills, and dental care, how many times did you see a doctor, nurse, or other health care professional for an office visit or clinic appointment? (Include both civilian and military health care professionals. Only include visits for yourself.)

36. during the PAST MONTH

- [ ] None
- [ ] 1-2 visits
- [ ] 3-4 visits
- [ ] 5-6 visits
- [ ] 7 or more visits
- [ ] Don't know

37. during the PAST 12 MONTHS?

- [ ] None
- [ ] 1-5 visits
- [ ] 6-10 visits
- [ ] 11-15 visits
- [ ] 16-20 visits
- [ ] 21 or more visits
- [ ] Don't know

38. During the past 12 months, how many times have you gone to an emergency room or urgent care clinic?

- [ ] None
- [ ] 1-2 visits
- [ ] 3-4 visits
- [ ] 5-6 visits
- [ ] 7 or more visits
- [ ] Don't know

39. Please mark below any areas where you believe you are at health risk at this time:

- [ ] I do not have any areas where I believe I am at health risk
- [ ] Tobacco
- [ ] Alcohol
- [ ] Drug use
- [ ] Nutrition
- [ ] Stress (related to work, family or self)
- [ ] Safety (accidents, injuries)
- [ ] Family violence (toward children or adults)
- [ ] Reproductive health
- [ ] Communication style
- [ ] Spirituality
- [ ] Fitness
- [ ] Other areas not already listed

40. Are you satisfied with the Army's health care?

- [ ] Yes
- [ ] No

If not satisfied, why not? _____

_____

_____

_____

41. Other comments you would like to make regarding the health needs of your community, your family or yourself that you feel would be helpful for planning improvements in this next year:

_____

_____

_____

Thank you for taking this survey. The results will be used to help improve our community's health in the coming year.

Appendix 2

Survey Data Analysis Details

Major Univariate and Bivariate Descriptive Findings

- Respondents were 95% male, 61% married, 92% enlisted, and 43% white (non-Hispanic)

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	643	95.3	95.3	95.3
	female	32	4.7	4.7	100.0
	Total	675	100.0	100.0	

Table 8. Gender Frequency

Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	divorced	26	3.9	3.9	3.9
	married	410	60.7	60.7	64.6
	separated	15	2.2	2.2	66.8
	single_never married	222	32.9	32.9	99.7
	widowed	2	.3	.3	100.0
	Total	675	100.0	100.0	

Table 9. Marital Status Frequency

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	.6	.6	.6
	asian_oriental	22	3.3	3.3	3.9
	black_hispanic	36	5.3	5.3	9.2
	black_non_hispanic	148	21.9	21.9	31.1
	indian_alaskan	13	1.9	1.9	33.0
	other	57	8.4	8.4	41.5
	pacific islander	30	4.4	4.4	45.9
	white_hispanic	73	10.8	10.8	56.7
	white_non_hispanic	292	43.3	43.3	100.0
	Total	675	100.0	100.0	

Table 10. Ethnic Status Frequencies

Military Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	enlisted	618	91.6	91.6	91.6
	officer	57	8.4	8.4	100.0
	Total	675	100.0	100.0	

Table 11. Military Status Frequencies

- 26% of respondents had attended BSRF (n=174)

BSRF Attendance by Levels

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	501	74.2	74.2	74.2
	1	81	12.0	12.0	86.2
	2	39	5.8	5.8	92.0
	3	54	8.0	8.0	100.0
	Total	675	100.0	100.0	

Table 12. BSRF Attendance by Levels Frequencies

- 69% of those who attended BSRF said it improved their relationship with their spouse/significant other

Did You Attend BSRF * Used BSRF Skills with Spouse Relationship Crosstabulation

			Used BSRF Skills with Spouse Relationship		
			no	yes	Total
Did You Attend BSRF	Not Attended	Count	433	13	446
		% within Did You Attend BSRF	97.1%	2.9%	100.0%
		% within Used BSRF Skills with Spouse Relationship	89.1%	9.8%	72.2%
		% of Total	70.1%	2.1%	72.2%
	Attended	Count	53	119	172
		% within Did You Attend BSRF	30.8%	69.2%	100.0%
		% within Used BSRF Skills with Spouse Relationship	10.9%	90.2%	27.8%
		% of Total	8.6%	19.3%	27.8%
Total		Count	486	132	618
		% within Did You Attend BSRF	78.6%	21.4%	100.0%
		% within Used BSRF Skills with Spouse Relationship	100.0%	100.0%	100.0%
		% of Total	78.6%	21.4%	100.0%

Table 13. BSRF Attendance to Skills Used with Spouse Relationship Cross Tabulation

The BSRF program is administered in three phases or levels. The survey allowed for analysis across various participation levels. Respondents reported an improvement with relationships with their spouse/significant other due to skills learned in the BSRF program in the following reported percentages by BSRF participation level: level 1 at 58%, level 2 at 80% and level 3 at 79%

BSRF Attendance by Levels * Used BSRF Skills with Spouse Relationship Crosstabulation

			Used BSRF Skills with Spouse Relationship		
			no	yes	Total
BSRF Attendance by Levels	0	Count	433	13	446
		% within BSRF Attendance by Levels	97.1%	2.9%	100.0%
		% within Used BSRF Skills with Spouse Relationship	89.1%	9.8%	72.2%
		% of Total	70.1%	2.1%	72.2%
	1	Count	34	46	80
		% within BSRF Attendance by Levels	42.5%	57.5%	100.0%
		% within Used BSRF Skills with Spouse Relationship	7.0%	34.8%	12.9%
		% of Total	5.5%	7.4%	12.9%
	2	Count	8	31	39
		% within BSRF Attendance by Levels	20.5%	79.5%	100.0%
		% within Used BSRF Skills with Spouse Relationship	1.6%	23.5%	6.3%
		% of Total	1.3%	5.0%	6.3%
	3	Count	11	42	53
		% within BSRF Attendance by Levels	20.8%	79.2%	100.0%
		% within Used BSRF Skills with Spouse Relationship	2.3%	31.8%	8.6%
		% of Total	1.8%	6.8%	8.6%
Total		Count	486	132	618
		% within BSRF Attendance by Levels	78.6%	21.4%	100.0%
		% within Used BSRF Skills with Spouse Relationship	100.0%	100.0%	100.0%
		% of Total	78.6%	21.4%	100.0%

Table 14. BSRF Attendance by Levels to Skills Used with Spouse Relationship Cross Tabulation

- 49% of those who attended BSRF said it improved their work relationships

Did You Attend BSRF * Used BSRF Skills with Work Relationships Crosstabulation

			Used BSRF Skills with Work Relationships		
			no	yes	Total
Did You Attend BSRF	Not Attended	Count	436	9	445
		% within Did You Attend BSRF	98.0%	2.0%	100.0%
		% within Used BSRF Skills with Work Relationships	83.4%	9.6%	72.1%
		% of Total	70.7%	1.5%	72.1%
	Attended	Count	87	85	172
		% within Did You Attend BSRF	50.6%	49.4%	100.0%
		% within Used BSRF Skills with Work Relationships	16.6%	90.4%	27.9%
		% of Total	14.1%	13.8%	27.9%
Total		Count	523	94	617
		% within Did You Attend BSRF	84.8%	15.2%	100.0%
		% within Used BSRF Skills with Work Relationships	100.0%	100.0%	100.0%
		% of Total	84.8%	15.2%	100.0%

Table 15. BSRF Attendance to Skills Used with Work Relationships Cross Tabulation

- BSRF learned skills improved work relationships of attendees in the following reported percentages: level 1 at 46%, level 2 at 44% and level 3 at 59%

BSRF Attendance by Levels * Used BSRF Skills with Work Relationships Crosstabulation

			Used BSRF Skills with Work Relationships		
			no	yes	Total
BSRF Attendance by Levels	0	Count	436	9	445
		% within BSRF Attendance by Levels	98.0%	2.0%	100.0%
		% within Used BSRF Skills with Work Relationships	83.4%	9.6%	72.1%
		% of Total	70.7%	1.5%	72.1%
	1	Count	43	36	79
		% within BSRF Attendance by Levels	54.4%	45.6%	100.0%
		% within Used BSRF Skills with Work Relationships	8.2%	38.3%	12.8%
		% of Total	7.0%	5.8%	12.8%
	2	Count	22	17	39
		% within BSRF Attendance by Levels	56.4%	43.6%	100.0%
		% within Used BSRF Skills with Work Relationships	4.2%	18.1%	6.3%
		% of Total	3.6%	2.8%	6.3%
	3	Count	22	32	54
		% within BSRF Attendance by Levels	40.7%	59.3%	100.0%
		% within Used BSRF Skills with Work Relationships	4.2%	34.0%	8.8%
		% of Total	3.6%	5.2%	8.8%
Total		Count	523	94	617
		% within BSRF Attendance by Levels	84.8%	15.2%	100.0%
		% within Used BSRF Skills with Work Relationships	100.0%	100.0%	100.0%
		% of Total	84.8%	15.2%	100.0%

Table 16. BSRF Attendance by Levels to Skills Used with Work Relationships Cross Tabulation

- 63.7% of those who attended BSRF said it improved their life

Did You Attend BSRF * Used BSRF Skills to Improve Life Crosstabulation

			Used BSRF Skills to Improve Life		
			no	yes	Total
Did You Attend BSRF	Not Attended	Count	435	9	444
		% within Did You Attend BSRF	98.0%	2.0%	100.0%
		% within Used BSRF Skills to Improve Life	87.5%	7.6%	72.2%
		% of Total	70.7%	1.5%	72.2%
	Attended	Count	62	109	171
		% within Did You Attend BSRF	36.3%	63.7%	100.0%
		% within Used BSRF Skills to Improve Life	12.5%	92.4%	27.8%
		% of Total	10.1%	17.7%	27.8%
Total		Count	497	118	615
		% within Did You Attend BSRF	80.8%	19.2%	100.0%
		% within Used BSRF Skills to Improve Life	100.0%	100.0%	100.0%
		% of Total	80.8%	19.2%	100.0%

Table 17. BSRF Attendance to Skills Used to Improve Life Cross Tabulation

- BSRF learned skills improved the life of attendees in the following reported percentages: level 1 at 55%, level 2 at 62% and level 3 at 78% and 13 times more likely to be taking six or more prescription medications ($p<.001$)

BSRF Attendance by Levels * Used BSRF Skills to Improve Life Crosstabulation

			Used BSRF Skills to Improve Life		
			no	yes	Total
BSRF Attendance by Levels	0	Count	435	9	444
		% within BSRF Attendance by Levels	98.0%	2.0%	100.0%
		% within Used BSRF Skills to Improve Life	87.5%	7.6%	72.2%
		% of Total	70.7%	1.5%	72.2%
	1	Count	36	44	80
		% within BSRF Attendance by Levels	45.0%	55.0%	100.0%
		% within Used BSRF Skills to Improve Life	7.2%	37.3%	13.0%
		% of Total	5.9%	7.2%	13.0%
	2	Count	14	23	37
		% within BSRF Attendance by Levels	37.8%	62.2%	100.0%
		% within Used BSRF Skills to Improve Life	2.8%	19.5%	6.0%
		% of Total	2.3%	3.7%	6.0%
	3	Count	12	42	54
		% within BSRF Attendance by Levels	22.2%	77.8%	100.0%
		% within Used BSRF Skills to Improve Life	2.4%	35.6%	8.8%
		% of Total	2.0%	6.8%	8.8%
Total		Count	497	118	615
		% within BSRF Attendance by Levels	80.8%	19.2%	100.0%
		% within Used BSRF Skills to Improve Life	100.0%	100.0%	100.0%
		% of Total	80.8%	19.2%	100.0%

Table 18. BSRF Attendance by Levels to Skills Used to Improve Life Cross Tabulation

- 38% of BSRF attendees reported BSRF improved their mental health

BSRF		Improved MH?		Totals
			Yes	
Total	No	126	48	174
	Yes	626	49	675

Table 19. BSRF Attendance to Skills Used to Improve Mental Health Cross Tabulation

- Participants who attended at least two levels of BSRF are 4.7 times more likely to report improved mental health than those who attended just one BSRF level (p=.03)

Crosstab

Count

		BSRFME10		
			on	Total
BSR1OR23	Level 1 only	65	16	81
	Levels 2 and 3	61	32	93
Total		126	48	174

Table 20. BSRF Attendance by Level to Skills Used to Improve Mental Health Cross Tabulation (BSR10R23 = BSRF Level, BSRFME10 = Improved Mental Health?, on = yes)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.655[b]	1	.031		
Continuity Correction [a]	3.950	1	.047		
Likelihood Ratio	4.736	1	.030		
Fisher's Exact Test				.041	.023
Linear-by-Linear Association					
N of Valid Cases	174				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 22.34.

Table 21. Chi-Square Test of Attendance at BSRF and Reported Improved Mental Health

- The people who reported they attended BSRF attendees were likely sicker than those who had not yet attended BSRF – they were 9 times more likely to visit four or more times to the ER or acute care in the past year (p=.003) and 13 times more likely to be taking six or more prescription medications (p<.001).

Any Visits to ER or Acute Care in Past Year * Did You Attend BSRF Crosstabulation

			Did You Attend BSRF		
			0	1	Total
Any Visits to ER or Acute Care in Past Year	.00	Count	356	103	459
		% within Any Visits to ER or Acute Care in Past Year	77.6%	22.4%	100.0%
		% within Did You Attend BSRF	72.4%	59.9%	69.1%
		% of Total	53.6%	15.5%	69.1%
	1.00	Count	136	69	205
		% within Any Visits to ER or Acute Care in Past Year	66.3%	33.7%	100.0%
		% within Did You Attend BSRF	27.6%	40.1%	30.9%
		% of Total	20.5%	10.4%	30.9%
Total		Count	492	172	664
		% within Any Visits to ER or Acute Care in Past Year	74.1%	25.9%	100.0%
		% within Did You Attend BSRF	100.0%	100.0%	100.0%
		% of Total	74.1%	25.9%	100.0%

Table 22. Attendance at BSRF and Any Visit to ER/Acute Care Cross Tabulation (0 = no, 1=yes)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.292[b]	1	.002		
Continuity Correction [a]	8.717	1	.003		
Likelihood Ratio	9.029	1	.003		
Fisher's Exact Test				.003	.002
Linear-by-Linear Association	9.278	1	.002		
N of Valid Cases	664				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 53.10.

Table 23. Chi-Square Testing of Attendance at BSRF and Any Visit to ER/Acute Care

Did You Attend BSRF * Number of Prescription Medications Exceed Five Crosstabulation

			Number of Prescription Medications Exceed Five		
			Less Than Six Meds	Six or More Meds	Total
Did You Attend BSRF	Not Attended	Count	486	3	489
		% within Did You Attend BSRF	99.4%	.6%	100.0%
		% within Number of Prescription Medications Exceed Five	75.3%	25.0%	74.4%
		% of Total	74.0%	.5%	74.4%
	Attended	Count	159	9	168
		% within Did You Attend BSRF	94.6%	5.4%	100.0%
		% within Number of Prescription Medications Exceed Five	24.7%	75.0%	25.6%
		% of Total	24.2%	1.4%	25.6%
Total		Count	645	12	657
		% within Did You Attend BSRF	98.2%	1.8%	100.0%
		% within Number of Prescription Medications Exceed Five	100.0%	100.0%	100.0%
		% of Total	98.2%	1.8%	100.0%

Table 24. Attendance at BSRF and Prescription Medication Use Cross Tabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	15.692[b]	1	.000		
Continuity Correction [a]	13.158	1	.000		
Likelihood Ratio	13.112	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	15.668	1	.000		
N of Valid Cases	657				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.07.

Table 25. Chi-Square Testing of Attendance at BSRF and Prescription Medication Use

- 76 people self-reported they had driven after drinking too much in the past month (11 people reported doing it over 7 times in the past month)
- The following highlights all of the percentages of survey respondents who reported driving after drinking too much in the past month: overall – 11.3% (76 people); 1-2 times – 5.8% (39 people); 3-4 times – 1.9% (13 people); 5-6 times – 1.9% (13 people); 7 or more times 1.6% (11 people)

Times Driving while Drunk

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		3	.4	.4	.4
	1_2_times	39	5.8	5.8	6.2
	3_4_times	13	1.9	1.9	8.1
	5_6_times	13	1.9	1.9	10.1
	7_or_more_times	11	1.6	1.6	11.7
	dont_drive	25	3.7	3.7	15.4
	dont_know	13	1.9	1.9	17.3
	none	558	82.7	82.7	100.0
	Total	675	100.0	100.0	

Table 26. Reported Frequencies of Driving While Drunk

- Survey respondents who reported a need to cut down on their drinking in the past month: 14.1 % (95 people)

Think You Should Reduce Alcohol Use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	95	14.1	14.6	14.6
	no	555	82.2	85.4	100.0
	Total	650	96.3	100.0	
Missing	System	25	3.7		
Total		675	100.0		

Table 27. Frequencies of Respondents Reporting They Should Reduce Alcohol Use

- Those who attended BSRF were 7.1 times more likely to report driving this past month after drinking too much (p=.008). Selection bias is an obvious potential reason for this. If your more troubled personnel were encouraged to attend BSRF first, then this would make sense.

Did You Attend BSRF * Number Who Drove Drunk in Past Month Crosstabulation

Count

		Number Who Drove Drunk in Past Month		
		None	At Least One Time	Total
Did You Attend BSRF	Not Attended	421	46	467
	Attended	137	30	167
Total		558	76	634

Table 28. Attendance at BSRF and Drunk Driving Frequency Cross Tabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.676[b]	1	.006		
Continuity Correction[a]	6.926	1	.008		
Likelihood Ratio	7.139	1	.008		
Fisher's Exact Test				.008	.005
Linear-by-Linear Association	7.664	1	.006		
N of Valid Cases	634				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.02.

Table 29. Chi-Square Testing of Attendance at BSRF and Drunk Driving Frequency

- BSRF did lead to respondents reporting a decrease in inappropriate alcohol use in the following percentages by level of BSRF training: level 1 – 5%; level 2 – 8%; and level 3 – 12.5%.

BSRF8 * BSRALC10 Crosstabulation

Count

		BSRALC10		
			on	Total
BSRF8	1	77	4	81
	2	36	3	39
	3	48	6	54
Total		161	13	174

Table 30. Attendance at BSRF by Level and Reported Decrease in Inappropriate Alcohol Use (BSRF8= BSRF Levels, BSRALC10 is Reported Decrease in Inappropriate Alcohol Use, on=yes)

- When asked to report their level of worship, 56% reported they do not attend any worship service, 15% attend infrequently, 19% attend off post and 10% attend on post

Activity Level in Worship

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		6	.9	.9	.9
	infrequently	100	14.8	14.8	15.7
	no	375	55.6	55.6	71.3
	off_post	130	19.3	19.3	90.5
	on_post	64	9.5	9.5	100.0
	Total	675	100.0	100.0	

Table 31. Reported Participation Levels in Worship by Location

- Personnel who attended BSRF were 21 times more likely to seek assistance from a chaplain this year (p<.001) The value of this is questionable given the selection bias present. It is possible chaplains encouraged families who were seeking their assistance prior to the introduction of the BSRF to attend the BSRF program. The question remains, then, were BSRF attendees 21 times more likely to seek assistance PRIOR to the BSRF program. Research without selection bias would be needed to thoroughly answer this question.

Crosstab

Count

		AGECHA11		
			on	Total
BSRFYN	0	456	45	501
	1	134	40	174
Total		590	85	675

Table 32. Attendance at BSRF and Those Who Seek Assistance from the Chaplains
(BSRFYN: 0 is no, 1 is yes; AGECHA11 is "Sought Chaplain Assistance: on is yes, other column is no)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	23.019[b]	1	.000		
Continuity Correction [a]	21.764	1	.000		
Likelihood Ratio	20.721	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association					
N of Valid Cases	675				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.91.

Table 33. Chi-Square Test of Attendance at BSRF and Those Who Seek Assistance from the Chaplains

- BSRF learned skills improved spiritual health of attendees in the following reported percentages: level 1 at 22%, level 2 at 23% and level 3 at 31.5%

BSRF8 * BSRFSP10 Crosstabulation

			BSRFSP10		
				on	Total
BSRF8	1	Count	63	18	81
		% within BSRF8	77.8%	22.2%	100.0%
		% within BSRFSP10	48.5%	40.9%	46.6%
		% of Total	36.2%	10.3%	46.6%
	2	Count	30	9	39
		% within BSRF8	76.9%	23.1%	100.0%
		% within BSRFSP10	23.1%	20.5%	22.4%
		% of Total	17.2%	5.2%	22.4%
	3	Count	37	17	54
		% within BSRF8	68.5%	31.5%	100.0%
		% within BSRFSP10	28.5%	38.6%	31.0%
		% of Total	21.3%	9.8%	31.0%
Total		Count	130	44	174
		% within BSRF8	74.7%	25.3%	100.0%
		% within BSRFSP10	100.0%	100.0%	100.0%
		% of Total	74.7%	25.3%	100.0%

Table 34. Attendance at BSRF by Levels and Reported Improvement in Spiritual Health

- All other races are 3.8 times more likely to report a "fair" or "poor" general health status than the white (non-Hispanic) race survey respondents. (p=.051 – of questionable significance)

GENHLTYN * ETHNICYN Crosstabulation

Count

		ETHNICYN		
		0	white_non_hispanic	Total
GENHLTYN	.00	26	10	36
	1.00	350	275	625
Total		376	285	661

Table 35. General Health Status and Ethnicity Cross Tabulation
(GENHLTHYN: .00 = poor or fair, 1.00 = good, very good, excellent; ETHNICYN: 0 is all ethnicity areas except White-non-Hispanic)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.652[b]	1	.056		
Continuity Correction[a]	3.021	1	.082		
Likelihood Ratio	3.820	1	.051		
Fisher's Exact Test				.059	.039
Linear-by-Linear Association	3.647	1	.056		
N of Valid Cases	661				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.52.

Table 36. Chi-Square Test of General Health Status and Ethnicity

- 57% of BSRF attendees are non-white

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		4	.6	.6	.6
	asian_oriental	22	3.3	3.3	3.9
	black_hispanic	36	5.3	5.3	9.2
	black_non_hispanic	148	21.9	21.9	31.1
	indian_alaskan	13	1.9	1.9	33.0
	other	57	8.4	8.4	41.5
	pacific islander	30	4.4	4.4	45.9
	white_hispanic	73	10.8	10.8	56.7
	white_non_hispanic	292	43.3	43.3	100.0
	Total	675	100.0	100.0	

Table 37. Frequencies of Reported Ethnicity

- Enlisted personnel are 6.685 times more likely to report a "fair" or "poor" general health status than officers. (p=.01)

GENHLTYN * STATUSYN Crosstabulation

Count

		STATUSYN		
		enlisted	officer	Total
GENHLTYN	.00	36		36
	1.00	568	57	625
Total		604	57	661

Table 38. General Health and Military Status Cross Tabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.593[b]	1	.058		
Continuity Correction[a]	2.529	1	.112		
Likelihood Ratio	6.685	1	.010		
Fisher's Exact Test				.063	.035
Linear-by-Linear Association	3.588	1	.058		
N of Valid Cases	661				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.10.

Table 38. Chi-Square Test of General Health and Military Status

- 92% of BSRF attendees are enlisted

Military Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	enlisted	618	91.6	91.6	91.6
	officer	57	8.4	8.4	100.0
	Total	675	100.0	100.0	

Table 39. Frequencies of Reported Military Status

Multivariate Analysis

Multiple regression analysis was conducted on two models. The first model attempted to measure the statistically significant influence several independent variables had on the SF-12 Mental Health Score. Those independent variables were gender, race, military status, marital status, level of worship, BSRF attendance, utilization of acute health services, time on the island, satisfaction with work relationships and satisfaction with partner relationships. The results showed only a very small R squared of 12% and three statistically significant relationships: the longer you are on the island, the better your mental health score ($p=.03$); the less satisfied you are with work relationships, the lower the mental health score ($p<.001$); and, the less satisfied you are with partner relationships, the lower the mental health score ($p=.021$).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.349[a]	.122	.098	8.7932163

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, Are You Married, Are You an Officer, TIMEOAHN

b. Dependent Variable: SF-12 Mental Health Score

Table 40. Multivariate Model R-Squared Summary with Dependent Variable SF-12 Mental Health Score

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3942.343	10	394.234	5.099	.000[a]
	Residual	28376.679	367	77.321		
	Total	32319.022	377			

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, Are You Married, Are You an Officer, TIMEOAHN

b. Dependent Variable: SF-12 Mental Health Score

Table 41. Multivariate Model ANOVA Summary with Dependent Variable SF-12 Mental Health Score

Coefficients

Model		Unstandardized Coefficients B	Std. Error	t	Sig.
1	(Constant)	49.806	1.509	33.007	.000
	Gender	-1.774	3.217	-.551	.582
	Are You Married	.518	1.208	.429	.668
	Did You Attend BSRF	.497	1.001	.497	.620
	Are You an Officer	1.802	1.641	1.098	.273
	Are You White (Non-Hispanic)	3.589E-02	.944	.038	.970
	TIMEOAHN	.140	.065	2.165	.031
	Ever Active in Worship?	.387	.940	.411	.681
	Any Visits to ER or Acute Care in Past Year	-.648	.983	-.658	.511
	Are You Happy With Your Spouse/SO Relationship?	-3.015	1.299	-2.321	.021
	Are You Happy With Your Work Relationships?	-5.015	.937	-5.356	.000

a Dependent Variable: SF-12 Mental Health Score

Table 42. Multivariate Model Variable Summary with Dependent Variable SF-12 Mental Health Score

The second model attempted to measure the statistically significant influence several independent variables had on the survey respondent's satisfaction with life. Those independent variables were gender, race, military status, marital status, level of worship, BSRF attendance, utilization of acute health services, time on the island, satisfaction with work relationships and satisfaction with partner relationships. The results showed only a very small R squared of 14% and four statistically significant relationships (the p values

between .05 and .1 are of questionable statistical significance): the longer you are on the island, the better your satisfaction with life (p=.001); the less satisfied you are with work relationships, the less satisfied you are with life (p<.001); the less satisfied you are with partner relationships, the less satisfied you are with life (p=.059); and, if you are an officer, you are more likely to report you are more satisfied with life (p=.067).

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.368[a]	.136	.112	.80

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, TIMEOAHN, Are You an Officer, Are You Married

b. Dependent Variable: Satisfaction with Life

Table 43. Multivariate Model R-Squared Summary with Dependent Variable Satisfaction With Life

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.914	10	3.691	5.730	.000[a]
	Residual	235.126	365	.644		
	Total	272.040	375			

a. Predictors: (Constant), Are You Happy With Your Work Relationships?, Did You Attend BSRF, Are You White (Non-Hispanic), Ever Active in Worship?, Any Visits to ER or Acute Care in Past Year, Gender, Are You Happy With Your Spouse/SO Relationship?, TIMEOAHN, Are You an Officer, Are You Married

b. Dependent Variable: Satisfaction with Life

Table 44. Multivariate Model ANOVA Summary with Dependent Variable Satisfaction With Life

Coefficients

Model		Unstandardized Coefficients B	Std. Error	t	Sig.
1	(Constant)	2.791	.138	20.156	.000
	Gender	.154	.294	.525	.600
	Are You Married	-3.428E-02	.111	-.308	.758
	Did You Attend BSRF	.120	.092	1.306	.192
	Are You an Officer	.276	.150	1.840	.067
	Are You White (Non-Hispanic)	1.165E-03	.086	.013	.989
	TIMEOAHN	1.990E-02	.006	3.362	.001
	Ever Active in Worship?	-9.764E-02	.086	-1.135	.257
	Any Visits to ER or Acute Care in Past Year	-.121	.090	-1.344	.180
	Are You Happy With Your Spouse/SO Relationship?	-.224	.119	-1.891	.059
	Are You Happy With Your Work Relationships?	-.465	.086	-5.424	.000

a Dependent Variable: Satisfaction with Life

Table 45. Multivariate Model Variable Summary with Dependent Variable Satisfaction With Life

Due to selection bias for those who participated in the BSRF, a multiple regression model was not seen as a valid model when attendance at BSRF was used as the dependent variable.

Population-Level Analysis

One survey question was developed to assess various health risks that respondents felt they currently face - soldiers responses to the question "identify where you believe you are at health risk at this time" were:

Single soldiers: 35% stress, 33% tobacco, 14% alcohol, 13% nutrition, 9% spiritual well-being, 7% fitness, 7% communications, 7% safety, 3% reproductive health, 1% family violence and 1% drug use

Married soldiers: 32% tobacco, 31% stress, 11% fitness, 10% nutrition, 9% alcohol, 8% spiritual well-being, 5% communications, 5% safety, 2% reproductive health, 2% family violence and 1% drug use

The following graphs represent these data, first the August 1999 genogram-based population health risks and then the DivArty 2000 Survey-based population health risks.

During the analysis it was found that only "all beneficiary" tallies of SF-12 mental health and physical health scores were available for comparison[84]. The active duty DivArty scores (shown with the "*") are shown below next to the all beneficiary results for the catchment areas in DivArty's TRICARE region.

Other Data Findings With Insignificant Results

Did You Attend BSRF * Think You Should Reduce Alcohol Use Crosstabulation

Count

		Think You Should Reduce Alcohol Use		
		yes	no	Total
Did You Attend BSRF	Not Attended	64	418	482
	Attended	31	137	168
Total		95	555	650

Table 46. Attendance at BSRF and Reported Belief You Should Reduce Alcohol Use Cross Tabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.673[b]	1	.102		
Continuity Correction[a]	2.274	1	.132		
Likelihood Ratio	2.564	1	.109		
Fisher's Exact Test				.127	.068
Linear-by-Linear Association	2.669	1	.102		
N of Valid Cases	650				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.55.

Table 47. Chi-Square Test of Attendance at BSRF and Reported Belief You Should Reduce Alcohol Use

Did You Attend BSRF * Do You Have Serious People Problems? Crosstabulation

Count

		Do You Have Serious People Problems?		
		Seldom or Never	Sometimes or Often	Total
Did You Attend BSRF	Not Attended	23	221	244
	Attended	17	97	114
Total		40	318	358

Table 48. Attendance at BSRF and Reported Belief You Have Serious People Problems Cross Tabulation

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.356[b]	1	.125		
Continuity Correction[a]	1.836	1	.175		
Likelihood Ratio	2.259	1	.133		
Fisher's Exact Test				.149	.090
Linear-by-Linear Association	2.350	1	.125		
N of Valid Cases	358				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.74.

Table 49. Chi-Square Test of Attendance at BSRF and Reported Belief You Have Serious People Problems

Appendix 3

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