

THE CULTURE AND PRACTICES OF MILITARY WOMEN RELATING TO
HYGIENE IN THE FIELD ENVIRONMENT

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LESLIE PAFFORD, B.S.N., M.S.N.

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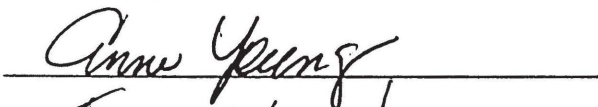
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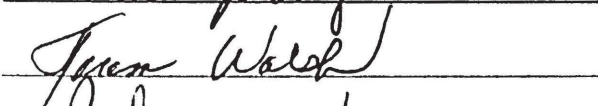
I am submitting herewith a dissertation written by Leslie Pafford entitled "The culture and practices of military women relating to hygiene in the field environment." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Ph.D. with a major in Nursing.

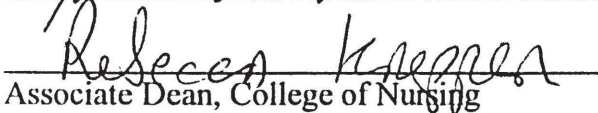


Sandra Cesario, Ph.D, Major Professor

We have read this dissertation and recommend its acceptance:






Associate Dean, College of Nursing

Accepted:



Dean of the Graduate School

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ABSTRACT

LESLIE PAFFORD

THE CULTURE AND PRACTICES OF MILITARY WOMEN RELATING TO HYGIENE IN THE FIELD ENVIRONMENT

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Military women must manage toileting, bathing and menses in a variety of deployed and field environments. The act of providing hygiene in austere environments presents problems which can impair the health of the service member and compromise the function of the military organization. The purpose of this study was to explore and describe the practices of military women managing hygiene issues in field environments and to also explore the culture of the military surrounding these practices. A two phase ethnographic study was conducted in June 2006. The researcher conducted participant observation data collection during a 14 day field exercise. This process was followed by telephone interviews of selected participants. Spradley's Developmental Research Sequence was followed throughout data collection and analysis. Cultural themes identified were 1) Women rely on each other to manage hygiene activities, 2) A degree of risk is involved in hygiene activities in the field and 3) Women will sacrifice their own needs and safety to maintain the integrity and cohesion of the military unit. Based on the findings, recommendations to develop and implement education regarding management of hygiene in deployed settings for men and women. In addition, recommendations for

development and utilization of equipment, uniforms and protective gear which will enable women to manage hygiene without compromising privacy and safety were made.

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CHAPTER I

INTRODUCTION

“Military medical personnel must never forget that hard environments are great, silent, debilitating agents for military operations.” (Peake, 2001, p. xi)

Research problems are derived from actual life experiences (Lofland & Lofland, 1995). The experience of being a woman in a male oriented organization and living in environments where maintenance of personal hygiene is problematic was the subject of this study. The research question explored herein had its beginnings during a military winter field exercise at 20 degrees and a 9,000-foot altitude. As a participant in the exercise, the author experienced the inconvenience of managing hygiene in rugged environments, but more importantly had the opportunity to observe those around her in their endeavors to manage their own hygiene in less than hospitable environments. In this surrounding, some women with lengthy experiences and successes in the military failed to manage the basics of toileting, bathing, and managing menstruation in the field, while others seemed to do so with no problem. The male leaders of the unit were oblivious to the trials and problems some women were experiencing. When the hygiene issues of the female members of the unit were brought to their attention, unit leadership was ill prepared to address the problem. The topic of managing hygiene issues in the field was the subject of talk among the female members of the unit.

After the exercise was complete, the author continued to ponder upon what she had seen: How could such a basic and fundamental element of human existence cause such a tremendous problem? How could such a rudimentary act cause problems in the structure and workings of a military unit and more importantly what were the experiences, behaviors, attitudes and beliefs of women managing hygiene and how did such cultural attributes affect the unit as a whole?

Problem of Study

Women comprise 18% of the United States military (Davis & Woods, 1999) and greater than 25,000 have served in or near the theater of operations for Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) since 2003 (Blankenship, 2004). Females serve in varied positions and occupations save for a few combat jobs (Aspin, 1994). The military organization is a male hierarchal structure, yet women have found satisfaction and meaning in serving their country (Pierce, 1998). Opportunities open to women in the military have greatly expanded over the past century and women now find themselves in occupations and jobs that largely parallel those held by men.

During Gulf War I, the problem of maintaining personal hygiene emerged subsequent to placing women in deployed and field military environments. Women have different requirements than men for maintaining essential hygiene needs while in austere environments. Lacking ready access to attend to toileting, lacking privacy, supplies, and running water, the problems they face are unique and different than those faced by their male counterparts. Anecdotal reports of over and under provision for women have surfaced (Williams, 2000).

In peacetime and war, the mission of the military unit is foremost. In well-meant attempts by military planners and senior officers to provide adequate facilities for women, over accommodation can occur. Although the women may be well provided for, resources in dollars, time and manpower are inappropriately spent (Markenson, Racz, & Colavita, 1992); assets that can be better utilized supporting the mission in other ways. On the other hand, failure to provide for the hygiene needs of women has the potential for catastrophic effects. Poor hygiene has been associated with impaired health and diminished morale (Czerwinski et al., 2001; Ryan-Wenger & Lowe, 2000; Wardell & Czerwinski, 2001). In order to adequately and appropriately provide for women sailors, soldiers, and marines, information regarding the hygiene needs of women based on fact and research must be obtained. The purpose of this study was to explore and describe the practices of military women managing hygiene issues in field environments and to also explore the culture of the military surrounding these practices.

Rationale for the Study

An examination of how military women manage hygiene in field settings will assist in identifying appropriate resources required by military women in order to complete the mission and to remain healthy. Until 1991 and the involvement of women in Operation Desert Shield/Desert Storm, the problems associated with the health and management of military women in field settings were not clearly addressed. Little research existed prior to the Gulf War that examined the unique problems faced by women in the military. After the Gulf War I and peacekeeping operations in Bosnia, the need to explore the issues of hygiene and health related needs of female service members

became evident (Davis & Woods, 1999; Government Accounting Office, 1999; Pierce, Antonakos, & Deroba; 1999). As members of the Army Well Women Process Action Team, Davis and Woods (1999) reviewed the research in existence and forecast the direction that future military research regarding women should take. Research recommendations were readiness, deployment and post-deployment issues, well women's health research, establishing health goals for women in the military and implementing collection of data regarding military women.

At present military leaders assume that the knowledge women require to manage the problems of toileting, menstruation, bathing, and elimination is tacit or the topic is inadequately addressed in predeployment preparations (Hughey, 1999). In an anonymous survey (developed and administered by the author) of a military unit undergoing cold weather training, female military members had a mean of 11.6 years of military experience. When queried, these women specifically requested education regarding how to manage hygiene problems effectively and efficiently in field environments. Other studies also support the need for more information dissemination in this area (Criner, 2001; Norwood, Ursano, & Gabbay, 1997; Ryan-Wenger & Lowe, 2000).

The few studies in existence that specifically examine the hygiene needs of women in the military are preliminary descriptive studies (Czerwinski et al., 2001; Wardell & Czerwinski, 2001) and provide groundwork for further study. Further exploration is needed, but not just of the experience of women managing hygiene in field settings. A broader perspective and examination of how the experience affects the military unit is essential. If the goal of any military unit is to accomplish a given mission,

careful scrutiny should be afforded to any element that could possibly affect that objective.

A female service member's inability to manage her hygiene has the potential to affect her ability to contribute to her unit, complete the job, and execute the mission. In the military, accomplishment of the mission is the overarching duty and the needs of the individual assume less priority than the mission and the unit. Any factor that might compromise the execution of the mission should be thoughtfully considered and addressed.

A study which leads to greater understanding of the experience of how military women manage hygiene in field settings will likely lead to concepts, problems or perhaps solutions not yet conceived by researchers or military leaders. A qualitative ethnographic study will assist those who are affected (either directly or indirectly) in achieving a greater understanding of the problem, the degree of importance to military women, and how the problem affects the military unit.

Ethnographic research will allow for the greatest understanding of the practices, beliefs, and behavior of military life and women's hygiene practices, and will examine the unique complexities and issues of hygiene in the military community. Ryan-Wenger and Lowe describe the military as a "self-sufficient microcosm of society" (2000, p. 6). They further note that the culture of the military is unique, possessing its' own language, beliefs, symbols, behaviors, attitudes, norms, and social arrangements of participants that are separate from the culture of civilians. The behaviors and practices associated with military culture may be subtle, easily misunderstood or missed by those outside the

culture. An ethnographic study will purposively seek to describe and understand the quiet yet powerful interactions and meanings that exist within the military culture. “The goal of ethnographic research is to discover the cultural knowledge people use to organize their behavior and interpret their experiences” (Emerson, Fretz, & Shaw, 1995, p. 149). The goal of this study was to discover and describe how a problem is experienced by military women and to examine the cultural implications of the women’s experiences upon the military unit.

Theoretical Framework

Mary Douglas’ grid/group theory is an anthropologically based theoretical framework that provides an understanding of individual and group influences on societal behavior (Douglas, 1996). The framework was used to explore and interpret how internal and external social and organizational circumstances influence the behavior and beliefs of military women. The framework was used to explore and describe the subculture of military women. Behavior in “certain social settings encourages certain ways of seeing the world; group/grid theory is designed to make the connection explicit and predictions possible” (Spickard, 1989, p. 151).

Social experiences influence beliefs and behaviors. Douglas originally formulated the group/grid theory in order to explain and predict ritualism and its relationship to cosmology in African societies. The design uses two social dimensions to explore and explain group and individual behavior: group pressure and socially prescribed roles (Douglas, 1996). Douglas placed the two dimensions within a matrix or grid in order to explore and explain both societal and individual behavior. Her theory

evolved from earlier writings that discuss symbolism and individuals to later versions focusing more on social control (Douglas, 1996; Spickard, 1989). The later 1996 revised version was used as the theoretical framework for this research study.

Group

The dimension of group pressure upon the individual to conform to the expectations of society is placed on the horizontal axis of the model. The greater the degree of formal rules and perceived cohesiveness of the society, group or organization, the farther to the right they are placed on the horizontal axis. Military organizations possess great cohesiveness and a sense of group identity. This strong sense of unity and group identification is reflected in the framework by placing military organizations on the far right side of the group axis. Group strength is evident in the physical grouping of military personnel, the organizational hierarchy, and symbols not known to outsiders. Survival in wartime settings is dependant upon group strength and unit cohesion (Titunik, 2000). Military training is undertaken not only to provide service members needed technical and soldiering skills but also to foster the unit and group mentality (Rosen & Durand, 1996). The value placed upon group strength is evident in the mottos of the United States Marines and the Army Rangers – “Never leave a man behind”. The group strength is existent even in noncombatant roles as shift workers are encouraged to arrive and leave together, yet again strengthening the expectations for cohesiveness, conformity, and responsibility to others.

Grid

Individual connections, freedoms, and role obligations are influences that are not prescribed by group pressures but are more internally motivated limits of societal behavior of the individual. The grid dimension focuses on an individual's obligation to others – the degree of social control that society exerts, leaving out the control accompanying his or her group membership. Grid measures “the degree to which a man is constrained ...by a set of rules which engage him in reciprocal transactions” (Spickard, 1989, p. 156.). This role dimension is placed on the vertical axis of the model and is described as ‘grid’. An expectation of high grid occurs in a society or organization with multiple delineated hierarchal defined roles such as the military. Socioeconomic, education, gender, and occupation serve as role delineators. The military clearly defines the roles and authority of individuals and is reflected in the insignia and uniform of daily wear, the manner of communication and address and symbolic gestures such as salutes and standing to attention when ranking officials enter and leave areas. The undeniable role attributes of military organizations place military organizations high on the grid axis.

Application to the Study

Military life and culture by necessity have clear high group and high grid strength and is evident in all aspects of training, war, and day-to-day military operations. The assumption of high group/high grid strength in military units is somewhat stereotypical. One might even argue that the hierarchal assumptions are based on traditional male roles, occupations, and warrior mentality of the military. The degree of unit cohesiveness and effectiveness has been linked to hyper-masculine traits which “objectify and denigrate

women” (Rosen, Knudson, & Fancher, 2003, p. 325) that emerge while in field environments. Titunik (2000) argued that the cohesiveness and unity present in military organizations are not denigrating to women at all but actually embody the characteristics typically associated with women:

The consideration that I am driving toward is that the dominant image of warfare as a “machismo” enterprise appears increasingly chimerical as we look more deeply. It also becomes evident that our common cultural idea of war eclipses its most significant aspects. War and the organization for war bring forth many characteristics that we associate with women—tenderness, protectiveness, nurturing, self-sacrifice, and submissiveness” (2000, p. 240).

Exploration of the culture of military women managing hygiene in field environments was completed utilizing existing knowledge of military organizations and Douglas’ framework but also considering whether a separate subculture of military women existed. If the subculture existed, where would it fall within the group/grid framework and how would it function within the larger group? Douglas’s theory was not intended to impress knowledge into the exploration but rather was used to frame the study and assist in the interpretation of findings. This theory did not dictate specifically what or how the study was undertaken but provided a cultural lens to explore the phenomena and frame the findings.

Assumptions

Assumptions are those generally accepted and understood philosophical viewpoints that form the worldview of the researcher. The qualitative ethnographic method of exploration is congruent with the constructivist viewpoint held by the researcher and was most appropriate for the subject matter under investigation. An understanding and appreciation of the constructivist paradigm was necessary in order to best understand and interpret the phenomena of interest. Philosophical assumptions of qualitative research that address the ontological, epistemological, axiological, and methodological issues associated with the chosen framework and ethnographic research method are presented (Creswell, 1998).

Ontology

Reality in research is that which is useful, has meaning, and is mutually agreed upon as real by the participants (Lincoln & Guba, 2003). The relativist ontology of ethnographic qualitative research recognizes that multiple realities exist. Reality is never fully known by one individual nor is reality a single isolated truth that is out there to be discovered. "Reality is developed and constructed over a lifetime of receiving, processing and interpreting information as well as engaging in human interaction" (Streubert & Carpenter, 1999, p. 4). Truth and reality change and are dependent upon situation, participants, and context. Meaning imparted during interactions by the individual is dynamic and changing. Reality then is derived and interpreted. In participant observer research, this derivation occurs during the interchange of the researcher and the participant within a particular setting or context or as the researcher

becomes enmeshed in the culture under study and moves toward the native understanding of the concept. Only through experience and participation is one able to fully understand social elements which are “seen, felt, and analytically articulated” through ethnographic qualitative study (Lofland & Lofland, 1995, p. 3). Reality is changing and best known to those in the immediate setting.

Managing hygiene needs in austere environments is known best to those who have lived it. Through interviewing, participation, and discussion, the participant and the researcher discovered together what the experience meant to the participant and the unique culture that surrounded the experience of the women. This ethnographic study sought to learn the culture that is composed of the beliefs and attitudes developed and applied by a group of persons who interact with themselves and their environment to derive meaning (Flick, 1999). The experiences and perceptions of each woman differ and each held unique meaning. Because multiple persons and situations exist, multiple realities also exist. All realities were considered and multi-voiced texts were developed in order to convey all meanings to the reader who will then form the reader’s own reality of the subject.

Epistemology

Remaining consistent with the ontological assumptions of the constructivist paradigm, the researcher sought to close the gap between participant and researcher. In order to gain the emic view, the researcher sought to eliminate the distance between the researcher and the individuals and groups where the researcher sought to gain knowledge (Creswell, 1998). Decreasing the distance between the observer and the social scene

under study drew the researcher into the interactions occurring within the social situations and created a reality. The researcher was a tool used to form the truth while interacting with the participant. This interaction and truth forming required a closeness and loss of objectivity not found in empirical research. Qualitative research differs widely from traditional empirical research, which goes to great lengths to exclude the researcher, settings, or elements, which may bias the results. Rather than seeking to isolate and eliminate these elements, the qualitative researcher embraced and sought to understand these elements as a piece of the truth, which was being constructed by the researcher in partnership with the informant.

Axiology

Qualitative axiology recognizes that it is impossible to ‘unknow’ the values, feelings, or beliefs formed in response to the topic. Rather than seeking to nullify or totally remove the presuppositions of the researcher, these experiences, ideas, and beliefs were recognized and accepted, yet not allowed to overly influence what remained to be discovered or co-created by the researcher and the participants.

Research Questions

Exploration of the experience of military women and the management of hygiene was conducted in the setting in which it occurred. Not only was the stated experience of the women a phenomenon to be examined but also how the experience of women managing hygiene affected the culture of the military groups in which the women are situated. The research questions addressed in this study included:

1. What are the practices of military women managing hygiene needs while in

field settings?

2. How does the cultural environment of the military affect management of women's hygiene in the field?
3. How do military women's practices affect the ability of the unit to accomplish the mission?

Definition of Terms

Setting forth a clear definition of terms in advance of actual qualitative research is often difficult. It may be a matter of putting the cart before the horse. Known terms were identified and defined prior to initiation of the study. Although the researcher defined the terms that are used in formulating the proposal and the plan for study, the terms and concepts of greatest meaning are those of the participants. These terms emerged and were revealed during interviews and field participation. Spradley (1979) states:

In ethnographic *discovery*, we should make maximum use of the native language. In ethnographic *description* we should represent the meanings encoded in that language as closely as possible. As a translation, ethnographic descriptions should flow from the concepts and meanings native to that scene rather than the concepts developed by the ethnographer.

As the study progressed, the informants specified unique terms in native language and the meanings assigned to those terms. "Terms are defined by informants" rather than by the researcher (Creswell, 1998, p. 77).

Hygiene

Hygiene was defined as a desired state of personal cleanliness and is related to health practices and behaviors necessary to manage elimination, menstruation and cleansing of the body (Czerwinski, 1996). Satisfactory hygiene is the minimal level of cleanliness necessary to prevent disease and illness. For this study, hygiene was defined as the behaviors, practices, and attitudes relating to personal cleanliness of the individual.

Culture

Debate exists regarding the formal definition of culture. The debate regarding such centers on the objectiveness of cultural knowledge and is philosophical in nature. The common school of thought regarding the definition of culture holds that culture is a learned response to the environment enabling the individual to interpret and make sense of the world around him. Culture is knowledge held by individuals and groups rather than just behaviors (Spradley & McCurdy, 2000). Culture is non-biological in nature and resides in the language, symbols and attitudes of the individuals within the cultural group. The opposing school of thought is that culture has roots in the biology of man and his evolving adaptation to the environment (Hall, 1981). For the purpose of this study, culture was defined as the attitudes, beliefs, behaviors, values and rules adapted by a group of individuals in response to their environment. The elements are learned and shared by individuals within a cohesive group in order to best respond to their environment (Spradley & McCurdy, 2000).

Field Environment

In the military, the field environment is considered one that is temporary and not residential or garrisoned quarters. Dependent upon the branch of service, occupation, rank and mission of the unit, tremendous differences exist concerning defining field environment. For purposes of this study, field environment was intended to mean any living environment (short or long term) in which the primary focus is not one of comfort or necessarily safety but is required for the individual service member or unit to reside in order to execute the mission most efficiently.

Participant

Since those individuals who interact with the environment and others within their world create meaning, merely defining them as subjects did not sufficiently convey the importance that had. A participant is actively involved in the world, gives and takes, assigns meanings and shares. A participant assists the researcher not only to describe the meanings inherent in the cultural setting but also to more deeply understand the practices and beliefs of the culture. For the purposes of this study, participant was defined as an observed member of the military culture under study or one who identified themselves as such.

Limitations

Limitations which could have existed during the course of the study were:

1. The researcher's extensive military experience and familiarity with the problem under study could have represented a disadvantage with the presence of bias or

preexisting views, which might have inappropriately slanted the interpretations of the groups under study by the researcher.

2. The researcher's senior rank if known to participants might have inhibited or colored responses or actions in the field. Rank could have been a limitation that obstructs a full view of the social situation.

One could not assume that being female in the military was a commonality that automatically leads to trust and willingness to reveal intimate and potentially embarrassing stories. The factors of researcher familiarity, rank, and military affiliation were unchangeable and had the potential to limit the extent of what was revealed.

Summary

This qualitative ethnographic study explored the experiences and culture relating to women managing hygiene in field environments. The results of the study will contribute to the body of nursing information. These results can be utilized to assist military planners to implement policies and procedures which most effectively assist women in managing hygiene needs without compromising the needs and missions of the military unit.

CHAPTER II

LITERATURE REVIEW

Within the past thirty years, the number of women in the United States Military service has increased from 2% to 18% (Manning, 2004) and by the year 2010 that figure is expected to reach 30 percent (Martineau & Wiegand, 2005). With the repeal of the combat exclusion law in 1993 and the elimination of the Department of Defense risk reduction requirement of 1994, women in the military are no longer strictly prohibited from holding relative combat positions (Aspin, 1994). Although women are not allowed to hold a direct combat position, they are frequently attached to support and supply units. These units train and are deployed in austere field conditions. Variable provisions for the hygiene of the women in field conditions are made. Poor hygiene in field conditions has significant consequences: increased casualties due to illness, redirection of personnel and resources to care for casualties and decreased ability of personnel to perform the job and achieve the mission of the unit (Government Accounting Office, 1999; Ryan-Wenger & Lowe, 2000).

Prior to the presence of women in the Persian Gulf War in 1992, little research existed which examined the unique problems faced by military women. The need to study the complexities of women in the military became evident and in 1994, 80 million dollars was allocated to fund the study of issues unique to military women (Government Accounting Office, 1999). Hygiene is a simple basic premise that must be addressed by

researchers in order to appropriately accommodate women service members in field conditions. According to Wolff, Weitzel, Zornow, and Zsohar (1983) hygiene is the foundation of health and wellness. Personal hygiene involves acts that assure personal cleanliness and that foster physical and psychological well-being. Failure to maintain the health and well-being of military service members has the potential to lead to mission failure through inappropriate utilization of resources and reduction of manpower. Although the overall goal is to maintain health and wellness of all service members, women may require alternative accommodations for hygiene. This alternative does not mean that women need more resources or extra provisions from military leadership but only the consideration for different ones. Failure to identify the hygiene needs of military women utilizing scientific processes may result in over or under accommodation of a segment of the fighting force. When the issue is clearly defined by the women who are directly involved, the extent of the problem will be revealed.

Historical accounts of women in the military were extracted from biographies and scholarly articles from Journal Storage (JSTOR) and government/military data bases. In addition military medical publications were reviewed to examine the disorders and treatment currently specified for women in field settings. The Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Sociological Abstracts, Navy Public Affairs Library, PsychInfo, and Science Citation Index databases were searched for relevant scholarly peer reviewed research articles utilizing the key words hygiene, military, women, elimination, grooming and menses. Reference lists and bibliographic

citations were hand searched for additional sources appropriate to this comprehensive review of the literature.

Research which specifically addressed the hygiene needs of military women is scarce. This review of the literature will briefly overview the history of women in the military, the particular problems directly and indirectly relating to the hygiene of military women and the brief amount of research which specifically examines the hygiene practices of military women. An overview of the existing body of research which relates to health and hygiene of military women will be discussed and will include healthcare utilization, gender and illness/injury, problems with field management of hygiene, menstrual cycle suppression, and barriers to care. In order to understand the culture which exists within the military with regard to women and hygiene, a review of cultural theories and an overview of the theoretical framework to be utilized in this study is included.

Before delving into a specific exploration of the hygiene experience of military women in field settings, one should appreciate the historical and cultural perspective of women in military service. An accounting of these effects will provide a better understanding of the uniqueness associated with being a woman affiliated with and committed to an organization that has historically eschewed the presence of women in its' ranks but continues to make advances in the management of blending women into a warrior's world. "Despite multiple hardships, women appear to find sufficient personal value and rewards in military service and remain committed to their career even in the

face of extraordinary adversity resulting from wartime deployment” (Pierce, 1999, p. 211).

Reviewing the literature in order to obtain a historical perspective of women in the military during the 20th century revealed a plethora of information and opinions regarding the appropriateness of women in the military. Please note that it is not the intent of this writer to enter this debate arena. The focus here is to provide the reader an overview of the history of women in the military. The arguments most oft cited by opponents of policies that equalize the genders in the military frequently refer to the relative physical weakness of the female compared to the male, the sociophysiological argument that women are child bearers and nurturers and the moral argument that it is inappropriate for women to kill (Creveld, 2001; Quester, 1977). The argument regarding the ability of women and the willingness of the public to place women in dangerous war environments is a lengthy argument that will not be settled in one convincing argument but will most likely solve itself in increments without great public notice.

History of Women in the Military

In the United States women were prohibited from serving in the military in official positions until the establishment of the Nurse Corps as an auxiliary branch of the Army in 1901 (Sherman, 1990). Prior to that time women were permitted to serve beside, rather than in the military in menial and traditionally female subservient positions such as laundry women, cooks, nurses and seamstresses. The Navy hired women near the end of World War I to fill the burgeoning need for clerks, translators, and secretaries. These women were only hired to fill the immediate wartime need and were afforded no

benefits, rank or pay equivalent to that of military men (Creveld, 2000; Sherman, 1990). At the end of the war, women were demobilized and were expected to return to their pre-war jobs and status. Despite a few faint attempts to retain women workers in the Army following the end of the war, no steps for inclusion of women in the ranks were made until the rise of World War II. The enormous build up of manpower in preparation for entry in the war, highlighted the need for women to fill supportive positions within the community. At this point women served in support positions as community volunteers, as a few hired civilian workers and as nurses in a separate auxiliary corps.

Manning (2004) detailed the progress of women in a review of the history of women in the military. She noted that in 1948, legislation passed that enabled women to serve in the military in positions other than nursing. Although women were allowed to hold a commission as an officer, caps were placed on the seniority of rank they could attain and on the numbers of women in officer positions. Dependents of women were not eligible for the benefits that were extended to the wives of male service members (healthcare and housing). Women were also forbidden to hold command or authority over male service members. Despite enactment of the 1948 Public Law 625, it is not surprising the United States was unable to meet the recruitment goals it had set for women. "By late 1950's American military women had become all but invisible" (Creveld, 2000, p. 182).

The standards to which women in the military were expected to adhere did not parallel those of men. Physical fitness was encouraged in order to maintain a pleasant appearance and trim figure. Weapons proficiency or other warrior skills were not

addressed. Females in the Marine Corps were required to wear lipstick and nail polish as part of the uniform. In fact, the required lipstick was specially formulated in order to match the red stripes of the uniform (Creveld, 2000).

Over the next 50 years the rules, regulations and standards governing women in the military were incrementally expanded through legislative or court actions. By the mid 1960's, 70% of women in the military were secretaries and 23% worked in health related fields.

In 1967 the limitations placed on numbers and ranks of women in the service were eliminated. The provision of benefits for spouses of military women occurred in 1972 and throughout the 1970's the policies of each branch of the military were changed so that women could assume positions of command (Quester, 1977). The change in regulation, however, served no immediate purpose according to Creveld (2001). The two percent cap on women in the service was lifted but there weren't enough who volunteered to serve in order to exceed the previous limitation.

In the 1970's the draft was eliminated and the all-volunteer force was established. Due to the political climate of the times and the end of the Vietnam War, the United States military was no longer held in high esteem by the majority of the public as it had been in the past. Unable to fill all open positions, the opportunities for women were expanded to encompass engineering and blue-collar type jobs. Women in the service increased to 7% by 1976 (Creveld, 2000).

It was not until 1978 that separate chains of command for women were abolished by the individual services and women were incorporated into the normal military chain of

command. The full integration of women into the military met with considerable barriers and difficulties. The most notable failures were unisex uniforms, unisex berthing and quarters, and equal (as in the same) physical training (Creveld, 2000). As the reality of the inappropriateness of trying to make all elements of military life equal emerged, adjustments were made in all services in order to best accommodate women and provide adequate training for men.

By the 1980's women comprised 8.4% of the total military force. The 1988 invasion of Panama, Operation Just Cause, was notable in that women comprised 4.3% of the total invasion forces (Dunivan, 1997). This event marked the first time that women were placed in combat support roles and exposed to some of the same dangers as men combatants. Women continued to enter the service.

In 1991, 41,000 women were deployed in support of Operation Desert Shield/Desert Storm. They comprised 7% of the total deployed force. The Secretary of Defense, Richard Cheney stated "women have made a major contribution to this effort. We could not have won without them" (Dunivin, 1997, p. 5).

Following the Gulf War, public debate over women's expanding involvement in the military increased. The 1991 Defense Authorization Act created the Presidential commission to further explore the issue. The commission conducted an extensive review of the issue of women in combat assignments (Dunivin, 1997). The committee was harshly divided and much heated debate regarding the proper role for women in the military occurred over the course of the year. The commission recommended actions that would exclude women from combat duty; ironically, the same day the commission voted,

Bill Clinton won the national election for President of the United States. The incoming administration ignored the recommendations from the committee against placing women in combat aircraft and in ground combat units. The 1992 administration moved forward with plans to expand roles for military women. The subsequent 1994 repeal of the Combat Exclusion Law opened the doors for women to move forward into even broader opportunities and environments of greater danger (Aspin, 1994).

Today women may serve aboard aircraft with combat missions and aboard combat ships. Direct ground engagement is still prohibited for military service women, as is service aboard submarines. Manning (2004) noted two trends emerging as a result of the incursions women have made in military service: changes in the military culture regarding the increasing presence of women, and as a result, changes in practice will be evident. For example, women (and men) no longer tolerate sexual assault, discrimination or harassment. In addition she noted that additional research on the physiologic differences in women will continue to occur.

An Emerging Body of Research

As more women enter military service in expanding roles, the experience for this sector of the military requires examination. Until Operation Desert Shield/Desert Storm, little research regarding women in the military existed. Following the war, the need to examine the unique issues associated with women in deployment and specific medical problems and requirements became evident (Davis & Woods, 1999). In 1994, Congress mandated that all Department of Defense research include women (Davis & Woods, 1999). As a result, the Defense Women's Health Research Program was established and

\$80 million was allocated to fund and support research of military women. The Defense Authorization Act of 1995 directed that funded research should address the following areas: 1) epidemiological research regarding deployment issues 2) database development 3) research oriented to policies, regulations and standards and 4) “research on interventions that potentially could affect the health and well-being of military women” (Davis & Woods, 1999, p. 7). Davis and Woods, as members of the Women’s Wellness Process Action Team sponsored by Army Medical Department (AMEDD) reviewed research and funding agencies following the Gulf War in order to review current and forecast future research needs. Department of Defense funded research for women focused on the following issues: menstruation, birth control, trauma/abuse, adaptation to field stresses, family issues, field hygiene, gender differences in performance and equipment, clothing and medication development for women. Davis and Woods (1999) concluded that future research should address readiness and deployment issues, health maintenance (often in hazardous or austere environments), identification of specific health goals with regard to modifiable health risk factors such as smoking, obesity and alcohol use and development of large data bases which can be utilized in future research (Davis & Woods, 1999).

The research mandate supported over 134 large scale research projects and a resultant 245 publications (Friedl, 2005). The resulting research has been utilized to drive change and improve the welfare of service women and men over the past decade. An extensive report (Friedl, 2005) which summarized research accomplishments as a result of this project also identified research priorities for the future: 1) military families,

2) physical training injuries, 3) mental health and psychological resilience, 4) reproductive hazards in the workplace, and 5) healthcare delivery. A notable recommendation was that research for military women not be singled out for research funding with a specialized funding source but rather funded through research budgets in place at the Department of Defense (DoD). Further recommendations were made for funding and utilizing research findings to drive cost effective meaningful changes in DoD policies rather than for funding smaller and repeatedly ineffectual efforts that still cost the taxpayer but never produce new or effective solutions” (p. 796).

Healthcare Utilization

In order to provide information in each of these major focus areas, much has been developed. An area of interest to many in the military community is that of women’s utilization of health care resources. Hines (1992) conducted a retrospective record review of 10,165 medical records from personnel of support medical units for an Army heavy armor division in the Gulf War covering a five month period, in order to ascertain the health care needs of women while in deployment status. While women comprised 6% of the population under study, 17.5% of all health care visits were made by women. The most common diagnoses were for gynecologic disorders, accounting for 25.6% of the diagnoses made for females. The most common problems were dysfunctional uterine bleeding/amenorrhea, vaginitis, oral contraceptive pill refill requests, and pelvic pain. Alteration in patterns of menstruation is a common experience for women when placed in stressful situations, increased activity or changing environments and likely accounts for the large numbers of patients seen for dysfunctional uterine bleeding and amenorrhea

(Olds, London, & Ladewig, 2000). The diagnosis of vaginitis did not specify a type, but a review of medications dispensed suggested that the majority of infections were fungal. The author noted that “the hot desert environment coupled with daily uniform wear and the less than optimal facility for perineal hygiene probably contributed to the large number of patients seen with fungal vaginitis” (Hines, 1992, p. 221). In addition, Hines made recommendations for expedient field management of pregnancy and abnormal cervical cytology. The equipment to evaluate and manage these disorders does not exist in a field setting. As a result, those soldiers required evacuation from theater for routine health care resulting in a loss of manpower and the resources required for evacuation (Hines, 1992).

A similar study to identify the health care needs of women during deployment was conducted during Operation Desert Shield/Storm during a three-month period. Markenson, Raez, and Colavita (1992) conducted a retrospective record review of the Army Eighth Evacuation Hospital. In addition, questionnaires were completed by 419 volunteers from ranks of female personnel seen for routine deployment exams. Twenty-five percent of ambulatory patients seen during the study were female; however, the authors did not specify the number of women in the population which the hospital served, therefore, it is impossible to make assumptions regarding healthcare utilization by women in the field. Nineteen percent of all female ambulatory visits were for obstetrical and gynecological complaints. The most common diagnoses were “rule out pregnancy” (25 out of 98 positive), pelvic pain, birth control pill request, and abnormal periods. Birth

control pills accounted for 31% of gynecological prescriptions written and anti-fungal agents accounted for 17% (Markenson, Raez, & Colavita, 1992).

The survey data obtained showed that 39% of women surveyed were on birth control pills, yet less than 3% of female outpatient visits were for BCP refills/requests. Requests for contraceptives were followed by evacuation of 28 pregnant soldiers. Pregnancy accounted for 56% of all female evacuations (Markenson, Raez, & Colavita, 1992). The authors were unable to determine the number of pregnancies that occurred prior to deployment due to lag time between predeployment pregnancy tests and actual deployment.

Thomason and Nielsen (2006) described the hygiene practices of women deployed in Operation Iraqi Freedom. The researchers distributed a pilot tested ten item questionnaire to Army, Army Reserve, and National Guard women who had access to basic medical care and were deployed at least eight months. The questionnaires were distributed through existing chain of command which likely contributed to the 91% (251) return rate.

The anonymous survey sought information regarding routine predeployment healthcare, contraceptive use, and smoking. The researchers found that 44% of the subjects did not receive standard cervical cytologic screenings as recommended by the American College of Obstetricians and Gynecologists prior to deployment. They further cited examples of great inconvenience and cost to the unit and service member and lost or diverted administrative, transport and medical resources required to deal with individuals requiring gynecologic evaluation and or treatment. It was estimated that in order for a

single woman to receive a routine PAP smear the cost was approximately \$10,000 because the service member had to be evacuated out of theater due to lack of appropriate supplies and facilities to conduct such screening. Recommendations stemming from this study were that cervical cytologic screen be provided for all military women at least six months prior to deployment. They also recommended improved evaluation and treatment options for women in the area of operations. Treatment options should include a mechanism to have cytologic and colposcopic specimens sent for analysis and interpretation rather than exporting the female soldier out of the areas for such services. The authors also obtained information relating to contraceptive use and hygiene which is detailed in the menstrual cycle portion of this chapter.

Hughey and Patel (1997) conducted a retrospective review of medical records aboard a navy ship during two time periods within a 5-year span. They sought information regarding the changing gynecological /obstetrical needs of naval women by reviewing records from 1990 and 1995. The authors note the changing demographics of women assigned to the ship. Women sailors tended to be older and have more naval experience in the later group. The pregnancy rate declined by nearly half when the two time periods were compared. The authors attribute the decline to increased availability of contraception – from 62% to 77% but make no note of the possibly significant effect of age. The authors also noted that women's utilization of sick call services greatly exceeded the rates of sick call use by male sailors. Females used ship health services 3.2 times more than male counterparts (Hughey & Patel, 1997). In fact, the only variable

evaluated by the researcher that did not positively change from 1990 to 1995 was health care utilization.

Perhaps the increased utilization of health care resources can be attributed to greater healthcare needs of women. Are women in the military more prone to injury, illness and disease than their male counterparts? Shaffer, Brodine, Ito, and Le (1999) completed a prospective multi-site study of Navy and Marine Corps female trainees. While not a deployment setting, the sites for data collection were intensive training sites with greater than usual physical and psychological stressors. Utilization of health care resources by the study subjects was significant. Eighty-three percent of female recruits at the Recruit Training Station, 86% of the females at the Marine Corps officer candidate site and 72% of the females at the Marine Corps recruit depot experienced medical encounters (Shaffer et al., 1999). Forty-seven percent of the women at the Recruit Training Station were seen for follow up for gynecologic exam and routine Papanicolaou smear follow up. The types of injuries most frequently reported were musculoskeletal injury secondary to overuse and upper respiratory infection. There was no cohort of male subjects to compare data to but researchers did note that a previous study conducted at the Marine Recruit Depot in order to evaluate musculoskeletal injury found that 61% of the males were seen for new medical problems that were largely orthopedic in nature. Different sources indicate that the male injury rate at the same site varies from 25-30% (Moore, 1996). Lacking a control group or a male cohort, it is difficult to assess whether the utilization patterns displayed by these women were greater than expected.

As these studies conducted in deployed settings are compared, some interesting assumptions and queries arise. The studies by Hines (1992) and Hughey and Patel (1997) both note the significant use of healthcare resources by women. The study by Markenson, Raez, and Colavita (1992) alludes to the fact of increased use of healthcare resources, but lacks the statistical evidence to support the assumption. The two studies that noted the most common diagnoses for women were gynecological or obstetric in nature were conducted in field conditions versus aboard a ship. Evaluation and management of pregnancies accounted for the majority of evacuations for females in the field setting also. All three studies had elements that would cause one to reflect on the predeployment issues that precede any of the problems associated with pap smear results, lack of sufficient birth control pills and method and poor assessment and management of pregnancy prevention. The authors of all studies suggest the need to improve the predeployment screening process for women. Rosa (1996) noted that the screening process utilized for predeployment is inaccurate. Early pregnancies may not be identified resulting in deployment of a service member who will require costly evacuation from the field and possibly placing the woman and fetus in a setting which may cause harm.

The literature supports the differences in pregnancies and health care utilization that exists when gender and rank are considered. Pierce (1999) evaluated health care utilization and satisfaction across the career spans for military women and found menstrual problems and problems with birth control are most significant among junior enlisted women and that the highest incidence of pregnancy also occurs within this age and rank.

Gender, Illness, and Injury

To further explore the possibility that gender also plays a role in an individual's susceptibility to illness and injury, multiple studies have been conducted in the military setting in order to more fully explore this phenomena. Slusarick, Urasano, Dinneen, and Fullerton (2001) evaluated 250 navy nurses, physicians and corpsmen in order to determine which factors were associated with depression aboard the deployed hospital ship near the start of Gulf War I. Using multiple well-validated tools, they found that gender was the greatest predictor of depression and claim significance at the 0.05 level but provide no statistics to support the claim. The researchers also noted that fear of injury and work related stress in concordance with training and experience. lessens the influence of gender on development of depression. The authors also note that women are more likely to report depression than men. Of interest is that the 52% survey return rate and the lack of male enlisted respondents who participated, constituted a significant difference in the participation of the male enlisted service members ($p < 0.05$). The possibility of selection bias is evident. If women are more likely to report depression are they also more likely to report other healthcare problems that arise? If so, this could account for the significant increase in healthcare utilization by women seen in studies to date.

A retrospective descriptive study by Darakjy et al. (2006) sought to define and categorize illnesses and injuries incurred by soldiers during military training and to define injury rates. Researchers collected data during a 37 day field evolution from unit rosters and from an electronic outpatient reporting database used to track patients at Echelon II

and III facilities (outpatients and hospitals). Researchers found that of 4,514 soldiers (4,101 male and 413 female), a total of 504 received medical care. Female soldiers had greater injury and illness rates than males, with injuries 1.93 times greater than men and an illness rate 3.48 times greater than men. For all soldiers, increased illness and injury rate was associated with lower rank. The authors attributed the increased illness and injury rate of lower ranks to the likelihood that the lower ranking personnel were more likely to be assigned physically demanding tasks which have a higher opportunity for accidents and injuries. The leading category for diagnosis was musculoskeletal injury, followed by environmental injuries for both men and women. The third leading medical category for women was genitourinary (11%).

Several limitations existed for this study, most notably the lack of an indication of statistical significance of findings. Although the rate of injuries for women appears to be more significant than that of men, it is difficult to objectively assess this assumption because the findings were merely descriptive. In addition, data were not collected from Echelon I facilities, effectively eliminating a large portion of healthcare points of contact. In the military, individuals most commonly are seen at a local point of care (Echelon I) such as a battalion aide station, a unit medic or corpsmen. Common and minor ailments can often be treated and resolved at this lower level of care. Failure to account for these visits, leaves a potentially large portion of visits by military personnel unaccounted for.

Researchers discussed and made recommendations for increased data collection and patient tracking during operational exercises. Researchers did not discuss the differences between utilization rates of men and women. They did note the prevalence of

musculoskeletal injuries and offered possible explanations for this finding based on study methodology. Despite the fact that the researchers did not comment on utilization by gender or on type of injury by gender, it is interesting and helpful to note that genitourinary complaints in women were prominent.

Hygiene

Ritchie provided general information regarding the problems women face during deployment in a publication in 2001. She graphically and specifically described problems associated with personal hygiene, toileting, lack of privacy, menstruation, risks associated with genitourinary infection, and pregnancy. “Try changing a tampon in a tank roaring across the desert” (p. 1034). Her descriptions of specific situations lead the reader to greater understanding of the problem. In one passage, she describes the problems of disrobing and juggling helmets, weapons and gas masks, flak jackets, and other accoutrements of battle dress uniform while toileting in a dirty port-a-potty with a long line waiting impatiently outside.

While the previously cited studies may provide general information on the utilization and types of problems military women seek care for, little research has been published to date that specifically examines the problems associated with hygiene in field environments. The problems of this type are alluded to in various sources. For example, the study by Norwood, Ursano, and Gabbay (1997) which examined the ways in which military women may be susceptible to stressors noted that another low-level stressor reported by women in the Persian Gulf was the lack of access to female-specific supplies, such as feminine hygiene products and undergarments. Lest these be dismissed as trivial

concerns, they affect women's physical health (e.g. development of vaginal infections, risk of toxic shock syndrome) and psychological health (stress of being "different" and not valued). Markensen, Raez, and Colavita (1992) noted that in their survey examining health resources utilization, many women wrote in comments on the questionnaire regarding problems maintaining good hygiene during menses.

The problems associated with maintaining adequate hygiene in field environments is not new. In *They Called Them Angels: American Military Nurses of World War II*, Jackson (2000) related the following quotation from Army nurse Ruth Shadewaldt and comments regarding the meager way the nurses lived:

Some of the items added were extra sanitary napkins and diapers to use when the pads ran out. (Although the women were issued one box of pads a month, they menstruated more frequently because of the rigorous life style and cold weather)

In a description of military flight nursing, the lack of privacy aboard planes not adapted for women was attributed to resultant bladder infections. (p. 19)

If a plane had toilets, they weren't enclosed. You were practically on display...most planes didn't have them at all...If you were lucky, and you had a long flight, there might be a pail in the back that we had to use. It is possible for a nurse with slacks on to aim at the pilot's relief tube, but believe me, it's very difficult....we just dehydrated ourselves; it took care of that. (p. 112)

While the reader might reasonably expect that significant progress regarding the management of menses, bathing and hygiene for military women has been made in the years since 1942, accounts of difficulties still arise. Although not usually included in a

review of the literature, an anonymous article entitled “To Pee or Not to Pee” was published in *Approach*, The Naval Safety Center’s Aviation Magazine (2003). The article provided the insight of an anonymous female aviator regarding the dilemma of urination during Operation Enduring Freedom when flight missions were typically six to nine hours long. The problem was not experienced by male aviators due to equipment of the planes with “relief tubes”. Urinary diversion devices for women which funnel urine away from the body do not work in sitting positions. The two commonly utilized alternatives by female pilots are adult incontinence undergarments or tactical dehydration. Tactical dehydration is the cessation of fluid intake prior to flying. The aeromedical division of the Naval Safety Center discourages the use of tactical dehydration due to the degradation of physical and mental strength. Consequences of dehydration can decrease mental acuity, lower blood pressure and “increase the risk of G-induced loss of consciousness” (p. 30). When comparing the narratives of the flight nurses of 1942 and the pilot of 2003, little has changed (Anonymous, 2003).

In addition to the problems cited above, inhibition of voiding either by voluntary dehydration or delaying micturition have been thought to place women at an increased risk for urinary tract infections (UTI) (Orenstein & Wong, 1999). In her qualitative study examining the experiences of military nurses in Vietnam, Scannell-Desch (1996) discovered that one of the meta-themes that emerged from her interview with 24 nurses was the lack of privacy one experiences in a deployed environment. Lacking the privacy required to attend to hygiene can lead to significant consequences such as UTIs, poor morale and dehydration.

This finding was echoed in a qualitative study by Wardell and Czerwinski (2001) which explored the experiences of military women relating to hygiene issues during deployment. Frequently noted in the study was the impact of the lack of privacy on management of hygiene. “When facilities were not available, clean, private and safe, women reported holding of urine and feces” (p. 192). The women reported a purposeful decrease in fluid intake in order to decrease urination. Problems with bathing, menstruation and frequent vaginal infections were also identified, as were concerns about odor. Of particular interest, was the role that leadership played in the way women coped with not only being in a dangerous environment but also with hygiene issues. The discomfort that women, particularly those of junior ranking felt, when requesting accommodations for hygiene needs was addressed as the ‘code of silence’. Women will not ask leadership for specific accommodations nor is it readily acknowledged by leaders. Failure to address this problem has sequelae that may be significant: infection, dehydration, decreased morale or poor utilization of resources.

A descriptive study by Czerwinski, Wardell, et al. (2001) examined the specific hygienic practices utilized in home and deployed environments by 880 military women. A 191-element questionnaire developed by the researchers that incorporated three existing scales was utilized for data collection. The validity of the tool was established while the reliability was not addressed. The researchers found that differences existed in the use of tampons, sanitary pads and panty liners when comparing deployed to non deployed environments. In deployed situations women were less likely to frequently change tampons, change undergarments, bathe, and wash hands as in normal

nondeployed environment. Researchers noted “the issue of holding urine because of lack of facilities, odor, privacy or job requirements may contribute to the frequency of urinary tract infections” (p. 157). This study may seem elementary in nature, yet it was the first to specifically address the issue of hygiene and to give substance to an issue not previously addressed in research of military women.

Ryan-Wenger and Lowe (2002) conducted research that identified the degree to which military women experienced risk factors that increase the likelihood of genitourinary (GU) infection. In a sample of 841 women from various military backgrounds who had experienced deployment, they found that 31.1% of the women experienced vaginal infections and 18.4% experienced urinary tract infections during deployment. Risk factors associated with development of a GU problem were holding of urine, purposeful decrease of fluid intake, use of tampons, antibiotic use, use of oral contraceptives, having sex, using douches or feminine hygiene sprays. Additional risk factors associated with GU problems were no laundry facilities, no hand washing facilities, increased stress, and lack of sleep, elements common in deployment situations. The authors recommended education of military members and leaders and the exploration of development of self-treatment kits for vaginal problems.

Menstrual Cycle

The continuous use of oral contraceptives to induce amenorrhea has been used for 20 to 30 years as treatment for gynecologic disorders such as endometriosis (Christopher & Miller, 2007) and most recently for treatment of dysmenorrhea and other problems associated with menstruation. According to Christopher and Miller (2007) discomforts

associated with menstruation cause disruption of work activities one to three days per month. In addition “dysmenorrhea occurs in 15 to 67% of young women and is the leading cause of school and work absences in this age group” (p. 9). Christopher further discussed how 40% of menstruating women are affected by premenstrual symptoms. Continuous dosing of oral contraceptives will suppress the menstrual cycle and diminish or eliminate the majority of menstrual cycle associated problems in women that do not have contraindications (Christopher & Miller, 2007). In 2003, Seasonale became the first pill specifically designed to reduce the frequency of women’s periods from 13 per year to four (Payne, 2006). When pregnancy is not desired, the “benefits of the menstrual cycle are minimal, provided there is adequate estrogen to support bone density and progestin to protect the endometrium” (Christopher & Miller, 2007, p. 9).

Christopher and Miller (2007) provided evidence based on an overview of methods of contraception and menstrual cycle suppression for military women in a recently published scholarly article. The authors discussed at length that contraceptive use for military women is necessary for not only pregnancy prevention (since sexual activity and fraternization is prohibited during field exercises and deployment), but for the positive health effects such as enhanced productivity and improved medical readiness provided. Despite the politically correct note that pregnancy prevention is not the primary purpose for her recommendations, one must consider that contraception for pregnancy prevention would be a benefit also to deployed women. A study conducted in 2003 and 2004 by Buller et al. (2007) noted that of 1, 737 gynecological visits made at Camp Doha Field Hospital in Kuwait, 77 were for a positive pregnancy. Of these 77

service members, 10 were pregnant before arriving in theater, 33 became pregnant while in theater. No information regarding arrival date in theater was available for the remaining 34 individuals thus it was impossible to determine whether the pregnancy occurred prior to arrival in theater or not.

Powell-Dunford et al. (2003) conducted a descriptive study utilizing anonymous questionnaires in order to explore the attitudes of military women in regards to menstruation in field environments and to explore knowledge, attitudes and desire for hormonally induced amenorrhea. Questionnaires were distributed at an Army Hospital over a five day period. Of 255 questionnaires distributed, 154 were returned (56%). The majority (69%) of subjects were employed in the medical field, of these, 50.8% participated in a field exercise annually and 32.1% had experienced deployment. The researchers requested information regarding the logistics of menstruating while in the field environment. They found that women were not overly concerned about storage and transportation of hygiene products, while 66.6% of the sample stated that changing sanitary products was very difficult to impossible. The majority of women rated exercising during menstruation and irregular bleeding as very to severely bothersome (45.7% and 58.6% respectively). "A majority of women reported that performing duties with cramps (59.1%), a headache (51.5%) and/or with nausea (68.4%) was very to severely bothersome" (Powell-Dunford, 2003, p. 926). Eighty-six percent of the women surveyed expressed a desire for amenorrhea during field exercise and/or deployments. This finding contrasts sharply with the 54% of subjects who were unaware that oral contraceptive pills (OCP) could be used for such a purpose. Given that the majority of the

subjects were employed in the medical field, one might assume that this number of individuals who are unaware of menstrual cycle suppression options would increase in a less homogenous sample with more non-medical personnel. Individuals who were aware of the practice but did not use OCPs to induce amenorrhea stated that they had concerns regarding the safety and efficacy of doing so. The desire for menstrual cycle suppression was associated with the inconvenience in storing, transporting, using, obtaining, and disposing of sanitary products ($p < 0.01$).

Subjects were lacking in correct knowledge regarding benefits, side effects and risks associated with OCP use. Participants failed to accurately define correct benefits, risks and side effects and numerous inappropriate perceptions were offered such as increased weight gain as a side effect and increased cramps and increased bleeding with OCP use. Few subjects correctly cited a reduction in bleeding (1.4%) and cramping reduction (5.6%) as benefits associated with OCP use.

A 2004 survey of 1470 women and 512 healthcare providers was conducted regarding attitudes toward menstruation (Wilkie, 2007). Fifty percent of the women “felt that it is necessary to have a period every month. They felt that menstrual suppression wouldn’t be normal and that it would make them anxious or worried” (p 10). Only 44% of healthcare providers would favor menstrual cycle suppression in menstruating women for convenience only. The study by Thomson and Nielsen (2006) produced similar findings. The researchers collected information from women while deployed in Operation Iraqi Freedom via anonymous questionnaire. In addition to cervical screening information previously described, they also collected data regarding hygiene and

contraceptive counseling received prior to deployment. They found that only 66 of 251 (26%) of soldiers received counseling regarding cycle control before or during deployment. Of these 66 who received counseling, 31 (47%) attempted hormonal control of their menstrual cycle. The data for this study were gathered in 2003 and 2004. The authors provided numerous reasons for utilization of OCPs among military women beyond contraceptive purposes. The benefits to military women are prevention of anemia associated with menses, relief of dysmenorrhea and benign breast disease. Like other authors who explored this research vein (Christopher & Miller, 2007, Powel-Dunford, 2003, Thomson & Nielsen, 2006; Wilkie, 2007), the strongest recommendations were for widespread education among military women regarding hormonally induced amenorrhea utilizing OCPs.

Barriers to Care

Military members are rarely deployed without medical support available. Military planners recognize the need to effectively and efficiently treat service members and return them to duty in order to secure the mission. Ryan-Wenger and Lowe (2000) conducted an additional study of 841 military women (presumed to be the same sample as above) in order to describe the health care available to women in deployed settings and to understand the barriers to care that exist for these women. Women were less likely to seek health care for GU symptoms while deployed and provided 719 reasons why they would not do so. The most commonly cited reasons were lack of confidence in the health care provider, embarrassment and fear of loss of confidentiality. The issues largely centered on quality, competence, and privacy. In the military it is common for an

enlisted corpsman or medic to be the sole medical provider in a unit, while additional care is available if needed, these individuals are gatekeepers. The authors eloquently described the social structure of a military unit and how the very elements that contribute to group cohesiveness and mission effectiveness are the same ones perceived as barriers to healthcare. The person that you have just described your very private and potentially embarrassing health care problem to may well sit across from you at the next meal. The familiarity and required reporting up the chain of command lessens the likelihood that a female (who may be a minority in the unit) will seek care for a potentially embarrassing problem. The women's lack of confidence in the health care providers was in contrast to the study previously cited by Hughey and Patel (1997), which found that health care providers rated themselves as confident in their ability to provide gender specific care. The Hughey and Patel (1997) study was conducted on a Navy shipboard setting whereas the study sample by Ryan-Wenger and Lowe (2000) had 60% Army personnel, 38.1% Navy personnel, and 1.8% Air Force personnel. The differences in deployment settings for each of the military branches should be considered when making comparisons. The avoidance or delay of care seeking can have significant consequences for the individual and the unit. Long-term consequences can develop as a result of delayed or lack of treatment for sexually transmitted disease, urinary tract infections and other diagnoses that may be perceived as too embarrassing for the individual service member to seek medical aid. The consequences may include ascending infection, permanent infertility, or ectopic pregnancies (Landers, 1996).

Ethnography

Ethnographic studies examine a problem from many levels of scrutiny, such as microethnographies which focus on an isolated element of the group under exploration or at the other end of the spectrum, a macroethnography in which the researcher seeks to understand and describe on a grand scale the culture of a group and interactions between other groups. Ethnographies depict and assist the reader to understand the culture of a particular group of people. According to LeCompte and Schensul (1999) ethnographies have the following distinct characteristics. Ethnographies are conducted in natural settings rather than in a controlled environment such as a laboratory. In order to explore a social setting via ethnography face to face contact with participants is required. The reality presented by the researcher must be that of the participants. In order to understand the reality of the participants, data must be collected from multiple sources and interpreted in a manner that is interactive and inductive. Ethnography frames the social circumstance and requires that the cultural and social context surrounding the phenomena of interest is a vital element to be understood and interpreted. Culture becomes the lens through which the circumstance is viewed and interpreted.

The method of social discovery utilized in this qualitative research project was the Developmental Research Sequence detailed by Spradley in *Participant Observer* (1980). The knowledge derived from a constructivist approach is dependent upon the participant and researcher interactions (Young, Taylor, & Renpenning, 2001). In order to discover the meanings prescribed to those interactions by members of a group the researcher must be open to hear and see the stories and actions of others. According to Spradley (1980)

the way to best receive the stories and meanings prescribed by members of the group are to analytically consider three elements of the culture: cultural behaviors, cultural artifacts, and cultural knowledge.

Cultural behaviors are the actions of a group in response to the environment. The behaviors have particular meaning to those individuals and meaning is assigned rather than inherent. Cultural artifacts are the tools and objects developed by a group to assist in assigning meaning to interactions. Cultural knowledge is the core element of the triad. Spradley (1980) refers to cultural knowledge as “a vast reservoir of information” possessed by societal groups (p. 6). Such knowledge allows individuals within the social group to function and survive within the stated and demonstrated expectations of the group. Cultural knowledge allows persons to behave in a predictable social manner (Barrett, 1984). Such knowledge may be well defined and known to all members overtly and expressed as clear rules or laws. Tacit knowledge is the information that is possessed by members of a group but may be difficult to verbalize, state, or define. Members of the group may not recognize that such tacit knowledge exists or have difficulty formulating the parameters or boundaries of such unstated information. Spradley (1980) referred to prior work done by Edward Hall regarding a cultural knowledge. According to Hall (1981), the norms, rules, behaviors, and attitudes (that is, the culture) of a group are acquired and enacted upon at three different levels: formal, informal and technological.

The levels coexist and any one system will dominate the cultural processes at a time. Formal processes tend to be dichotomous and well defined. The behavior is acceptable to the culture or it is not. Examples of formal cultural processes are murder or

polygamy. Formal processes are evident in the existence of laws and rules and punishments for failure to abide by those rules.

The informal cultural system involves acquiring and acting upon knowledge learned from watching and absorbing what others in the culture do. Rather than a specific defined act, lesson or rule; patterns of behaviors are modeled and internalized. Subtle expectations for behavior and socialization are acquired. The individual or group may not be able to identify the specific rules associated with informal system. The knowledge is tacit and difficult to formulate and specify. "Entire systems of behavior made up of hundreds of thousands of details are passed from generation to generation, and nobody can give the rules for what is happening. Only when these rules are broken do we realize they exist" (Hall, 1981, p. 69). The technical system of culture is a logical system in which analysis and adherence to procedure is the foundation. The technical system of learning is viewed as logical and analytic. Behaviors associated with technical knowledge tend to be explicit, conscientious, and unemotional.

The researcher seeks to elicit not only the formal and technical system or known rules of the military culture related to hygiene, but to assist the participant to formulate and verbalize the informal systems, learning patterns, affect, and knowledge that exist on the informal level. True knowledge and understanding of a culture involves exploring the explicit and general laws known by all, grasping, and understanding the tacit laws that are difficult to verbalize (Spradley & McCurdy, 2000).

An abundance of research methodologies, techniques, and practices are detailed in the literature regarding appropriate procedures and philosophies for ethnographic

research (Cresswell, 1998; Flick, 1999). Spradley's Developmental Research Sequence (DRS) was developed in order to guide the researcher seeking to uncover the meanings and nuances prescribed by participants. The DRS is a sequential scientific method utilized when in ethnographic study. Five main tenets guide the researcher.

1. Single technique data collection. A plethora of techniques for gathering qualitative data exist. Participant observation is the most appropriate for entry-level ethnographers even though a multitude of techniques are available to the researcher. Clarity exists in simplicity. In addition, participant observation provides the greatest yield for the researcher.
2. Task identification principle: Spradley (1980) describes 12 explicit tasks that must be completed at each stage of the study in order to complete an ethnography. The steps are detailed and are intended to yield a complete ethnography at conclusion. The 12 steps are:
 - A. Locating a social situation
 - B. Performing participant observation
 - C. Making an ethnographic record
 - D. Making descriptive observations.
 - E. Making domain analysis
 - F. Making focused observations
 - G. Making a taxonomic analysis
 - H. Making selected observations
 - I. Making a componential analysis

- J. Discovering cultural themes
 - K. Taking a cultural inventory
 - L. Writing the ethnography
3. The Developmental sequence principle: The tasks are intended to assist the researcher to sequentially hone data collection and analysis in order to consistently and efficiently refine the concepts emerging from the study.
 4. The Original research principle: When the DRS is utilized the researcher is expected to have a completed ethnography that is credible, trustworthy, and ready for publication at the conclusion of the study. The DRS provides specific instruction not only on data collection but also on analysis, problem solving, and writing the ethnography.
 5. The problem-solving principle: Spradley recognized the circuitous nature of engaging in ethnographic study and specifically addressed the problems with a specific problem solving process. New issues and problems continue to arise throughout the course of the study. A specific six step intervention method is intended to assist the researcher to smoothly navigate problematic areas. The six step process is 1) identify the problem, 2) identify possible causes, 3) consider possible solutions, 4) select best solution, 5) carry out the plan, and 6) evaluate the results.

Spradley recognized the circuitous nature of engaging in ethnographic study and specifically addressed the problems with a specific problem solving process. New issues and problems continue to arise throughout the course of the study. The 12 steps detailed

by Spradley are intended to minimize the potential interference of problems but recognize that they will arise. A specific six step intervention method is intended to assist the researcher to smoothly navigate through problematic areas. The six step process is 1) identify the problem, 2) identify possible causes 3) consider possible solutions 4) select best solution 5) carry out the plan and 6) evaluate the results.

Theoretical Framework

A theoretical framework defines the direction, the boundaries, and the limitations of research. It also serves to guide the researcher in the topic exploration and to frame the discovery process. "Comparison depends on theory for saying what should be compared and how" (Douglas, 1996, p. *xii*). The framework was utilized is one developed by Mary Douglas, a well-known anthropologist. Douglas developed and published the Group Grid Theory in the 1970 initial printing of *Natural Symbols*. Douglas sought to compare the religious and cosmological beliefs of a society to the social practices and structure of a social group. The theory was developed in an attempt to lessen the subjectivity involved in the comparison (Douglas, 1970). "Group/Grid theory is designed to make the connections explicit and predictions possible" (Spickard, 1989, p. 151). The subjects utilized to explore and explain her framework were various African tribes and primitive social groups.

Douglas' theory was derived from a prior framework proposed by sociolinguist Basil Bernstein in 1971 in *Class Codes and Controls*. Douglas revised the framework and substituted the social variables of degree of social control and degree of individual role. These variables are termed Group and Grid. The variables exist on a continuum,

are best depicted in intersecting graph form, and allow the reader to look at relationships between distribution of power and social classification.

In social groups, members exert some degree of pressure upon one another to conform to the defined and implicit expectations of the group. Douglas defined this social pressure to conform, Group. Group is placed on a horizontal axis. The greater the degree an individual experiences pressure to comply with group expectations and norms, the farther to the right he is placed on the Group line. Should an individual have the power to exert control and influence over others, he is placed on the left side of the line. In the middle of the horizontal line is zero, the point where an individual experiences no pressure nor does he exert pressure on any other individual or group. At this zero point, the individual has no demands and is essentially alone.

Within social groups, systems of social classification for the individual members exist. The classifications and roles may be varied and specified according to family status, caste, gender, occupation, and leadership position within the group. These classifications are often overt, clearly delineated, and stratified. The individuals and groups with the clear system of classification are placed on the topmost position of the vertical axis labeled Grid. The total absence of role is at zero while the existence of an entirely private and not socially communicated system of classification is depicted below the zero mark.

As these two axes are placed perpendicular and intersecting to one another and groups or individuals are placed on them, one is able to appreciate grid/group as a way of looking at relationships, traits, and characteristics of social groups. Group/Grid was

originally developed in order to explore cosmological and social relationships; it can and has been used in the exploration of multiple social settings (Douglas, 1970; Lockhart, 2001). Despite its original intended use to compare and study religious sociology, Douglas states the model is “impartial to society” and that “the model needs to be able to organize a rich store of information, be flexible and dynamic and capable of incorporating change” (1993, p. *xix*). Her presumption is that in order for a social group to exist, certain assumptions known only to the group are utilized in order to control behaviors and communicate with the group (1993). Individuals are “indoctrinated into assumptions of society” (Douglas, 1993, p. 61) utilizing the influencing variables of social pressure (group) and role (grid) regardless of the type of group or society. These traits of the model allow it to be utilized as a frame for examination in any social setting in which these variables exist in any degree.

The theory has evolved and changed since its introduction in the 1970 release of *Natural Symbols*. In each of the three editions of *Natural Symbols*, 1970, 1973, and 1996, the Group/Grid framework is somewhat changed (Douglas, 1996; Spickard, 1989). The variables remain the same but the application to the individual and society evolve. “The details of her dimensions change from publication to publication, but the shape of her theory remains the same” (Spickard, 1989, p. 154). In the latest version, Douglas acknowledges the need to clarify the changing Group/Grid concept. She stated that the main change is in the model’s ability to predict rather than merely explain (1996). Douglas even went as far as to state that the original theory published in 1973 was a subversive attempt to undermine existing dominant hierarchal institutions such as the

church, white race and government as was keeping with the times in the late 1960's and early 1970's (1996). The latest publication is less radical and more encompassing in nature. Spickard notes that the latest version is more focused on social analysis than cosmological analysis (1989). For the purposes of this research project, the latest 1996 version of the Group/Grid Theory will be utilized.

In this latest version of the theory, Douglas casts social groupings onto the format and provides details regarding structure and characteristics of each. In the following explanation, the reader is encouraged to refer to appendix A. Groups with high grid and high group are found high to midway across upper right quadrant of the graph. In these social groups, other members of the group hold all members accountable. Even the political and spiritual leaders are under the same pressure and scrutiny as other members. In these groups, roles are clearly defined and ingrained in each individual. Tradition, deference to authority and continuity are valued. Hendry states that in "a hierarchical culture, the collectivity is legitimated by the need to coordinate, and the fear of failure to perform. The culture is built around hierarchical bonding and mutual dependence. To behave morally is to behave responsibly and in the service of the common good" (1999, p. 562). Members of the group who do not conform to the expectations and pressure of the group are thought to be odd or mysterious. While still bound by family or group ties, they do not conform. This places those odd individuals below the horizontal line but far to the right. They are still under the control of the group but do not adhere to the roles prescribed by the group. Examples of these high grid, high group organizations are monastic and military societies. Douglas terms these groups hierarchal.

The second type of social environment on the graph is the small group. The small group clusters far to the right on group but much lower in grid than the hierarchal groups. These types of environments or communities have a much lower social classification system but still experience strong group pressure. Members of small group believe that they have control over their own destiny. These groups' value loyalty, obedience and group cohesiveness, yet conversely believe that leadership or promotion is a possibility for each member of the group. Ironically achievement of promotion or a greater social status may require deceit, disloyalty and disobedience. Because the possibility of transgression and friction exist, members are more inclined to view a larger category of persons as outsiders, enemies, or social rejects.

The third social grouping, known as "big men" and their followers is a dual society. In this social environment "leaders and followers do not share the same social experiences" (Spickard, 1989, p. 161). The big men society is placed widely across the left and right upper quadrants but low on grid. These societies do not have the organizational structure to sustain the society as a whole and each individual within the group must develop and maintain the support needed to survive via networks of acquaintances, friends, and temporary liaisons. The leaders are placed on the far left. The more successful they are at subjugating the followers the farther to the left the leaders are placed, while the follower moves to the right and the imbalanced relationship between the two is strengthened. The followers' obligations and allegiances are to the leader rather than to subscribed societal roles, familial ties and lineages placing them low on the grid axis. It is possible for the followers to realize that the strength lies in their

numbers that cluster to the right of the grid, however; any new leader that emerges from the cluster on the right will eventually migrate to the left quadrant and isolate himself. “The big men live in a world of noble pacts, hard bargains, dastardly betrayals, and revenges” (Douglas, 1996, p. 70).

Two remaining groups described in greater detail in the 1973 edition of *Natural Symbols* but not thoroughly addressed in the 1996 publication are that of the artist and childhood. The artist exists in the lower left quadrant of the matrix by resisting social classification yet producing an entirely private and self-understood classification but still possessing the ability to influence society. On the right lower quadrant of the matrix one may place infants and very young children, as they are entirely dependent on others for all needs and so are under total control of their parents and caretakers. As the child begins to assimilate the values and role expectations of the society, he will move upwards on the grid axis.

Of the many criticisms that exist of Douglas’ theory (Caulkins, 1999; Hendry, 1999; Spickard, 1996) most often cited is the inconsistency and changes of the theory over time. Douglas addressed this in the 1996 introduction to *Natural Symbols*. She acknowledged the subtle changes in the model and the definitions over time but reflected that the changes represented more a change in perspective rather than of the theory itself. Group/Grid is dynamic and flexible, allowing for pluralism and representation of multiple organizations and sub-groups, however, connections and linkages between groups cannot be depicted on the matrix. Douglas even encouraged the researcher to adapt and change the framework as needed in order to best represent what the researcher is viewing (1996).

Conclusion

The United States continues to deploy military units in support of the war, humanitarian and peacekeeping missions. The likelihood is that the number of women placed in arduous field environments associated with these missions will increase. It is imperative that units that have women members prepare appropriately for deployment in order to reach maximum utilization of personnel, limited redirection of resources to accommodate females and to keep the objective of the mission foremost for individual and the unit. Such topics need to be frankly presented not only to females but also to males. This training will allow anyone placed in a leadership position to appropriately plan for female personnel hygiene needs without inappropriate utilization of manpower or resources. The lack of formal preparation regarding hygiene issues for military women clearly shows that the need for educational programs that assist women to prepare for the field environment exists. In order to scientifically demonstrate the hygiene requirements for military women in field environments further research must occur.

Exploration through continued research is necessary in order to fully understand this area, regarding suppression of menstruation, methods of managing menstruation and toileting in the field prior. Research is emerging which examines the issue of women's health and/or hygiene in the field, yet to date the studies on this topic are scant. Continued qualitative research will likely reveal unknown areas or associations regarding women's health not presently known to researchers. Qualitative data may also provide

clues for solutions to these problems or it may even indicate that no problem exists, only differences. Research will influence the decisions made regarding the training and provision for hygiene of military women and leaders.

CHAPTER III

PROCEDURE FOR THE COLLECTION AND TREATMENT OF DATA

In order to explore the experience and culture of military women managing hygiene in field settings, Spradley's Developmental Research Sequence (DRS) ethnographic method was utilized (1980). The DRS was selected as the method of analysis due to the systematic and rigorous nature of the process (Parfitt, 1996). The researcher's 14-year affiliation in the military allowed a compressed ethnographic qualitative exploration. One to one interviews, observations, and artifact collection were utilized for data collection and validation. Analysis was ongoing throughout the data collection process, as the researcher identified significant social interactions for cultural domains and emerging themes.

Setting

Women interviewed for the study met the inclusion criteria of having experienced deployment or training in a field environment. Field settings vary immensely and range from the rugged low impact primitive camping concept of winter training in sub freezing temperatures to the complex and somewhat sophisticated field environment of an army logistics camp complete with portable toilets and field showers. The exact details of the setting were solicited during the participant interviews and are elucidated as contextually meaningful in the findings section. In addition to interview, a two-week field exercise with Army Reservist, National Guardsmen and Navy active duty

and reserve personnel allowed for participant observation, collection of artifacts and additional intense fieldwork.

The culture and experiences associated with women managing hygiene in field settings do not exist in isolation and cannot be studied in seclusion in a controlled clinical setting. The context is dependent upon the social setting which may be complex and changing (Gold, 1997). The ability to apply findings of this study to other situations is heavily dependant on the setting in which it takes place. The context surrounding the phenomena is detailed in vivid descriptions and exemplars in order to clearly 'paint' the scene so that the reader can make the determination if enough contextual sameness exists in order to appropriately apply the findings of the study.

Participants

The study sought to reveal findings and information applicable not just to military women but also to all persons in the military. Although women were the major focus of the study, the culture surrounding military women and their ability to manage of hygiene needs affects all persons within the military unit; therefore, the population for this study was all persons in the military who have experienced living in field conditions. The sample utilized for the study was comprised of women who have military service and experience in austere field environments. In order to be eligible for the study, subjects met the following inclusion criteria:

1. Member of the U.S. Armed Service
2. Experienced deployment or training evolution in field environment.
3. Able and willing to discuss experience in field with researcher

Subjects were recruited via word of mouth, snowball techniques, and elicitation of participation at local Navy, Army and Guard reserve centers. Participants for formal interview were recruited into the study until redundancy or saturation was reached. Eight participants were utilized.

Protection of Human Subjects

This study was conducted in compliance with the current rules and regulations set forth by the Human Subjects Research: Institutional Review Board at Texas Woman's University. An expedited review was requested on the basis of scientific merit and protection of human subjects and received prior to initiation of the study. Potential risks for participants were potential loss of participant confidentiality, potential embarrassment and anxiety about discussion of personal hygiene and health habits and fear of retribution for participation or non-participation in the study. In order to protect the confidentiality of participants no names were utilized in recordings or transcripts. All records and code lists were kept securely locked in the researcher's home office desk drawer. In order to alleviate potential embarrassment and anxiety, participants were informed that they could terminate the interview at any time without penalty or explanation. No prospective participants within the researcher's chain of command were allowed to participate and formal interviews did not take place while the interviewer or participants were in uniform.

Instruments and Data Collection

After obtaining written informed consent and written permission to tape the interview from the participants, participants were interviewed face to face or via

telephonic interviews. All interviews were tape recorded. Had a participant refused to have the interview taped, notes would have been made by the researcher during the interview. A semi-structured interview protocol was used to focus the individual interview with participants (See Appendix B.). The protocol was developed to provide grand-tour type questions that focus on actor, situation, and activity (Spradley, 1980). Focused questions spotlighted menstruation, toileting, and bathing in field settings. Participants were encouraged to provide 'stories' that depicted particular situations. Queries related to preparation for management of hygiene in field settings were also asked. When additional information was volunteered, the women were encouraged to proceed along the new course of discussion in order to obtain additional information. Questions varied and changed and were dependent upon the participants' responses.

Information was collected from multiple sources (interviews, observations, logs and journals) in order to assure confirmability of data. In addition, participants confirmed what the researcher, heard, saw and experienced at various points throughout the research cycle. The audit trail found in the researcher's journal documents how the relationships with those studied were formed. In order to verify the study's trustworthiness, a clear and detailed description of the entire data collection process was kept (Choudhuri, Glauser, & Peregoy, 2004).

The researcher is obligated to "ground the data" (Gold, 1997, p. 393) by reviewing the findings of the participants to check if the view received or inferred by the researcher was actually intended by the participant. Checking with participants was ongoing throughout the research process. The researcher asked the individuals who own

the issue at hand to agree, disagree, or validate what was presented by the researcher (Gold, 1997).

Pilot Study

A pilot study was conducted in 2003 in order to begin preliminary exploration of this topic and also to assess the efficacy of the semi-structured interview protocol. Following the pilot study, changes were made in the interview method and protocol.

Six female participants who had experienced field conditions were recruited to serve as the sample for the pilot study. All participants were nurses, officers, white and between the ages of 43 and 55 and were from the same reserve medical unit.

The interview protocol used for the interviews focused on the problems associated with menstruation, toileting and bathing in the field. The findings of the pilot study yielded two emerging patterns: abandonment of normal practices and preparation.

The purpose of the pilot study was to begin preliminary exploration of the topic and also to identify problematic areas and assist in providing direction for improvement in continuing study. In addition to the identified trends, the study demonstrated methodological problems in the areas of sample and interview.

The sample utilized for this study was a convenience sample rather than a purposive one. The participants who provided the interviews were a homogenous group and possessed similar demographic and military characteristics. Devers (1999) stated that an effective purposive sampling method should attempt to seek information from a variety of cases: 1) cases which are usual and representative and provide a picture of the average participant. 2) Cases which are radical in nature and depict an extreme picture of

the phenomena and 3) negative cases that serve to contradict what the researcher has learned from others. By seeking information across the continuum, the researcher gains a greater understanding of the phenomena of interest. In the pilot study, the participant interviewed tended to provide information that was typical and lacked extreme and negative portrayal. Failure to obtain a thorough representation lessens the validity and trustworthiness of data. In order to obtain information rich in description, the sample was expanded to encompass women and men from all branches of the military.

An additional area for significant improvement was the interview protocol. One of the aims of utilizing interviews as strategies for data collection is to allow the participant to uncover behaviors, beliefs and experiences rather than merely answer the questions of the researcher. In the pilot study, the participants spoke freely and congenially with the researcher until the tape recorder was turned on and the conversation progressed according to the semi-structured interview protocol. Information obtained described the experiences of the women and to some extent, their beliefs; however, it lacked the rich description and contextual 'picture painting' needed in credible and trustworthy qualitative research. The reasons for possible inhibition were discussed with expert researchers and two plausible explanations were offered.

The first and most readily identifiable possibility was that the information and experiences required for the rich description were too embarrassing to discuss. The participants in the survey were drawn from the same military unit as the researcher and some were known to the researcher prior to the initiation of the study. Perhaps the change from a professional and collegial relationship to one of researcher/participant

would not support full disclosure of potentially embarrassing information (Spradley, 1979). Although strict confidentiality was assured and interview occurred in private phone conversations, the information was felt to be lacking.

An additional explanation for the scantiness of the information obtained during the pilot was the interview protocol itself. Although several formats for interviews utilized in qualitative research exist (LeCompte & Schensul, 1999; Munhall & Oiler, 1986) the semi-structured interview protocol was chosen in order to provide the participants an opportunity to bring additional topics and areas of interest into the arena of exploration while still remaining focused on the specific phenomena of interest – hygiene in field settings and the culture surrounding it. No grand tour questions were utilized for the pilot study. The interview immediately jumped to the heart of the matter and participants were not allowed to choose the course of the interview but were merely answering the researcher's questions.

Examples of questions incorporated into the protocol for study use included 'Tell me about some of the field exercises you have done in the military?' and 'Describe for me a typical day while you are out in the field'. The grand tour questions focused on the basic elements of each social situation identified by Spradley (1980) space, object, activities and actors. Six additional dimensions of social situation were placed in a matrix and were used to formulate the descriptive questions which followed grand tour questions. The elements placed into the matrix were defined by the participants. Use of the matrix (Appendix C) assisted the researcher in identifying the connections among the dimensions (Spradley, 1980). As the study progressed, questions became structural

questions which explored the semantic relationships within cultural domains and contrast questions which defined the differences among included terms within cultural domains.

In addition to interviews, a rigorous multi-service field evolution was utilized for participant observation and recruitment of participants for interview. Field notes were made using the specific format as detailed by Spradley (1980). The ethnographic record indicated the language used to provide data; and noted whether the language was that of the participant, the researcher or the language used in the setting under study. Detail given to language was done specifically to facilitate ethnographic analysis. Condensed and expanded accounts of observations were made and a personal journal of the researcher was maintained.

Data Analysis

Analysis of data was ongoing as it was collected. The Developmental Research Sequence (DRS) utilized an ethnographic research cycle in which the queries and observations of the researcher were dependent upon the previous discoveries in the field and the analysis that occurred to that point. Spradley stated that questions are discovered during the research process (1980). Analysis of the social scene was ongoing and became more focused and refined as the researcher developed clarity and reasoning about the situation in which she was immersed (Gold, 1997). The DRS presented methodological consistency in the systematic logical predetermined course of research which enhanced the scientific rigor of the research project. The theoretical candor present in the DRS conveyed a sense of organization and systematic analysis and assisted the reader to understand the how and why of the research process, providing a

predetermined general pathway for exploration and providing the evidence for confirmability and credibility (Robinson-Wolf, 2003).

Data were analyzed at four levels: domain analysis, taxonomic analysis, componential analysis and thematic analysis utilizing an inductive approach. The systematic process of analysis ensured that the themes which surfaced from the data were those of the participants rather than the researcher (Choudhuri, Glauser, & Peregoy, 2004).

The basic unit of meaning utilized in the DRS was cultural domain. Domains are groups of social interactions or language (included terms), a summary descriptive (cover term), and details regarding the relationships (semantics). A domain analysis worksheet was utilized to establish the included terms, cover term and semantics (Spradley, 1980). Large groups of cultural domains were revealed to the researcher initially and throughout the study.

Following domain analysis the scope of the project was narrowed in focus in order to allow in depth investigation of selected cultural domains. Structured questions elicited further detail and information regarding cover terms. Questions were used in interviews and to guide the participant observer in the field. The “goal was not to find a single answer to a question...but to find as many answers as one can” (Spradley, 1980, p. 110).

Taxonomic analysis sought to place terms comprising the domain into categories so that the relationships among the cover terms were defined. Larger cultural domains which connected or included other cultural domains were identified. Taxonomic analysis

guided the researcher in observations in the field and in interviews. At the taxonomic analysis phase, contrasts among cover terms were sought in order to clarify or highlight various aspects of the domain.

Following taxonomic analysis, additional interviews and observations which focused on identifying contrast within the cultural domains were completed and additional data was collected. A componential analysis was conducted in order to recognize and appreciate the meaning assigned to cultural categories through the attributes of each included term or contrasting element. Identification of the attributes revealed the tacit knowledge held by the culture under study. The attributes were then placed in a paradigms worksheet (Spradley, 1980).

Following identification of attributes, the researcher searched for cultural themes underlying and uniting multiple cultural domains. The specific strategy utilized was dependant upon what was yielded from previous analysis. The goal was to identify relationships between cultural domains and to discover how universal themes existed within the culture. Universal themes are those already acknowledged by social scientists such as social and cultural conflict, exertion of control, management of interpersonal relationships, acquiring and maintaining status and problem solving. It was assumed that the cultural themes were inherent throughout the culture. The themes were inferred by the researcher on the basis of data collected from observations, interviews and previous analysis. A substantial amount of data supported the findings presented as thick descriptions, engrossing text and stories told through the voice of others.

CHAPTER IV

ANALYSIS OF DATA

The image of American women serving as equivalents of men in all but the most dangerous military settings is common today. However, few individuals outside of the military have an appreciation for the degree of dedication and perseverance found in military women living in a field environment. A focused ethnographic study of this subculture of military women regarding field hygiene was undertaken to gain a greater understanding of the problems military women face while in a field environment and also to look at the culture surrounding this topic of interest. The culture of the military is closed and not frequently understood by those outside of that group. This research project grew from the researcher's personal experiences in military exercises. Despite extensive existing knowledge of the military and the problems women frequently face while living in such austere conditions, this study yielded information and a cultural scene not considered by the researcher prior to the study. By setting aside personal past experiences and beliefs and allowing the participants' stories and interviews to paint a rich cultural picture, a new understanding of a subculture which exists within the military culture was gained.

Description of the Sample

This study was completed utilizing participant observation techniques in a field environment followed by eight focused telephonic interviews over a seven month period. The field exercise was a large scale joint service exercise conducted during a two week

period during June of 2006 with approximately 2400 participants from a variety of military services to include US Navy Reserve, US Army, US Army Reserve, and multiple National Guard units. This massive field exercise was held over a two state area near the Black Hills of South Dakota and Wyoming in June of 2006. A wide variety of military units participated to include medical, chemical, flight, artillery, and multiple logistical support units.

Access to the exercise was gained by consulting with the Commanding Officer of the sponsoring military unit who enthusiastically encouraged exploration and study of this topic. The researcher was given permission to access all locations and elements of the exercise. No other individuals were initially aware of the researcher's intent during the exercise, although the researcher shared her intent during conversations with participants. During the exercise, the researcher had the opportunity and freedom to move amongst the participants and camps and to make observations and inquiries as the opportunity arose. Through casual conversation and informal inquiry with a wide variety of participants to include medics, unit leaders, junior enlisted males and females, observations of camp set ups, and review of artifactual information such as sick logs and daily summary reports an extensive set of field notes was developed throughout the two week period.

Following the exercise, six focused interviews were completed via telephone contact using the semi-structured interview protocol and follow-up questions which emerged as a result of the participant observation phase and ongoing analysis. In addition, two interviews from the pilot study were included for a total of eight interviews.

Investigational Review Board approval was received for 30 interviews, however; saturation was reached prior to the sixth interview when informants repeated response content. Three male subjects volunteered for the interview but did not return the signed consent form. One male returned the consent form but refused interview. Seven females and one male were interviewed by phone. Additional male participants would have been interviewed to add credibility and trustworthiness, however, recruiting males for formal interview proved difficult. Senior male officers who were involved in the planning and oversight of field exercises at the highest level were approached but would not consent to formal interview but did engage in informal conversations and queries in the field.

There were five participants from the United States Navy, one active duty and four reservists; two Army Reservists were interviewed and one individual from an Army National Guard unit. The military rank of participants ranged from E4 (enlisted) to O5 (officer) and the years of service ranged from six to 26 years. Five participants had experienced deployment and three had participated in rigorous training evolutions. One subject had not participated in recent deployment but had experienced deployment during the Vietnam War and also during Gulf War I.

Table 1

Demographic Representation of Interview Participants

Sex	Branch of Service	Rank	Years of Service
Female	Army Guard	O5	26
Male	Navy Reserve	E7	18
Female	Army Reserve	E6	18
Female	Navy Reserve	E4	12
Female	Army Reserve	E5	11
Female	Navy	O2	6
Female	Navy Reserve	O5	18
Female	Navy Reserve	O4	14

Description of the Physical Setting

Living and Working Areas

The participant observation portion of the study was conducted at a large field exercise. The researcher had opportunities to observe and interact with participants in five camps and a Headquarter unit. The bases were setup in a variety of field environments and terrain and despite the proximity of being within 100 miles of each other, each camp was distinctly different in the setup, terrain and unit population. These bases of operations were inhabited by a variety of military units. The bases were defined well in advance by planning parties. At planning conferences throughout the previous

year, leadership had conferred and planned where each participating military unit would be positioned. Units were grouped into logical Forward Operating Bases (FOBs). For example, one base was the largest camp and included a mechanical unit, a large hospital unit, a chemical decontamination unit and a refueling unit. The camp was situated well off the “hard top” (paved road) and required inhabitants and visitors to travel a rough dirt road to reach. The camp was placed on gently rolling open pasture land.

The smallest camp contained two units, a medical evacuation unit and an ambulance unit. This camp was situated at the top of a wooded hill and required four wheel drive or military vehicle to access. Within the perimeter of each camp, each unit within the camp erected and maintained its own tents and working areas.

The Headquarters for the exercise were located in an old wooden gymnasium. The gymnasium was multi-leveled and was not in use except to accommodate the field exercise participants. No air-conditioning or water services were available in the building. Approximately 120 individuals worked at Headquarters. These individuals stayed in a variety of accommodations: cots placed in the gymnasium at a nearby school, hotels and recently constructed military accommodations similar to hotel rooms.

At headquarters and in the camps, water was available from 500 gallon tanks on trailers called ‘water buffalos’ or ‘water bulls’. The water from the water buffalos was chlorinated and intended for consumption. The water buffalos were filled daily by a water supply truck which obtained the water from a city water source.

Each camp had an appointed ‘mayor’. The mayor of the camp was the commanding officer of a designated unit within each camp who was responsible for

attending to and reporting for each camp. The mayor's responsibility was to identify and coordinate security needs, maintain the physical requirements of the camp and provide a status report regarding the simulated battle, actual illnesses and injuries and other problems encountered at each camp to the Exercise Commanding Officer each day during the Battle Update Brief (BUB).

Toilets

Each camp had portable toilets and shower tents. During two planning meetings during the previous year, unit leadership had been asked to provide numbers of personnel within each unit and to request portable toilets that would be prepositioned prior to the beginning of the exercise. Units were advised to request one toilet for every 30 to 45 personnel. No recommendation or consideration of gender was made in regards to planning number of toilets required. The portable toilets were positioned, maintained and removed by a private contract company. Only at one camp were signs posted on the toilets indicating whether they were for men or women. Portable toilets had field sinks located near the portable toilets with soap and water for hand sanitation.

At one Forward Operating Base, the senior officer in charge shared that he had problems with the locations of the portable toilets. The toilets had been placed approximately 700 meters from the working and berthing areas. The toilets were out of sight of the camp and required a walk over rough terrain to access. The senior officer stated that he was concerned that the men were finding 'alternate' places to toilet and the women were inconvenienced.

Later during this same site visit, the researcher was reviewing the sick logs of the small battalion aide station and speaking with the junior officer on duty when a soldier interrupted to relate that an enlisted female member of the unit was refusing to drink and that he thought she was doing so intentionally. With little hesitation, the junior officer on duty gave an order to start an IV on her. When asked if this was a common problem, he stated that he had seen this before and it typically occurred in young females that had little experience in the field. He also stated that it seemed to happen with the younger more inexperienced women in the unit. The officer related this information in an off-handed casual manner that would lead the researcher to think that this was a common issue that caused little concern among the unit.

Rows of portable toilets were positioned in the parking lot for use by the individuals working at the Headquarters facility. For the first few days of the exercise, there were no field sinks or other accommodation to hand wash near the toilets. Field toilets, soap and hand sanitizer were placed nearby after a few days.

Within 100 yards from the Headquarters building was a cafeteria or 'chow hall'. The chow hall was used by all members of the base, not just those participating in the field exercise. The chow hall had bathrooms for men and women. The women's bathroom had toilets in stalls and sinks. Participants in the field exercise were advised not to utilize the chow hall rest rooms but to use the portable toilets instead. No specific rationale for the request was provided. Despite multiple reminders in the daily bulletin, announcements and posting of signs throughout the exercise; women continued to use the toilets in the chow hall and were rarely observed using the portable toilets. The

researcher observed six female soldiers enter the chow hall with a group of 30-40 soldiers who were coming in from a four day field exercise. They were dirty and rumpled but in good spirits, laughing and joking with one another. The group of females entered the restrooms near the foyer of the chow hall. While taking turns to use the two toilets, they washed their hands and faces, fixed their hair and talked and laughed animatedly. Conversation was centered on their appearance and lack of hygiene. Comments such as “Gee, I stink!”, “look how bad I look”, “as long as we all smell bad” and “I can’t wait to use a real toilet” were heard. Because these women seemed like excellent candidates for interview, the researcher introduced herself and stated her interests. The soldiers who were mostly junior officers and senior enlisted were willing to share stories and talk but seemed puzzled that the researcher would be interested in the topic. The women accepted the situation or problems related to hygiene without complaint.

Shower Facilities

At each camp, a single shower facility was erected and maintained for the duration of the exercise. Two types of facilities were noted. The nicer of the two types was a self contained shower facility that was delivered by a large truck. It was approximately 12 feet high x 12 feet across x 20 feet long. It had 6 to 8 shower heads located along the inside length of the structure and lighting. It was connected to a large water tank that held approximately 2000 gallons of water, a heater and a generator. The second type of shower facility noted was the use of a medium general purpose canvas tent with PVC piping installed to accommodate approximately 6 to 8 showerheads. Wooden pallets were placed on the floor and drain ditches were dug to accommodate the

waste water. The tents had a similar water holding and heating apparatus to the self contained structures. Showers were not available except at specified times due to the requirement that the generator and heater be started and monitored in order to heat the water. At one camp shower hours for men and women were posted on signs erected at the front of the tent shower facility. Men had more total time than women and the women's shower hours were earlier in the morning and later in the evening. In the self contained structure, no shower hours were posted at the shower site, but were announced in the camp daily bulletin. The researcher had the opportunity to observe the women lining up for shower in the evening. One woman in uniform was posted outside the shower area where the others lined up. Her job was to keep men from entering the shower should they approach. She laughed and spoke casually to the other's who were waiting to enter. When asked if problems ever occurred, the women said no. They said that things were usually pretty calm, although they had to 'hustle' to get in and out so that everyone would have an opportunity for hot water. One woman said that a man might miss his shower hours or not realize that women were using the showers and approach but it never caused problems. The women said that they either had someone appointed to run the showers, stand duty to protect their belongings and privacy or they took a friend with them to protect against inadvertent male entry.

Living Quarters

At the camps, the tent structures were either used for working, sleeping or a combination of both. Soldiers whose jobs required them to be available 24 hours a day such as those who attended to radio, medical, or emergency operations frequently

combined their living and working quarters or slept in their vehicles. Cots were placed in quarters with military sleeping bags. In the areas where the men and women were required to be on duty 24 hours a day, they slept and lived in the same tents. In units where work areas were separate from living areas, the women had separate living tents than the men. In some units, further separation of officer quarters from enlisted quarters occurred.

Most tents were medium general purpose canvas green tents approximately 20 x 26 feet. The tents had flaps and screens for the sides and dirt floors. Tents frequently had fluorescent overhead lighting sources provided by generators. Some units had tents which were much more contemporary but about the same size.

Within each tent were standard folding military cots placed in opposing rows along the sides of the tents. In some women's tents there were tarps or shower curtains erected in one corner in order to provide a private area. When asked about these partitioned areas, the researcher was told that these were areas where the women could go to 'get a cat-bath' or 'freshen up'. The women said that they frequently did this when in the field for more than a few days. When asked how they knew to do this, the women stated they 'just figured it out' using the materials they had available or they brought a tarp or shower curtain because they could use them in a variety of ways. The women talked about how difficult it was to bathe or attend to matters related to menstruation in the open area of the tents or in the cramped and often dirty toilets.

Identification of Cultural Domains

Field notes and initial interviews were analyzed, searching for cover terms or specific elements that clustered together and were placed within a domain. Due to the focused nature of this study, the domains specific to the areas of women and hygiene were sought, however domains which emerged in other areas were not excluded. Examples of domains identified during participant observation and initial interviews were:

1. Ways women knew how to manage hygiene
2. Items women needed to manage hygiene
3. Types of toilets in field environment
4. Types of showers in field environments
5. Types of problems women faced
6. Types of leadership
7. Things to eat in the field
8. Things to drink in the field
9. Places in the field
10. Types of people
11. Feelings people had regarding women's hygiene

Domains with the greatest number of cover terms or cover terms that had the most relevance to the subject of study were analyzed and placed into taxonomies. Taxonomies were constructed based on the relationship between each item within each domain.

Following development of initial taxonomic tables, the researcher identified areas where additional information from informants was needed. This process was

accomplished by systematically searching for contrasts within each domain and requesting additional information related to the identified domains in the subsequent interviews. Taxonomies for the domains feelings related to women's hygiene, problems women's faced relating to hygiene in the field, and areas where women managed hygiene are detailed in Appendices D, E and F.

The contrasts that arose from this analysis were utilized in componential analysis of domains. The researcher and later participants in the study were asked to contrast domain elements with questions such as "what is the difference between an outhouse and a real bathroom?" Componential analysis was used to discover the specific traits, characteristics and meanings that the participants have assigned to the terms in the domains. Seeking contrast in componential analysis draws forward information that is implicit but unstated from the participants. Additional interviews were conducted as analysis of data proceeded in order to further explore additional contrasts, or elements within the domain. As individual cover terms were contrasted, reoccurring themes arose within and among the domains. Contrasts frequently reoccurring were degree of risk, privacy, need for assistance and a desire not to disrupt the unit. Because these contrasts arose frequently the researcher began to seek confirmation that these contrasts formed the underlying rules and expectations used explicitly and tacitly by the participants in their daily management of hygiene. To strengthen this finding, the researcher contacted a participant who had been interviewed early in the study. This participant readily agreed that these contrasts or 'rules' were valid.

Spradley (1980) defines a cultural theme as “any principle recurrent in a number of domains, tacit or explicit, and serving as a relationship among subsystems of cultural meaning” (p. 141). Because these principles occurred in multiple domains and were persistent; they were determined to be the basis for the cultural themes. These themes are tacit and implicit assumptions shared among the women and men in the military. The cultural themes identified were:

1. Women rely on each other to manage their own hygiene activities.
Women teach, care for, and provide privacy for one another.
2. A degree of risk is involved in hygiene activities in the field environment. The risk must be determined and activities or provisions to eliminate or decrease the risk are implemented. If the risk cannot be decreased, women will attempt to avoid hygiene activities.
3. Women will sacrifice their own needs and safety in order to avoid disrupting the integrity and rhythm of the unit.

Reliance on One Another

Women must rely on each other to meet hygiene needs. Common problems cited as barriers to maintaining hygiene for women in the field were lack of privacy, lack of preparation, lack of adequate facilities, need for encouragement and teaching and managing uniform and gear. Finding it difficult or impossible to manage alone, women were able to overcome these barriers once they had partnered with other women. These women were referred to as ‘buddies’. All women interviewed gave examples of helping or receiving assistance from other women.

The assumption that women needed to assist and rely on each other to meet hygienic needs was evident as women were asked how they learned to perform particular and creative acts. Women consistently stated that they learned from one another. They conscientiously planned to care for and share with each other prior to the exercise evolutions. They intentionally packed enough feminine and hygiene supplies so that they could share within one another. When asked how women learned how to manage in the field, one participant stated:

It was kind of like I learned from another girl who had gone to the field a lot and she told me. And one PA (physician's assistant) was a female and had been in for 15 years, so she did things like always carry around your poncho and 550 cord so we could string up a makeshift shower curtain to block off. So I kind of learned from other people. When I was a private, others taught me to care for myself.

Women frequently referred to a central female figure that was responsible for imparting knowledge and teaching younger or inexperienced women how to manage in the field. This role was not assumed formally or due to the woman's rank but more out of a sense of caring for others. During the field exercise a senior ranking enlisted woman related the following.

They always called me Mom, even when I was pretty junior. I felt it was my job to make sure that the new girls knew how to take care of themselves. I was always sure to take enough supplies for anyone who might need them. That's the way I learned, someone taught me.

Problems frequently cited by women were the problems they encountered while juggling their field gear and establishing privacy in order to toilet. Women found that if they used a 'buddy' they could overcome these barriers. The gear required for protection in the field is heavy, cumbersome and essential. Women must remove a heavy (often oversized) flack jacket; manage a Kevlar helmet and a weapon. The toilets were rarely designated for women only and were used by both men and women. They were dirty or wet with no place to place gear which women must remove in order to toilet, thus it was absolutely essential that women partner to assist each other during toileting and showering.

What we did is you always had to take somebody with you to hold your stuff and wait outside the port-a-potties and your buddy would hold all your stuff. You had to use the buddy system because there was no other way to manage it.

Lacking a buddy to help manage gear which had to be removed in order to toilet, women were faced with the dilemma of leaving gear unattended or taking it into the toilet and placing it on soiled surfaces. Men did not have to manage this dilemma of disrobing and disassembling clothes and equipment.

One participant told the following humorous story:

We were on a two week field exercise and there were far more men than women. We had port-a-potties to use. During the exercise, we had to wear our LB (load bearing) gear, our Kevlars (helmets) and carry the gun. You had to watch your stuff or someone would take it. Going to the port-a-potties was a huge hassle because of all the gear to take off and juggle.

We were waiting in line and one girl came out of the port-a-pottie and said that there was a canteen holder inside the door to put your stuff in. We were puzzled at first and then we realized that she had put her stuff in the urinal!

Leadership was not expected to provide specific accommodations or training specific to women's managing hygiene. Ironically, women did not mind that leadership did little to prepare them for field environments, perhaps because the women were so adept at caring for one another. The expectation that leadership specifically address hygienic needs through advanced preparation did not exist among the participants. Some participants stated that if they asked military medical providers about oral contraceptives or depro-provera shots for suppression of menstruation they could receive it. When asked how leadership could better prepare them, they consistently responded that just knowing what life would be like while deployed would have been helpful. No animosity existed towards leadership despite the lack of information provided. The sense that women did not wish to involve leadership in personal matters such as hygiene management existed despite the potential consequences of poor health and discomfort as a result of failing to meet hygienic needs. The women had an established network of learning among them; they did not require or expect training by unit leadership. In a strictly regulated social environment such as the military where so many elements of life are prescribed by authority, the lack of training for women in preparation for a field deployment is unexpected. A male participant described the training provided for

management of hygiene in field environments; he provided information that was more specific to field sanitation rather than maintaining personal hygiene:

They are trained in school on how to dig a pit, elimination of waste -- urine and defecation;....how to dig a cat hole, dig a gravel pit...the people who are out in the field environment are trained, males and females to manage their hygiene appropriately.

When asked how her leadership had assisted her to prepare for deployment an enlisted sailor stated:

I can't really say that I've seen a lot coming from the top and going down trying to prepare females for what it's like in the field, generally, it's one of those things that the other females who have been through will make an effort to prepare the new females for what it will be like.

A senior Navy officer provided an example that was typical of all females in the study:

I don't recall that there was anything specific in any kind of written information provided other than things that they encouraged you to bring things that might make you more comfortable. Most of what I got was by calling other women who had been on this exercise before and just trying to get information from them as to how they were able to get through the exercise.... It was mostly by just calling on females that I was able to glean any knowledge that might make this exercise more tolerable.

Risk Assessment

Women constantly assess the risk associated with any act of hygiene. If the risk for exposure, harm or contamination was too great, women would alter their practices in order to avoid the risk associated with toileting, bathing or other hygienic practices. If women were unable to ameliorate or eliminate the risk, they would attempt to avoid toileting, bathing or other acts of hygiene. One woman who had been deployed to Afghanistan, described the difficulty and danger associated with toileting while out on convoys or moving from one area to another.

I almost always had to take off my body armor because it was too heavy and too long so I couldn't reach my belt buckle. You had to hold it to get out of your pants and then you had problems trying to balance because it was so heavy, your balance was off. Essentially I had to take everything off in order to get to my pants so I could just go to the bathroom.

Finding privacy in the field environment in order to manage hygiene was problematic, particularly for subjects who had been deployed to the desert and were unable to leave the road during convoys due to fear of improvised explosive devices (IEDs) and ambush. These women developed creative and effective methods of establishing privacy. An essential item used by women was their poncho which served to make temporary barriers. Women could use the poncho to erect makeshift screens for one another

...it was a two day convoy and obviously there weren't any trees along the road so if you had to use the bathroom, as females, we were told not to go

off the road, because of IEDs you know and other things off the beaten path. So we weren't allowed to stray off the main road. As females we would get between two vehicles and we would have two and three ponchos up and would use the bathroom that way.

The participants described a variety of practices employed in order to preserve privacy. As stated previously, they would often work together to create ways to shield each other. When I asked one female National Guard member about loss of privacy, she provided details on the lack of privacy during long convoys while deployed. She also spoke about the constant surveillance she was under as an American woman in a country where women are not seen in public. She stated "when we were out in the local population, they usually didn't have facilities for women so usually there were people everywhere. You know we would attract thousands of people and I wouldn't drink water or eat very much so I wouldn't have to go to the bathroom." Another stated:

The locals would just form these massive circles, especially around the women. They were just fascinated by the women. It didn't matter where you went, you had a crowd and they were always staring at you so you always had a pair of eyes on you. They are everywhere, even if they are just standing across the road, they are just watching you. You are just like "Oh God, where can I go?"

A common practice of women was to decrease fluid and food intake if the opportunity to toilet in a private area that did not disrupt others was not available. A male officer stated "oh yeah, it doesn't matter how or how often you tell women to drink,

if they don't have a place to pee, they aren't going to drink". One officer who had participated in a field evolution in Thailand described the following:

We would go to these villages and they had these toilets that were really no more than a hole in the floor. I got to where I would check out the toilets right when we got there. If they were too nasty, I just didn't eat or drink that day.

A senior enlisted soldier shared the following:

I was constantly dehydrated, dizzy. I was treated several times for urinary tract infection. I know it was because I wasn't getting enough water and it was just so hot and there were just some days I felt like I couldn't get enough water into me. I would be sitting there traveling in the heat for 12 hours and I would drink half a bottle of water and leave it at that. Just barely enough. I would get up and get dizzy and I would always think "Man, I hope we don't get into a conflict and I have to be running somewhere because I would probably be dizzy and fallout.

Self Sacrifice

Women will sacrifice their own needs in order to meet the needs of the unit. Many observations and interviews in which multiple examples of the difficulties women face in the field were detailed in formal interviews and casual conversations, however; women were willing to sacrifice their own comfort and at times, health in order to accomplish the mission. Without complaint, the women made whatever

accommodations, adjustments or restrictions were required of them. Often outnumbered by men, they were unwilling to displace others for the sake of hygiene.

Women interviewed shared stories regarding their hesitancy to request time or space required to maintain hygiene needs because they didn't want to put others in danger or inconvenience them. This hesitancy most often occurred on convoys during training and deployment. Women were well aware of not only the lack of privacy but also then sense of urgency and danger that surrounded them while traveling on long convoys.

You know you have to go but you just don't want to be the one to ask to stop. The guys could just use a water bottle or something and throw it out the window or if they went it only took a couple of minutes. For us (women) it took at least 15 to 20 minutes. That's along time to be sitting still on the road. The guys never complained but still I felt awkward making them wait. I just wouldn't drink so I wouldn't have to go.

Other times when women would provide exemplars of sacrifice of personal needs for the needs of others were at shower time. Field showers were tents set up with open plumbing and pallets on the floor or military vehicles specially plumbed and prepared to serve as showers. Although the showers were not always in the best condition, women and men enjoyed the opportunity to bathe and be clean in a dirty field environment. As one enlisted sailor put it, "In convoys, if you aren't in the first truck, you gonna' eat dust and a lot of it." The shower tents usually had hot water. Men and women would share access to the shower tent by would alternating shower hours. However, because there

were fewer women than men, women frequently found themselves with very short and limited access to the showers.

You know, I was out in the field for two weeks in the mountains and I came back and I missed my shower time because that was the end of it.

You know, here I was, I'd been out for two weeks and couldn't wait to get back and get a shower and my convoy was late, and literally I missed it by 10 minutes and there were already men...you know there are men waiting out there to get showered. That was always kind of a sore spot because everyone had different schedules...and I always felt pressured to get in and get out of the shower and they were already in there and I had to wait until the next day because there were already too many men waiting to go, granted they offered to kick them out and let us shower, I just didn't want to be the one you know that kicked 10 guys out of the shower. So I just usually showered at odd hours like one o'clock at night and got someone to go with me to watch the shower. Then there's no hot water, no nothing, but it's better than nothing.

When the male participant was asked about the unique problems and or solutions to the problems they encountered in the field, he was unaware of any problem at all. The participant was asked multiple times in various forms and was also asked to confirm the stories shared by previous participants, yet he stated he was unaware of problems. He gave the following summary:

We didn't really, that never really came up, it wasn't an issue that we discussed, that we would think about when we were together in the field with women, they were just other sailors or other marines, they weren't really considered...it wasn't a stigma or benefit or really anything...they were there to do a job, and they did that job and when the job was done, we would hang out and play cards or whatever. There wasn't any issue at all.

Summary of Findings

The researcher utilized Spradley's Developmental Research Process to explore how military women manage hygiene needs in field environments and how does the cultural environment of the military affected management of women's hygiene in the field. The researcher followed the steps detailed in Spradley's developmental research sequence (1980) to identify eleven cultural domains. Data analysis and collection was concurrent. The domains which provided the most abundant information regarding hygiene issues were further analyzed using componential analysis. From the componential analysis, three cultural themes emerged. These themes of risk, caring for one another and unit integrity exist in the culture of military women. The rules which define and drive the behavior of these cultural rules is both tacit and explicit.

Women are willing to work in any environment required to execute the mission. In order to overcome multiple barriers such as lack of privacy, lack of training and a dangerous environment, they find that they must care for each other. All women interviewed without hesitation provided multiple exemplars detailing how they needed

the assistance of another woman in order to meet their hygienic needs. Ironically despite the need for planning for women's hygiene and healthcare needs, these women did not expect leadership to be concerned or plan for the needs of women. Indeed, they even seemed surprised that the researcher might even consider that leadership should play a role. The women interviewed were unselfish and would sacrifice their own hygiene and comfort needs in order to avoid drawing attention, danger or inconvenience to their fellow sailors and soldiers.

CHAPTER V

SUMMARY OF THE STUDY

This qualitative ethnographic study was undertaken in order to explore and understand the practices and culture surrounding military women in field environments as it relates to hygiene. Management of hygiene is a fundamental human task that one is not likely to give much thought until there is the lack of it or the inability to sustain it. Military women work in extreme and severe environments where the simple task of maintaining personal hygiene can become challenging at best and impossible at other times. Lacking the ability to maintain hygiene needs or perform essential tasks of hygiene, significant sequelae have the potential to develop including poor health, decreased work effectiveness of the individual and decreased ability of the unit to execute the mission assigned.

This study did not address the appropriateness of women in the military or exclusion of women from combat positions. Those issues were far beyond the scope of this research effort. Nor was this study merely a descriptive one that provided details of women's hygiene practices. This study sought to expand existing knowledge on the subject of hygiene and military women by looking beyond merely descriptive studies detailing the practices women have in a variety of environments. By seeking to understand the culture that exists in the military specifically relating to women's hygiene management; a contribution is made to a more substantial body of work on this subject.

By searching for the existence of a sub-culture, one is able to determine how these women learn to adapt to arduous field environments, how they overcome barriers and most importantly, to move from mere description to prediction of problems and the provisions necessary to preserve the health and comfort of the individual and the effectiveness of the fighting unit.

Summary

In order to gain the greatest understanding of the topic, a two phased ethnographic exploration was undertaken. During the initial participant observation phase, military men and women were observed executing a field exercise over a two week period in a large scale field exercise. Although limited in time and environmentally less arduous than combat or actual deployed conditions, this participatory experience was believed to yield credible and valid information regarding typical camp set-up, relations between military women and others, artifactual data collection and informal interviews from many participants who were willing to discuss experiences. Substantial field notes were collected during the field exercise. Each day, the researcher reviewed the notes for items of interest, possible emerging themes and the need for follow up data collection.

Following the participant observation component, telephonic semi-structured interviews of military men and women were conducted. The individuals interviewed were from a variety of military services, ranged in rank and time in service and had considerable differences in deployment and field environments. Spradley's matrix was utilized to guide data collection and interview progression. Data analysis and collection were concurrent. Componential analysis and the search for contrast among elements

within domains determined where additional data gathering was needed. As a result, interview questions varied according to the participant's individual response and as a result of the previous interviews.

Interviews were transcribed and a copy was returned to the participant in order to review and confirm the interview. No participants had additional comments or changes in the interview. Interviews were conducted in groupings in order to allow ongoing analysis. This process facilitated appropriate subsequent data collection and validation and verification of information yielded by previous participants. One participant was contacted a second time in order to confirm emerging themes discovered by the researcher.

During the field exercise and following transcription of initial taped interviews, domain analysis was conducted. Because the focus of the study was clear in advance of the observations, interviews and analysis, the domain search was focused which shortened the analysis steps outlined by Spradley (1980). Cover terms were identified, validated and grouped from field notes and interview transcription. The clustering of like and common cover terms yielded domains. Following categorization into taxonomies; a componential analysis which identified commonalities among attributes of each domain was conducted. Prominent elements which emerged from the componential analysis were considered individually and within the context of the social situation. Some individual elements which were identified during componential analysis stood alone as cultural themes while others were synthesized to form a parsimonious theme. Identified themes are cultural expectations for the social situations under study. The assumption

from these cultural rules and expectations shaped the women's behavior and performance within the unit in relation to hygiene management. The cultural themes identified in this study were:

1. Women rely on each other to manage their own hygiene activities. Women teach, care for, and provide privacy for one another.
2. A degree of risk is involved in hygiene activities in the field environment. The risk must be determined and activities or provisions to eliminate or decrease the risk are implemented. If the risk cannot be decreased, women will attempt to avoid hygiene activities.
3. Women will sacrifice their own needs and safety in order to avoid disrupting the integrity and rhythm of the unit.

Discussion

Theoretical Framework

Douglas's (1996) group/grid anthropologic theoretical framework was utilized to organize, guide and provide boundaries for this study. Grid is placed upon the vertical axis and indicates how much individual behaviors and roles are defined within a society. The horizontal axis, or group indicates the cohesion and strength of social bonds among members of the culture or group. Organizations with high group and high grid are hierarchal. The rigidly prescribed social roles, working order, deference to authority, and expectations for adherence to group norms place the military organizations in the far right corner of the grid. (Appendix G) Social groups in this area value compliance and adherence with social roles and have great expectations for preservation of the

organization. “Within a hierarchical culture, the world is seen as controllable... To every problem there is a solution – so long as it is firmly enough implemented by a sufficiently powerful leader or elite” (Mulgan, 2007). With this understanding of military organizations, it would seem then, that problems which could potentially affect the health, strength, or longevity of the organization would be addressed by those powerful leaders and elite. However, identification of the troubles and issues faced by military women in regard to maintaining hygienic practices while in field environments and resolution of problems women faced were not addressed by those in power. Military leadership is seemingly oblivious to the problems faced by women. In the military organization where nearly every aspect of daily behavior is rigidly prescribed such as dress, haircut, social salutations even the manner in which individuals must speak and walk; it is unexpected to find that the issue of women managing hygiene is not addressed. Minimal military training received by women included safe sexual practices and field sanitation (disposing of waste), but did not adequately address the needs of women who must attend to bathing, cleanliness, and management of menstruation in deployed and field environments (Powell-Dunford, Deuster, Claybaugh, & Chapin, 2003).

Perhaps even more surprising is the finding that women do not expect leadership to assist them in managing hygiene needs. The women who provided information for this study were willing to share their thoughts and knowledge on the topic. They recognized that the topic was important and were more than willing to share their experiences. However, when the researcher asked about involvement of leadership or changes that could be made by leadership to assist in overcoming these problems, not a

single interviewee expressed discontent with the way leadership had failed to provide guidance with hygiene matters. In fact, when asked, women seemed puzzled that the interviewee would even pose such a question, thinking it absurd, silly or an issue of little relevance. A 1997 study of gender integration in the military found that attention and/or praise to women for normal and expected military duties increased the women's feelings of alienation within the organization (Harrell & Miller, 1997). "Military women, like their male counterparts, seek the satisfaction of a way of life devoted to self sacrifice and solidarity and tend to focus on duty rather than rights" (Titunik, 2003, p. 246).

The military is "an institution that diminishes the importance of primordial and personal characteristics and creates a condition of communal solidarity that transcends individual distinctions" (Titunik, 2000, p. 240). For reasons ranging from overt and covert resistance to women in the military to lack of knowledge (Harrell & Miller, 1997) military men (and leaders) are not attuned to the unique problems faced by military women managing hygiene and as a result, do not place value on resolution of the issue. The issue of managing hygiene in field environments remains an individual problem rather than an organizational one. Military women find themselves in a dilemma. They must maintain the values, beliefs and attitudes of the larger hierarchal organization, which values the organization over the individual, yet resolve the individual problems associated with managing hygiene in field environments. Women must gain the knowledge, skills, and assistance required without disrupting the existing institutional arrangements. In order to reach resolution of this issue, military women form a

subculture when examined within Douglas' group/grid theory, existing in a very different area on the grid than the military hierarchal organizations.

Military women managing hygiene greatly value the beliefs, attitudes and values of the military organization and stand firmly in their solidarity with other members of the organization. Their solidarity and unwillingness to disrupt the unity and cohesion of the group places the subculture of women to the far right on the group axis of Douglas' framework. However, women find that because traditional lines of authority and power associated with hierarchal groups do not assist them in resolving their problems they must quietly disregard the strict adherence to socially approved roles. In order to preserve cohesion of the military unit, women will work within their own less visible, internal subgroups to provide for each others needs. Lessened regard for strict social roles lowers the grid placement on the vertical axis in the visual depiction of Douglas' theory. (See Appendix G.) "High group and low grid is egalitarianism" (Mulgan, 2007). An egalitarian group encourages individual problem solving and grasps the freedom needed to resolve difficulties. Behaviors of the group are need based. Members of the small group egalitarian organizations believe that they have control over their own destiny. These groups' value loyalty, obedience and group cohesiveness, yet conversely believe that leadership is a possibility for each member of the group (Douglas, 1990).

The women in this study easily demonstrated the behaviors congruent with individuals existing in the small group social organization. The strict protocols, deference to rank and authority, and expectations are set aside in order to deal with the problems specific for women. Because women set aside the formal rules and

expectations of the military organization they are able to work quickly and comfortably with each other; women can meet their hygienic needs quickly and privately without disrupting the integrity of the larger military organization or violating unstated rules and behavioral expectations.

As the issues are examined within Douglas' framework, it is interesting to consider how women are able to move from the implicit rules and expectations of one group to another. When faced with problems that cannot be resolved within the bounds of the hierarchal culture, women form an egalitarian subculture to deal specifically with the problems associated with managing hygiene. Subcultures are defined as adaptive and understood systems of smaller groups in a society (Miller, 1997). In order to succeed in the military hierarchal organization, military women must be able to adeptly shift between the rules of one group to another. Consider again the triggering event for this study which was described in Chapter One. A highly ranked female military member with an excess of 20 years of distinguished service participated in an arduous unit field training exercise over the course of 12 days. During this time, she experienced problems relating to toileting and management of menstruation in a field environment. Her complaints, protestations and requests for leadership assistance were disregarded. She was labeled as a complainer, hysterical, and was not considered a team player. She was no longer invited to participate in leadership meetings and her rank held little authority among exercise leaders. Following the exercise, she was asked to resign her position. Considering this scenario within Douglas' framework, this service member's fatal flaw was that she did not demonstrate the ability to remove her hygiene related problems from

the scrutiny of the larger hierarchal group and deal with them quietly within the boundaries of the egalitarian small group subculture. Women, who are not able to discern the differences and unstated rules and expectations between the groups, are labeled as troublemakers, whiners, or other inappropriate terms. The clear delineation between the main military hierarchal culture and the small group subculture of women explains the hesitance of women in this study to request assistance from leaders in meeting hygiene needs through education, provision of supplies or other accommodations.

Existing Research

The findings of this research endeavor reiterate and support what has been previously discovered or explained in the existing body of research related to women's hygiene in field environments. Just as Operation Desert Shield/Desert Storm increased the research regarding the particular problems faced by military women so have Operation Enduring Freedom and Operation Iraqi Freedom. The research regarding management of hygiene in field environments and related topics remains descriptive and retrospective.

Gynecologic disorders have been shown to be a common reason for seeking healthcare among military women who are deployed or are training in field environments (Hines, 1992; Markenson, Raez, & Colavita, 1992; Thomason & Nielsen, 2006). The rate of gynecologic complaints in field settings slightly exceeds that of civilian rates. Gynecologic diagnoses account for 1 in 20 healthcare visits and are reflective of a young, healthy, and active population (Buller, J. L. et al., 2007; Friedl, 2005). No data regarding

utilization or diagnosis were collected and analyzed during this ethnographic study. The researcher reviewed medical sick call logs and noted multiple complaints consistent with urinary tract infections for women. Due to the compressed nature of the field portion of this study and Institutional Review Board approval which did not include authorization to review individual service member's medical records, no analysis regarding utilization and rate of illness or injury were performed.

This study confirmed previous findings regarding practices and experiences while deployed. Women provided stories which depicted the conditions and problems associated with toileting, bathing and menstruating in the field. Much like previous studies (Norwood, Ursano, & Gabbay, 1997; Ritchie, 2001; Ryan-Wenger & Lowe, 2002; Scannell-Desch, 1996; Wardell & Czerwinski, 2001) women described lack of privacy, unsanitary conditions, problems obtaining sanitary supplies and alterations in food and fluid intake as problems.

Unlike the previously cited studies, a new element which complicated the problem of maintaining hygiene for military women, was that of danger and risk. Until now, no research regarding hygiene has specifically detailed the dangerous wartime predicaments and risks which must be taken in order to toilet or bathe. This new finding is likely because women have not been placed in high risk occupations and dangerous logistical positions. Military women now find themselves in less protected occupations and positions during times of war due to the elimination of the 1994 risk reduction act which allows women more opportunities in the military. The elements of risk and danger

included the effects of dehydration, of ill fitting body armor, and of injury or capture due to enemy attack or explosive devices.

This study also was consistent with previous studies regarding menstrual cycle suppression. Women participants had heard about elimination or reduction of their menstrual cycle but had not been provided formal counseling regarding menstrual cycle control. The information they had regarding this subject had been obtained from women's magazines and from other women in the unit. Like the studies by Christopher and Miller, (2007), Powell-Dunford et al. (2003), and Thomson and Nielsen (2006), the participants were interested, but were unsure if the practice was safe and needed more information.

While confirming much of what has previously described, this study is unique and contributes to and enriches the body of research work in this area. No previous research in the area of military women managing hygiene issues has been conducted from an ethnographic perspective. Ethnographic study of this topic not only helps to define the problem, but provides a deeper understanding of the topic and the culture in which it is embedded. By grasping the cultural implications of the problem, we may begin to predict problems, and formulate and develop culturally appropriate solutions. Future research, interventions, and solutions may be introduced in a manner that is appropriate to the hierarchal and small group cultures. For instance, one of the recommendations stemming from this study is to provide and increase education regarding menstrual cycle control for all female service members. Multiple previous studies have made this much needed recommendation but none have considered the manner in which an educational project

should be developed and provided (Buller et al., 2007; Christopher, 2007; Powell-Dunford et. al 2003; Ryan-Wegner & Lowe, 2000). Since this present research has shown that military women do not desire leadership and formal chains of command to be directly involved, perhaps it would be more appropriate to identify and train peer educators within each military unit or provide this education through outside sources. Military women have clearly communicated how they wish to function regarding hygiene issues and we should not casually disregard or discredit this finding because it doesn't sound fair or equitable. Interpreting the findings of previous and future research with cultural consideration will provide a broader understanding of the problem.

Limitations

Limitations of this study are those that are consistent with studies utilizing convenience sampling technique. The pilot study for this research effort lead the researcher to determine that purposive sampling would be necessary in order to avoid a homogenous sample. One issue which was too common in the study was that all participants served in medical units. The researcher purposely expanded the study in order to include individuals from all rates and ranks. Fifty percent of the participants held occupations in the medical field. Women in non-traditional positions, for example mechanics and boswain's mates were purposively sought out, provided information about the study and provided an opportunity to participate but did not. Perhaps this is because more women serve in medical units rather than other type of units. Or perhaps women with a medical knowledge have a better grasp on the importance of hygiene and its relationship to health or perhaps are more familiar with discussing matters usually

considered embarrassing or personal. Another consideration is that women who are serving in non-traditionally female roles feel an even stronger need to adhere to the 'code of silence' (Czerwinski et al., 2001) in order to be accepted in a traditional male arena. However, when previous research findings with a more diverse sample are considered, the findings are similar.

An additional limitation for this study is the lack of male participants who agreed to be interviewed. Five men originally expressed interest and requested information regarding the study. They were provided the standard information packet with enclosed letters and consent forms. Three men did not return the consents, one returned the consent but refused interview later. The one male participant who was interviewed provided little information other than a demonstration of his lack of awareness of the topic of interest. Military leaders (men) were also approached for prospective interview. These individuals were very supportive and encouraging regarding the need for research, however they would not consent for interview. The researcher grossly underestimated the difficulty associated with finding willing male participants and did not account for this. Although the intent of this study was to include these data into the analysis, the lack of participation by men who were approached or even volunteered for the study was unexpected. Future researchers should seek creative methods to obtain information from men and military leaders on this topic as it would greatly enhance the understanding of the cultural implications.

Conclusions and Implications

Although advancements have been made which benefit military women in the military within the past decade (Friedl, 2005), additional actions based on this and previous research efforts will benefit the individual service member and the military organization in terms of manpower, cost, morale and health. The following recommendations also made in prior research publications but have not yet been fully implemented nor have the cultural considerations of the military been considered in these recommendations.

Conclusions

The following conclusions are based on the findings of this study:

1. Women do not wish to draw undue attention to themselves from military leaders and others in the military unit nor do they wish to disrupt unit integrity and cohesiveness. As a result, they are hesitant to demand or request changes in organization, protocols or equipment which will enable them to meet their hygiene needs.
2. In order to meet these needs, women rely on each other through the formation of a need based egalitarian subculture.
3. Despite the unwillingness of women to request accommodations and changes, a significant need exists to address the specific problems women experience related to hygiene maintenance in field environments.

Implications

1. Education and interventions to address the problems experienced by military women managing hygiene should be developed and implemented within the military organization. Programs and interventions should be presented in consideration of the subculture of military women. Rather than utilize traditional chain of command, measures could be introduced utilizing peer educators or through outside resources.
2. Education should be provided not only to military women but also to military leaders. Education should specifically address the unique problems associated with privacy issues, risk and danger, and management of menses. Examples of minimal training should be conveyed to leaders not only the need to hydrate – a common and well known insistence in the field; but also the need to provide women with privacy and time to relieve themselves.
3. A standardized approach to provide military women with adequate health screens and the opportunity to utilize pharmacological approaches to menstruation suppression. In this study, women knew about this practice largely because they were able to discuss it amongst themselves, but no consistent approach was given to women to utilize this option. Despite the abundant literature which details the safety and efficacy of continuous contraceptive use, military women are not routinely screened for or offered this option. Benefits of menstruation suppression are decreased

symptoms associated with premenstrual syndrome, decreased incidence of anemia, decreased incidence of urinary tract infection, and enhanced sense of cleanliness.

4. Develop and revise equipment utilized by military women in field problems associated with hygiene managements. Revisions in equipment issued and used in the field could contribute significantly to allowing women to adequately manage hygiene while engaged in dangerous operations. Although not the specific focus of this study, the women adeptly described how management of body armor and gear limited their ability to perform basic hygiene activities. As a result women would go to great lengths to avoid toileting rather than remove the accoutrements of battle. Body armor and equipment that is appropriate for women rather than merely a smaller version of men's equipment should be provided in order to promote a ready fighting force. In addition, urinary diversion devices which allow women to urinate without full removal of clothing and protective gear should be made readily available to women.

Recommendations for Further Studies

Additional research should be conducted in order to further explore and understand the problem of women managing hygiene in field environments. Specific recommendations are:

1. Conduct additional ethnographic study of this topic utilizing participants from a wide variety of military occupations and settings. Additionally, males

- should be recruited in order to enrich the existing understanding of the cultural picture. It is imperative that the male viewpoint of this problem be elicited so that interventions to alleviate the problems experienced by women consider the needs of the military organization as a whole rather than just the needs of the individual woman.
2. Conduct experimental research on the effects of menstrual cycle suppression for deployed military women. Outcomes to be considered would be illness/injury rate, productivity, effect on the military unit, savings in terms of manpower and resources and reductions in pregnancies. The need for research in this area is well documented in multiple existing descriptive studies, continued experimental research will yield measurable objective results which may be then used to drive policy changes.
 3. Conduct experimental studies evaluating the effect of educational programs designed to assist military women manage hygiene in field environments. Similar to the above recommendation, adequate descriptive research has been conducted. It is time to develop and assess the effectiveness of a well planned and well implemented educational intervention.
 4. Studies which further examine the problems and potential interventions regarding the problems women face while wearing body armor and other mandatory protective gear. Women have clearly communicated their unwillingness to inconvenience or risk danger their fellow soldiers in order to toilet or manage menstruation. Research which focuses on development of

alternative gear, clothing or devices to minimize the inconvenience and danger of disrobing and toileting while in the field environment is greatly needed.

Summary

This qualitative ethnographic study was conducted in order to describe and understand the practices and culture surrounding military women in field environments as it relates to hygiene. The study was conducted utilizing participant observation of a large scale field exercise followed by telephonic interviews. The data was analyzed using Spradley's development research sequence and cultural themes discovered were 1) women will rely on each other 2) assessment of risk and 3) women will sacrifice personal needs for the well being of the unit. Findings were consistent and complimentary with existing research. Recommendations for utilization of research included increased education for women regarding managing hygiene in field environments, education for military leaders regarding needs of military women and provision of well fitting adequate protective equipment and other supplies required for women to manage hygiene.

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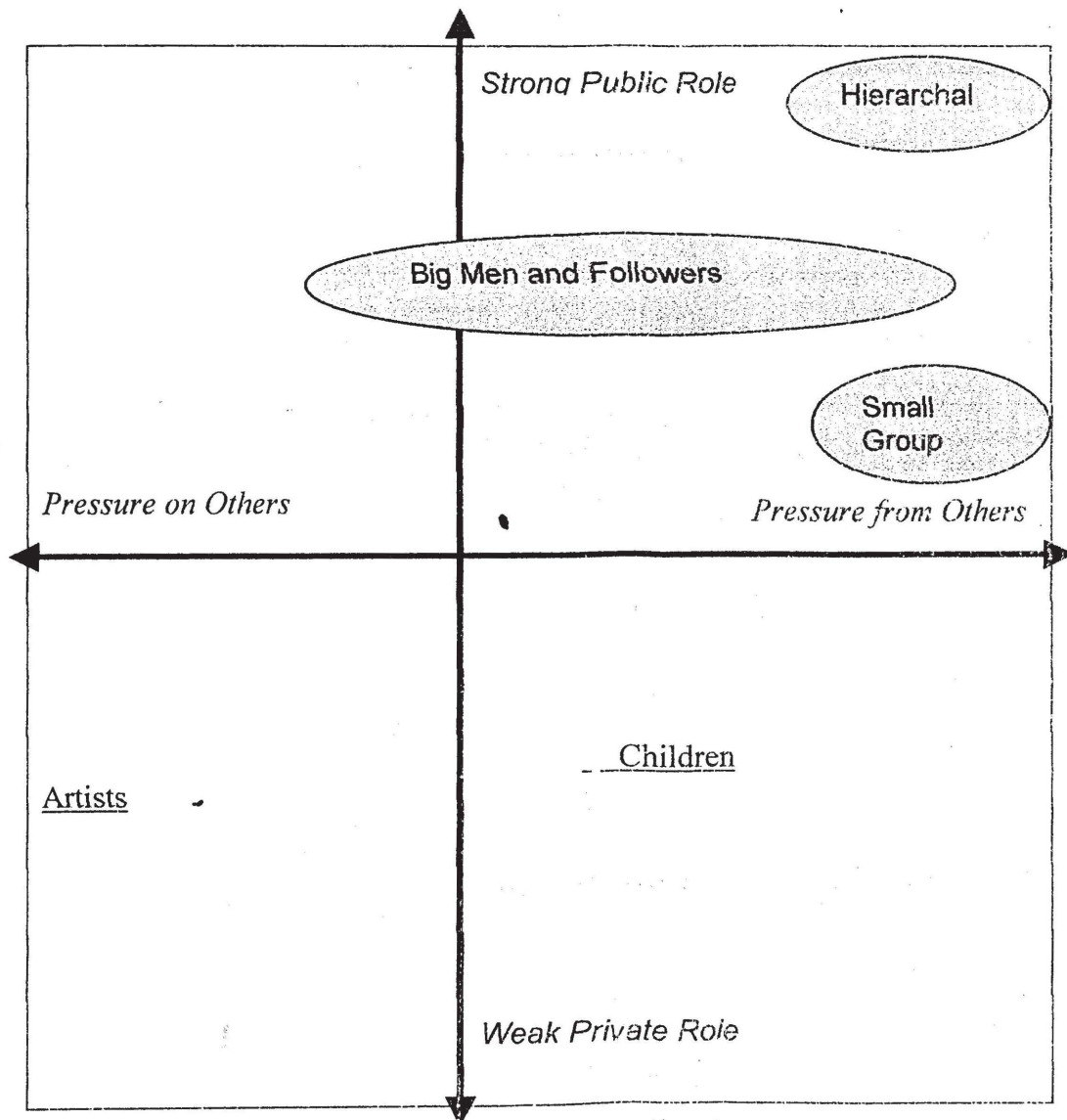
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APPENDIX A
Douglas' Group/Grid Theory

APPENDIX A

Douglas' Group/Grid Theory



APPENDIX B

Semi-structured Interview Protocol

APPENDIX B

Semi-Structured Interview Schedule

A Study to Explore the Hygiene Practices of Military Women in Field Conditions

Rank _____ Years In Service _____

I am interested in learning how women manage hygiene practices while working in a military field environment; specifically bathing, toileting, elimination and menstruation. I would like to hear stories about your experiences in the field which will help me to understand the topic better. First I will ask some general questions then we will speak specifically about hygiene management.

1. Can you describe for me in detail some of the field exercises in which you have participated? (Space)
2. Will you describe some of the objects you take with you into the field? (Objects)
3. Please describe what your activities in the field are – say for instance; what would a typical day be like? (Acts/Activities)
4. Can you describe in detail all the people that are also in the field environment with you? (Actor)
5. Can you describe your feelings when you are placed in a field type environment? (feelings)
6. Can you describe in detail your experiences relating to hygiene while in the field?
7. What are the specific problems associated with menstruation, toileting, bathing.
8. What are the additional problems?
9. How does your unit accommodate the needs of women?

10. How were you prepared to deal with personal hygiene prior to deployment?
11. Explain how your military leadership addresses the issues of hygiene specific to women?
12. If you were in charge of preparing for a field deployment, what would you do differently?

Probe questions will be used throughout the interview to elicit greater information. These may included questions such as:

1. Could you give me a specific example of what you are talking about?
2. Tell me more about that?
3. How did you know to do that?

APPENDIX C

Descriptive Question Matrix

APPENDIX C
Nine Element Grid: Descriptive Question Matrix

	Space	Object	Act	Activity	Event	Time	Actor	Goal	Feeling
Space	Can you describe in detail all the places?	What are all the ways space is organized by objects?	What are all the ways space is organized by acts?	What are all the ways space is organized by activities?	What are all the ways space is organized by events?	What spatial changes occur over time?	What are all the ways space is used by actors?	What are all the ways space is related to goals?	What places are associated with feelings?
Object	Where are objects located?	Can you describe in detail all the objects?	What are all the ways objects are used in acts?	What are all the ways objects are used in activities?	What are all the ways that objects are used in events?	How are objects used at different times?	What are all the ways objects are used by actors?	How are objects used in seeking goals?	What are all the ways objects evoke feelings?
Act	Where do acts occur?	How do acts incorporate the use of objects?	Can you describe in detail all the acts?	How are acts a part of activities?	How are acts a part of events?	How do acts vary over time?	What are the ways acts are performed by actors?	What are all the ways acts are related to goals?	What are all the ways acts are linked to feelings?
Activity	What are all the places activities occur?	What are all the ways activities incorporate objects?	What are all the ways activities incorporate acts?	Can you describe in details all the activities?	What are all the ways activities are part of events?	How do activities vary at different times?	What are all the ways activities involve actors?	What are all the ways activities involve goals?	How do activities involve feelings?
Event	What are all the places events occur?	What are all the ways events incorporate objects?	What are all the ways events incorporate acts?	What are all the ways events incorporate activities?	Can you describe in details all the events?	How do events occur over time? Is there any sequencing?	How do events involve the various actors?	How are events related to goals?	How do events involve feelings?

Time	Where do time periods occur?	What are all the ways time affects objects?	How do acts fall into time periods?	How do activities fall into time periods?	How do events fall into time periods?	Can you describe in detail all the time periods?	When are all the times actors are "on stage"?	How are goals related to time periods?	When are feelings evoked?
Actor	Where do actors place themselves?	What are all the ways actors use objects?	What are all the ways actors use acts?	How are actors involved in activities?	How are actors involved in events?	How do actors change over time or at different times?	Can you describe in detail all the actors?	Which actors are linked to which goals?	What are the feeling experienced by actors?
Goal	Where are goals sought and achieved?	What are all the ways goals involve use of objects?	What are all the ways goals involve acts?	What activities are goal seeking or linked to goals?	What are all the ways events are linked to goals?	Which goals are scheduled for which times?	How do the various goals affect the various actors?	Can you describe in detail all the goals?	What are all the ways goals evoke feelings?
Feelings	Where do the various feeling states occur?	What feelings lead to the use of what objects?	What are all the ways feelings affect acts?	What are all the ways feelings affect activities?	What are all the ways feeling affect events?	How are feelings related to various time periods?	What are all the ways feeling involve actors?	What are the ways feelings influence goals?	Can you describe in details all the feelings?

(Spradley, 1980, p. 82-83).

APPENDIX D

Taxonomy: Feelings Related to Hygiene

APPENDIX D

Taxonomy: Feelings Related to Hygiene Issues for Women in the Field

1. Positive
 - a. About Self
 - i. Fortunate
 - ii. Can adjust
 - b. About Others
 - i. Helpful
 - ii. Concerned
 - iii. Men enjoyed the break
2. Negative
 - a. Pressured
 - i. From others
 1. rushed
 2. displacing others
 3. resentment
 - ii. From self
 1. taking too long
 2. interrupting rhythm of camp
 3. creating bad feelings
 - b. Feeling Unclean
 - i. Smelling
 - ii. Looking unkempt
 1. uncomfortable
 2. shy
 3. nervous
 4. hated it
 - c. About health
 - i. UTIs
 - ii. Dehydrated
 - iii. Weak
 - d. Of Danger
 - i. IEDs
 - ii. Fear of locals
 - iii. Removing protective gear
 - iv. Being too weak to fight or run

3. Neutral

a. Unaware

i. Don't know of problems

ii. No problems exist

b. Trained to handle these issues

c. Worried about other things

d. Could be worse

APPENDIX E

Taxonomy: Types of Facilities

APPENDIX E

Taxonomy: Types of Facilities for Hygiene Activities

1. Toilets
 - a. Primitive
 - i. Split latrine
 - ii. Cat Hole
 - iii. Outhouse
 - iv. Banna Buckets
 - b. In Camp
 - i. Latrines
 - ii. Port-a-Potties
 - iii. Outhouses
 - iv. Real Bathrooms
 - c. In tents
 - i. Coffee cans
 - ii. Plastic bags
 - iii. MRE wrappers
 - iv. Bottles
 - d. On the Road
 - i. In back of trucks
 - ii. Between trucks
 - iii. Behind ponchos
 - iv. In local toilets
 - v. Shielded by others
 - e. Diversionary Devices
 - i. GI Janes
 - ii. Freshette
2. Bathing
 - a. Showers
 - i. Formal
 1. Milvans/MUMs
 2. Shower tents
 3. Plywood field showers
 - ii. Makeshift/Personal
 1. Sunshowers

b. Catbaths

- i. In designated tent
- ii. In personal tent
- iii. Behind partition
- iv. In bed
- v. Behind ponchos held by others

APPENDIX F

Taxonomy: Problems Faced By Military Women

APPENDIX F

Taxonomy: Problems Faced by Women Managing Hygiene in the Field

- I. Location
 - a. On Convoys
 - i. Can't stop dangerous
 - 1. interception
 - 2. drawing fire
 - ii. Can't find privacy
 - iii. Purposefully decrease food and water intake
 - iv. Hate to make the guys stop
 - v. Dealing with gear/body armor
 - b. At Camp
 - i. No hot water
 - ii. Toilets too far away
 - iii. Facilities dirty
 - iv. Facilities non-working
 - v. Too few women
 - 1. limited shower hours
 - 2. limited toilets
- II. Health
 - a. UTIs
 - b. Feeling uncomfortable at work
 - c. Constipation
- III. Cleanliness
 - a. Never felt clean
 - b. Smelled bad
- IV. Not having needed supplies/product

APPENDIX G

Douglas' Theory Applied to Military Women

APPENDIX G
Douglas' Group/Grid Theory Applied to
Military Women Managing Hygiene in Field Environments

