NAVAL HEALTH RESEARCH CENTER

PRE-ENLISTMENT MALTREATMENT HISTORIES OF U.S. NAVY BASIC TRAINEES: PREVALENCE OF ABUSIVE BEHAVIORS

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Pre-Enlistment Maltreatment Histories

of

U.S. Navy Basic Trainees: Prevalence of Abusive Behaviors

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SUMMARY

Problem. Navy basic trainees may enter military service with histories of being victims or perpetrators of abusive behavior. Victims of abusive behavior often have recurrent identifiable negative somatic and psychological symptomatology that appears to have its etiology in past traumatic physical and/or sexual experiences. Perpetrators of abusive behaviors are at-risk of repeating their offenses, thereby creating more victims. Overall, abusive victimization histories have been shown to have a detrimental impact on general health, behavior, and interpersonal relations, which may affect job performance, attrition, and naval readiness. Base-rate data of U.S. Navy basic trainees' abusive histories are required to aid in clarifying the need for and the scope and specificity of intervention programs.

Objective. The primary goal of this study was to survey the population of U.S. Navy basic trainees for their pre-enlistment histories of abusive behaviors and the possible psychological effects and behavioral manifestations of such histories. The main objective of this study was to establish base rates for childhood and adult physical and sexual violence to allow for the development of future studies and treatment, prevention, and education programs.

Approach. Over a four-month period the population of U.S. Navy basic trainees (women, n = 1,891; men, n = 1,885) at NTC Orlando, Florida was administered a battery of psychometrically valid instruments designed to collect histories of abusive behaviors, potentials for abusive behaviors, and traumatic symptomatology. These instruments were used to ascertain trainee base rates for (1) the methods their parents used to resolve parent-child conflicts, (2) childhood sexual experiences, (3) the methods trainees and their intimate partners used to resolve conflicts, and (4) their experiences as victims and perpetrators of sexual aggression. Rates or frequencies were defined as the occurrence of at least one instance of a behavior. Additionally, data were collected concerning the trainees' experiences with alcohol. Prevalence rates for abusive behaviors among trainees were compared and contrasted with the rates for college and community samples.

Results. Overall, 41.4% of the women and 39.1% of the men reported sustaining at least one instance of parental physical violence before the age of 18. A conservative estimate of childhood contact sexual experiences revealed that 27.6% of the women and 9.3% of the men indicated they had been victimized. About 41.0% of the women and 44.6% of the men reported sustaining intimate partner physical violence; while 47.5% of the women and 34.8% of the men indicated they had inflicted intimate partner physical violence. Twenty-four percent of the female and 9.3% of the male trainees reported being physically injured by an intimate partner. About 45.5% of the female trainees indicated they had been the victim of attempted or completed rape. The perpetration of sexual assault was reported by 14.8% of the male trainees who reported engaging in attempted or completed rape. The assessment of trainees' experiences with alcohol indicated that 63.5% of the women and 74.2% of the men have misused alcohol.

Conclusions. The results of this study show that a relatively high number of basic trainees enter naval service with histories of (1) childhood physical abuse, (2) childhood sexual abuse, (3) adult physical and sexual victimization, (4) adult perpetration of physical and sexual aggression, (5) and alcohol misuse. Previous studies have shown that victims of abusive behavior are at high risk of incurring somatic and/or psychological problems that require treatment by health-care professionals. Untreated, the effects of traumatization may interfere with training and the performance of duty. Without intervention, perpetrators of both sexual and physical aggression are at a high risk of repeating their behavior. The significant levels of alcohol use and misuse among trainees may be related to their histories of victimization and place the trainees at greater risk of adverse somatic and psychological consequences. Alcohol misuse has also been linked to the perpetration of aggressive behaviors, the vulnerability for victimization, and general negative behaviors.

The relatively high rates of basic trainees' histories of abusive behaviors suggest it may be cost-effective to establish treatment, education, and prevention programs at the basic training commands. The primary objective of these programs should be to allow for the earliest, optimal resolution of behaviors that may interfere with the performance of trainees' duties in the Navy.

To ensure that trainees and other naval personnel receive an accurate diagnosis and treatment of their complaints, medical department personnel should be trained to detect and understand abusive behavior, its symptoms, and its effects on somatic and mental health. Further, the results of the present study suggest the Navy and the trainees would benefit if the following American Medical Association's recommendations were adopted: (1) routinely collect victimization histories when patients enter the health care system, and (2) establish methods for referring victimized patients to education, treatment, and prevention programs. The exceptionally high levels of sexual aggression show an urgent need for the establishment of intervention programs for the prevention of sexual assault revictimization, the perpetration of sexual assault, and the misuse of alcohol.

A longitudinal study is needed to determine the effect of maltreatment histories on the health and functioning of U.S. Navy personnel. The scientific literature suggests that personnel with histories of victimization and perpetration of abusive behaviors serving in the Navy would require substantially more medical, psychological, and administrative services than would personnel without such histories. The information gained in a longitudinal study would allow for the creation of treatment and education programs for Navy personnel with maltreatment histories, which may improve retention and reduce their impact on the medical, psychological, and administrative systems.

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INTRODUCTION

When Navy recruits report for basic training, they bring with them individual health care needs, shaped by previous experience, which can have far-reaching effects during their military careers. Pre-existing medical conditions and prior exposure to disease or to disease-producing organisms, for example, are somatic concerns that may generate acute or chronic health care consequences of direct interest to the military (e.g., Allen & Smith, 1992; Sinclair, 1987; Thomas et al., 1988; Trump, Hyams, Cross, & Struewing, 1993). Ideally, disease causing organisms (e.g., Trump et al., 1993) and potentially debilitating medical conditions (e.g., Allen & Smith, 1992) are identified and treated in trainees prior to the completion of basic training.

The health risk behaviors of recruits are also of interest due to their association with chronic health care sequelae (Kolb & Gunderson, 1983; Marsden, Bray, & Herbold, 1988). Nicotine use (Ballweg & Bray, 1989; Daly & Pierson, 1989) and alcohol consumption (Durning & Jansen, 1976) have been investigated in basic trainees so that treatment and education programs can be designed to address these behaviors.

Abusive behavior suffered by trainees prior to their entry into the military is yet another experience that may negatively impact their health, well-being, and job performance, and could also have implications for the delivery of social and medical services (Brown & Anderson, 1991; Crawford & Fiedler, 1992). In the area of job performance, Crawford and Fiedler (1992) have hypothesized and found some support for the idea that a significant number of basic trainees with histories of childhood abuse are less able to endure the stresses of basic training and are subsequently discharged for mental health reasons. To reduce the attrition of these trainees and to promote their long-term success in the military they have been offered brief educational and therapeutic interventions if they have difficulties with training (Crawford & Fiedler, 1992). Although these brief interventions have been found to be effective for increasing the success rate of trainees who have evidenced motivation and potential to adapt to the military but who manifest an unusual degree of subjective distress, it is not known how effective the intervention is with groups of trainees with specific abuse histories (Gerwell & Fiedler, 1990).

A number of literature reviews have addressed the topic of childhood physical and sexual abuse. Several have concluded that a robust relationship exists between histories of childhood physical abuse and an array of problematic behaviors and conditions (Ammerman, Cassisi,

Hersen, & Van-Hasselt, 1986; Lamphear, 1985; Malinosky-Rummell & Hansen, 1993; Salzinger, Feldman, Hammer, & Rosario, 1991). Others have linked childhood sexual abuse (Bachmann, Moeller, Benett, 1988; Briere & Runtz, 1993; Browne & Finkelhor, 1986; Fry, 1993; Trickett & Putnam, 1993) or both sexual and physical abuse (Glod, 1993; Finkelhor & Dziuba-Leatherman, 1994; Kessler & Magee, 1994) to the subsequent need for psychological and somatic health care when victims reach adulthood. In fact, victims of childhood sexual and physical abuse and adult victims of sexual and physical assault have been found to be at an increased risk of incurring long-term adverse somatic and psychological consequences as a result of victimization (Briere & Runtz, 1993; Browne, 1993; Fry, 1993; Koss, 1993b; Schaefer, Sobieraj, & Hollyfield, 1988; Swett, Cohen, Surrey, Compaine, & Chavez, 1991; Watkins & Bentovim, 1992).

However, because of the differing methodologies and definitions that have been used in studies of abusive behavior, estimates of prevalence and incidence rates vary widely. For example, Fry (1993), in a recent review of the child sexual abuse literature, reported prevalence estimates that ranged from 4% to 54% for females and 3% to 31% for males, while Salter (1992) reviewed reports that ranged from 11% to 62% for females and 3% to 63% for males. Estimates of childhood physical abuse range from 7% to 14% for both genders (National Research Council, 1993). Although Muller (1991a) assessed histories of physical abuse in first-year college students, his results indicated that 12% of the students were physically injured by a parent prior to entering college. He further reported that 37% of the college students surveyed stated they had experienced at least one childhood incident of "severe violence" from a parent. Adult sexual assault estimates range from 5% to 30% for the prevalence of rape among adult women (Koss, 1993a) with adolescents being at higher risk (Salter, 1992). Nationwide, child abuse reports, for all forms of abuse, increased 31% from 1985 to 1990 (Daro & McCurdy, 1991). Considering only the most conservative of these estimates, abusive behavior is a serious issue requiring significant attention from researchers.

Trickett and Putnam (1993) have estimated that female children are sexually abused four times more often than are male children. This larger subject pool of female victims, combined with the underreporting and underdetection of male victims, are factors that may partially explain

the emphasis on female victims seen in a majority of studies on child sexual abuse (Watkins & Bentovim, 1992). It follows, therefore, that the conclusions reached in reviews of the sexual abuse literature are most applicable to female victims.

Fry (1993) reviewed the literature related to the long-term effects of childhood sexual abuse and summarized the results into four interrelated and overlapping domains. The first is composed of psychological disorders and includes depression, bulimia and anorexia, anxiety, and alcohol and drug abuse. The second category consists of psychological problems related to sexuality and encompasses sexual dysfunction and promiscuity. Feelings of isolation, alienation, distrust of others, fear of men, and a proneness for revictimization as adults characterize the third area. The last domain may be related to the first and consists of health problems that are of a physical nature but may result from somatization. Similarly, Sheldrick (1991) classified the long-term effects of child sexual abuse into four areas: psychological, sexual adjustment, interpersonal relationships, and social functioning. However, Sheldrick (1991) did not include physical health problems as a separate category. In a more focused review of the sexual abuse literature, Briere and Runtz (1993) separated the psychological consequences of child sexual abuse into six conceptual categories that provide a framework for the practical application of assessment strategies. The six categories are posttraumatic stress, cognitive distortions, altered emotionality, disturbed relatedness, avoidance, and impaired self-reference.

Other reviewers have attempted to gauge the strength of the connection between childhood sexual abuse and specific disorders in adults. For instance, Harney (1992) and Murray (1993) found a substantial relationship between borderline personality disorder, posttraumatic stress disorder (PTSD), and multiple personality disorder and histories of child sexual abuse. However, Beitchman et al. (1992) stated the evidence to support an association between child sexual abuse and borderline and multiple personality disorders is inadequate. Although, Beitchman et al. (1992) and others (Bachmann et al., 1988; Rew, 1989) determined that a relationship exists between childhood sexual abuse and sexual disturbance or dysfunction, anxiety and fear, depression and depressive symptomatology, revictimization proneness, low self-esteem, and suicidal ideation and behaviors. Still other assessments of the sexual abuse literature have noted

a strong relationship between drug and alcohol abuse (Rew, 1989), multiple chronic gynecological problems (Bachmann et al., 1988), PTSD (Rowan & Foy, 1993), and bulimia nervosa (Pope & Hudson, 1992) in adults sexually abused as children.

Watkins and Bentovim (1992), in a comprehensive review of the male childhood sexual abuse literature, concluded that the long-term effects included depressive, anxiety, personality and substance abuse disorders; suicidality; lowered self-esteem; increased relationship difficulties; and an elevated risk of becoming a perpetrator. Victimizations of children, including sibling assault, physical punishment, assault, physical abuse, neglect, sexual abuse, and psychological maltreatment, may have long-term effects that have not been investigated (Finkelhor & Dziuba-Leatherman, 1994). For example, borderline personality disorder has been linked to experiences of repeated childhood trauma, including sexual and physical abuse (Saunders & Arnold, 1993). Dissociative disorders have been associated with childhood traumas (Putnam, 1993). Moeller, Bachmann, and Moeller (1993) reported poorer health and poorer perception of their health among women physically and/or sexually, and/or emotionally abused as children. Swett et al. (1991) concluded that childhood physical or sexual abuse may be related to current levels of alcohol use.

Other studies and literature reviews have focused on the short-term and long-term health-care consequences for adult women with histories of childhood and adult physical and sexual assault (Browne, 1993; Golding, 1994; Koss, 1993b; Koss & Heslet, 1992; Koss, Koss, & Woodruff, 1991; Koss, Woodruff, & Koss, 1990; Walch & Broadhead, 1992). These studies and reviews have determined that assault victims request and require acute and chronic assault-related health care at a higher rate than do comparison groups. Abused women also have significantly more health risk behaviors and incidents of somatization than do non-abused women (Springs & Friedrich, 1992). More specifically, sexual victimization has been linked to chronic pelvic pain (Walker & Stenchever, 1993), gastrointestinal distress, chronic headache, and morbid obesity (Drossman et al., 1990; Felitti, 1991). However, the etiology of victims presenting complaints may not be directly attributed to the previous trauma by the victim or health care professionals, nor do health care personnel routinely collect victimization histories (Koss & Heslet, 1992). Finally, women with a history of abuse are at a higher risk for symptom reporting and lifetime surgeries regardless of their diagnosis (Drossman et al., 1990); women who have been sexually

victimized more than once are more likely to, aside from their victimization, have multiple partners, brief sexual relationships, unintended pregnancies (Wyatt, Guthrie, & Notgrass, 1992), and are at an increased risk of contracting sexually transmitted diseases (STDs) (Mandoki & Burkhart, 1989; Padian, 1987; Zierler et al., 1991).

Although 25% to 35% of physically abused or neglected children become child abusers as adults, the commonly accepted "intergenerational transmission of abuse" hypothesis has not been well established by empirical research (Kaufman & Zigler, 1987; Widom, 1989a). For example, Straus and Gelles (1990) found in a nationally representative sample of families that one in four parents who were physically abused by their parents later physically abused their own children. Also, Milner, Robertson, and Rogers (1990) found a significant but small correlation of .29 (R^2 = .084) between adults' histories of childhood physical abuse and their child abuse potential scores. Generally, the majority of victims of childhood physical abuse will not develop dysfunctional behaviors or conditions, nor will they physically abuse their children. However, they are definitely at higher risk of becoming abusive parents (Widom, 1989b).

Another factor that places children at an increased risk of being physically abused is the amount of violence between parents (Suh & Abel, 1990). A direct, positive relationship has been found between the rate of parent-to-child violence and the amount of violence between spouses (Straus, Gelles, & Steinmetz, 1988). It is also well established that physical aggression among married couples frequently occurs (Straus & Gelles, 1990). Straus and Gelles (1986) and Straus et al. (1980) surveyed a nationally representative sample of married couples and found that women and men reported aggressing at about the same rates although men engaged in more severe types of violence. More pertinent to the present study are the prevalence rates reported by O'Leary, Barling, Arias, Rosenbaum, and Tyree (1989), and O'Leary, Malone, and Tyree (1994), and Pan, Neidig, and O'Leary (1994). O'Leary et al. (1989) found that of the 272 unmarried couples they questioned, 31% of the men (mean age = 25.3 years) and 44% of the women (mean age = 23.6 years) had engaged in physical aggression against their partner. After 30 months of marriage the same couples were again questioned and 32% of the men and 25% of the women said they had physically aggressed against their spouse in the previous year. As part of a study to analyze the methods military couples use to resolve conflict, Pan et al. (1994) surveyed a representative sample (7,504 men, mean age = 29.3 years; and 896 women, mean age

27.3 years) of married or cohabiting U.S. Army personnel for the presence of physically violent behaviors against their partners during the previous year. They found that 4.5% of the men and 3.9% of the women beat up their partner and that 2.4% of the men and 3.1% of the women used a knife or gun against their partner. More importantly, O'Leary et al. (1989) and O'Leary et al. (1994) found that premarital couple aggression strongly predicts marital aggression and that the presence of physical aggression early in premarital relationships is related to serious marital discord. The effect of domestic violence on health care systems is difficult to measure. However, Stark and Flitcraft (1991) suggested that more women seek emergency medical treatment because of spouse abuse than for any other reason. Randall (1990) estimated that 22% to 35% of the women treated at emergency rooms can be attributed to symptoms related to domestic violence.

Domestic physical violence is also frequently accompanied by sexual violence (Browne, 1993). Thirty-four percent to 59% of women who have been physically assaulted also report they have been sexually assaulted by their partner (Bowker, 1983; Shields & Hanneke, 1983; Walker, 1984). Not surprisingly, men are overwhelmingly the perpetrators of sexually aggressive behaviors (Hall, Hirschman, Graham, & Zaragoza, 1993) and the assaultive man is usually an intimate of the victim (Finkelhor & Yllo, 1985; Russell, 1982a; White & Koss, 1993). There is, however, a large discrepancy between the percentage of women, 14% to 25% (Koss, 1993a), who say they have been the victim of sexual assault or rape and the percentage of men who admit to engaging in such behavior. For example, Koss, Gidycz, and Wisniewski (1987a) surveyed a sample of 2,972 college men, and only 4.4% admitted engaging in behaviors that met a legal definition of rape. And, in a study of date rape, Yegidis (1986) surveyed 300 college men and 7.3% admitted to engaging in behavior that is legally defined as rape. In Koss et al.'s (1987a) study of college students they found that fewer men reported incidents of sexual aggression compared to women, and men who reported incidents of sexual aggression reported acts with the same frequency as women. Thus, they provided support for two conclusions concerning self-reports of male sexual aggression: (1) a small number of men are not victimizing a large number of women, and (2) men do not admit to sufficient sexual aggression to balance the reports of women. Unfortunately, regarding the compilation of accurate data, most rapes are not officially reported (Koss, 1992). Due in part to underreporting and underdetection, the best long-term

strategy for reducing sexual assault recidivism rates may be the use of prevention and treatment programs for perpetrators (Hall & Hirschman, 1993). Even with treatment, perpetrators of sexual violence are at increased risk of committing subsequent sexual violence (Prentky & Knight, 1993). However, some treatment programs have been found to reduce the rate of recidivism (Pithers, 1993).

The results of a few studies indicate a significant number of military veterans and active-duty personnel with somatic and/or psychological complaints have been victims of childhood abusive behavior (Bremner, Southwick, Johnson, Yehuda, & Charney, 1993; Brown & Anderson, 1991; Crawford & Fiedler, 1992; Raczek, 1992). Bremner et al. (1993) compared two groups of male combat veterans, one with a diagnosis of PTSD (n = 38) and one with various somatic complaints (n = 28). Twenty-six percent (n = 10) of the PTSD example group reported histories of childhood physical abuse while 7% (n = 2) of the comparison group reported such a history. In an investigation of 947 inpatients at a large military hospital, Brown and Anderson (1991) compared the childhood abusive histories of patients to their psychiatric medical histories. Eighteen percent (n = 166) of the sample, which included an unknown number of dependents, reported a history of childhood sexual and/or physical victimization. Twenty percent (n = 188) of the sample consisted of U.S. Air Force basic trainees, and 15% (n = 28) of the trainees reported being victimized as children. Brown and Anderson (1991) found comparatively high rates of alcohol and drug abuse, suicidality, and Axis II diagnoses (American Psychiatric Association, Diagnostic and Statistical Manual of Mental Disorders, 1987) in patients with childhood maltreatment histories. U.S. Air Force basic trainees were examined by Crawford and Fiedler (1992) who compared 25 successful trainees to 25 trainees who were being discharged because of adverse psychological diagnoses. Only one of the trainees from the successful group reported a history of childhood abuse while 40% (n = 10) of the group being discharged reported being a victim of childhood abuse. Another study compared personality profiles of 16 U.S. Navy men with histories of sexual and/or physical abuse with 34 nonabused U.S. Navy men all of whom had been referred for psychiatric treatment (Raczek, 1992). This study found that the abused group had more avoidant and paranoid personality disorders. With the exception of the study by Crawford and Fiedler (1992), the data for these studies were collected from clinical

populations and all of the investigators used in-house developed instruments to collect abusive history data. Overall, however, their general conclusions are similar to those of studies with community samples.

The programs that have been established within the military for the prevention, investigation, assessment, treatment, and follow-up of child and spouse abuse, form the Family Advocacy Program (FAP) (DoD 6400.1M, 1992). Studies have been conducted using samples of clients treated by the FAP, that indicate abusive behavior among active-duty military members and their dependents is a serious problem (Merrill, 1993; Merrill & Pearsall, 1992; Mollerstrom & Patchner, & Milner, 1992a; Mollerstrom, Patchner, & Milner, 1992b; Mollerstrom, Patchner, & Milner, 1995; Wasileski, Callaghan-Chaffee, & Chaffee, 1982). Although some of these studies indicate that the prevalence of abusive behavior among military members and their dependents are lower than those of community samples, their estimates must be considered conservative because civilian agencies may investigate and treat military members and their dependents and these cases may not be reported to the FAP (Merrill & Pearsall, 1992).

Taken together, it is reasonable to conclude from the preceding literature review that a significant number of basic trainees enter military service with histories of being victims and perpetrators of abusive behavior. Furthermore, convincing evidence shows that (1) victims of abusive behavior have recurrent identifiable negative somatic and psychological symptomatology that appear to have their etiology in past traumatic physical and/or sexual experiences; (2) perpetrators of abusive behaviors are at risk of repeating their offenses, thereby creating more victims; and (3) abusive histories have been shown to have a detrimental impact on general health and interpersonal relations, which may lead to poor job performance.

It has been suggested that the stresses of military life may result in an increase in abusive behaviors among military personnel (Jensen, Lewis, Ronel, & Xenakis, 1986; Shupe, Stacy, & Hazlewood, 1987). However to disentangle the effect of military life upon abusive behavior, histories prior to entering military service must be collected and analyzed. A study that provided comprehensive profiles of U.S. Navy trainee histories of abusive behavior and the possible effects of such histories would allow for the development of treatment, education, and prevention programs to enable the optimal resolution of behaviors that may interfere with the performance of basic trainees' future duties.

METHOD

Merrill (1993) outlined the approach used to develop the method for this study. Briefly, an intensive literature search identified standardized instruments with acceptable psychometric characteristics that were appropriate for group administration and had a large normative database. The instruments were selected to assess U.S. Navy trainees' history of physical and sexual victimization, experience or perpetration of sexual aggression, potential for physical child abuse, attitudes toward the opposite gender, and the psychological sequelae of their victimization. Consultants, expert in physical and sexual abuse research, reviewed the selected instruments for appropriateness for use with U.S. Navy basic trainees and recommended procedures for scoring and data analyses.

Participants

Participants were 1,891 female and 1,885 male Navy basic trainees at the Recruit Training Command (RTC), Orlando, Florida, who voluntarily completed the survey. About 92.5% of the male trainees and 89.9% of the female trainees who entered basic training completed the survey. Some trainees did not participate because they were participating in testing or training. Table 1 shows the demographic data for female and male trainees. Female trainees have a mean age of 20.45 years (SD = 2.85) with a range from 17 to 34 years and male trainees have a mean age of 20.15 years (SD = 2.29) with a range from 17 to 34 years. Most of the male (96.2%) and female (95.6%) trainees have a minimum of a high school education and 34.8% attended college. A relatively small percentage of the men (7.2%) and women (13.2%) were ever married. About 45% of the male trainees and 34.2% of the female trainees reported family incomes of more than $35,000 per year. Table 1 shows that the majority of trainees were Caucasian, single, and high school graduates with a family income of more than $30,000 per year. In Table 1 the two lowest family income categories contained in the present survey "$7,500 or less" and $7,501 to $15,000 were collapsed to allow for a comparison with census data.

Although U.S. census data are included for comparison, it should be remembered that the sample of trainees represents a restricted age range and an educationally screened group. The trainee sample is generally comparable to the census data (U.S. Bureau of the Census, 1993); however, the trainee sample overrepresents African-American women, high school graduates, women and men who are not married and individuals from lower income families.

Table 1

Demographic Characteristics of Basic Trainees Compared to U.S. Census Data

	Trainees				U.S. Census	
	Women		Men		Women	Men
Characteristic	*n*	%	*n*	%	%	%
Marital Status*						
Single	1606	85.1	1714	91.1	65.7	80.3
Married	168	8.9	114	6.1		
Divorced/Separated	80	4.2	20	1.1		
Widowed	1	0.0	1	0.0		
Cohabiting	32	1.7	33	1.8		
Race/Ethnicity**					*Women & Men*	
White	1185	63.1	1348	71.6	76.3	
African-American	427	22.7	291	15.5	13.6	
Hispanic	138	7.3	147	7.8	5.9	
Asian	52	2.8	50	2.7	3.3	
American Indian	34	1.8	23	1.2	0.9	
Other	43	2.3	23	1.2		
Education***						
Not high school graduate	84	4.4	71	3.8	19.4	
High school graduate	1019	54.0	1021	54.4	35.3	
GED	44	2.3	64	3.4	**.**	
Technical school or some college (incl. degrees)	741	39.2	722	38.4	40.4	
Family Income*****						
Less than 15,000	475	25.5	369	19.9	16.9	
$15,001 to 25,000	360	19.4	297	16.0	16.0	
$25,001 to 35,000	388	20.9	356	19.2	15.6	
$35,001 to 50,000	382	20.6	428	23.1	19.5	
Over 50,001	253	13.6	406	21.9	31.9	

Note. Census percentage for: *1992, 20- to 24-year olds. **1990, 20- to 24-year olds. *** 1990, 18- to 24-year olds. **** Not given. ***** 1991.

Test Instruments

Demographic and Family History Questionnaire. This questionnaire contained items related to the respondent's age, race, marital status, number of children, educational level, family (parents) income during the past year, and location of primary childhood residence. Questions were asked about the respondent's family structure (e.g., parental separation/divorce) and the respondent's friends (e.g., were friends ever in legal trouble). In addition, the Family History Questionnaire contained an item, taken from a survey by Koss et al. (1987a), that asked the respondent to indicate how often she/he had observed a parent or stepparent deliver physical blows to the other parent during an average month when the respondent was growing up.

Conflict Tactics Scale (CTS), Parent-Child (PC) version. A modified CTS (Form R; Straus, 1990, p. 33) was used to measure the respondent's recall of the techniques used by her/his parents to resolve parent-child conflicts. The CTS survey used in the present study contained 19 items that asked how often a given conflict resolution technique was used by either parents or stepparents during the worst year of the respondent's life before the respondent's age of 18 years. The CTS PC consists of three subscales: reasoning (three items), verbal aggression (six items, a seventh "cry" item was not scored, as recommended by Straus, 1990, p. 37), and physical violence (nine items). The item response format consisted of seven response categories indicating the frequency ("never" to "more than 20 times") that the conflict resolution technique was used. To obtain frequency rates, participants who indicated that they had experienced at least one of the behaviors listed in the subscale were counted. This scoring procedure is one of several CTS scoring procedures that have been suggested by the test author (Straus, 1990, p. 36). Frequency rates will only be reported for the physical violence subscale in the present study. Participants who did not respond to one or more items within a subscale were deleted from the analyses.

A study that used a similar CTS PC survey to assess parenting behavior (in the family of origin) during physically abusive and nonabusive parents' childhoods reported internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales of .47, .83, and .85, respectively (Caliso & Milner, 1992). In the present study, for the total trainee sample, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .55, .83, and .84, respectively. For the women, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical

violence subscales were .54, .84, and .85, respectively; and, for the men, the internal consistency reliabilities for the CTS PC reasoning, verbal aggression, and physical violence subscales were .55, .82, and .81, respectively. Several authors have used modified versions of the CTS PC to show relationships between a respondent's recall of the childhood experience of physically abusive parenting behavior and subsequent abuse experiences (e.g., Caliso & Milner, 1992; Downs, Miller, Testa, & Panek, 1992; Follette & Alexander, 1992; Hartz, 1995; Muller, Caldwell, & Hunter, 1994; O'Keefe, 1995; Riggs, O'Leary, & Breslin, 1990; Sack et al., 1982).

Conflict Tactics Scale (CTS), Intimate Partner (IP) version. Two forms of a modified CTS (Form A; Straus, 1979, p. 87) were used to measure the respondent's recall of the techniques used by the respondent and his/her romantic partners to resolve conflicts. One form of the CTS IP ("I did") asked about how frequently the respondent used different conflict resolution techniques with romantic partners (where romantic partner was defined as a person with whom the respondent was "dating, seeing, going steady with, or were married"). The second form of the CTS IP ("Did to me") asked the respondent how frequently different conflict resolution techniques were used by his/her romantic partners. The CTS IP surveys used in the present study contained 18 items. The CTS IP consists of three subscales: reasoning (the four original CTS Form A items), verbal aggression (the six original CTS Form A items), and physical violence (eight items: original four CTS Form A items plus four items, "slapped the other person," "kicked, bit, or hit with a fist," "beat the other person," and "threatened the other person with a knife or gun," from the CTS Form R, Straus, 1990, p. 33). Only frequency rates for the physical violence subscale will be reported in the present study.

On both forms of the CTS IP ("I did," "He/She did"), the item response format consisted of four response categories indicating the frequency ("never" to "often") that the conflict resolution technique was used. To obtain frequency rates, participants who indicated that they had experienced at least one of the behaviors listed in the subscale was counted. As noted in the previous section, this scoring approach is one of several CTS IP scoring procedures that has been suggested by the test author (Straus, 1990, p. 36). Participants who did not respond to one or more items within a subscale were deleted from the analyses.

Although some respondents potentially might have marked "never" to all of the CTS IP survey items for several reasons (e.g., they may never have used any conflict resolution

techniques or they may never have had a romantic partner), the present study was interested only in those respondents who indicated that they had resolved conflicts with romantic partners, so respondents who marked "never" to all of the items on either of the CTS IP surveys ("I did," "He/She did") were excluded from the analyses. This decision follows a procedure previously used by Pan et al. (1994).

In the present study, for the total trainee sample, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .75, .77, and .89, respectively. For the women, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .73, .76, and .89, respectively; and, for the men, the internal consistency reliabilities for the CTS IP ("I did") reasoning, verbal aggression, and physical violence subscales were .78, .76, and .80, respectively. For the total sample, the internal consistency reliabilities for the CTS IP ("He/She Did") reasoning, verbal aggression, and physical violence subscales were .76, .78, and .90, respectively. For the women, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .73, .76, and .89, respectively; and, for the men, the internal consistency reliabilities for the CTS IP ("Did to me") reasoning, verbal aggression, and physical violence subscales were .78, .78, and .88, respectively. Although the CTS was initially developed for married couples, it has been used extensively to study courtship violence (e.g., Billingham & Notebaert, 1993; Billingham & Sack, 1986; Bookwala, Frieze, Smith, & Ryan, 1992; Cate, Henton, Koval, Christopher, & Lloyd, 1982; Deal & Wampler, 1986; Lane & Gwartney-Gibbs, 1985; Laner & Thompson, 1982; Makepeace, 1983, 1986; Ryan, 1995; Sack et al., 1982; White & Humphrey, 1994; White & Koss, 1991).

Physical Injury. While the previously described CTS IP ("Did to me") measure assessed the receipt of physically violent acts, it did not ask if the respondent had been physically injured by an intimate partner. Thus, immediately following the CTS IP items, an additional item asked if the respondent had ever been physically injured by a romantic partner. Five response options were available, ranging from "no, I was never injured" to "yes, the injury required hospitalization."

Michigan Alcoholism Screening Test (MAST). The MAST is a 25-item questionnaire that was developed "to provide a consistent, quantifiable, structured interview instrument for the detection of alcoholism" (Selzer, 1971, p. 1654). However, the MAST has been widely used as a survey instrument for alcohol problems (e.g., Brady, Foulks, & Childress, 1982; Storgaard, Nielsen, & Gluud, 1994). The MAST items have a yes/no response format and weighted item-scoring criteria, which score 24 MAST items, excluding Item 7 from the total score (Selzer, 1971).

During the coding of the surveys, it was noted that some respondents wrote on the MAST that they did not drink and then proceeded to mark all MAST items "no" apparently without reading the items. Marking all items "no" results in a score of 8 points, which is above the cutoff score of 5 points used by Selzer (1971) to indicate that a respondent is an "alcoholic." A nondrinking respondent who read the items would have to answer several of the MAST items with a "yes" to earn a zero score. Therefore, to ensure that subjects who had never drank were not scored erroneously as having alcohol problems, all respondents (92 females; 101 males) who marked "no" for all MAST items were excluded from the analyses.

Using male and female psychiatric patients, Zung (1982) reported an internal consistency reliability of .91 for the MAST, when the test was used to assess lifetime alcohol problems. In the same study, Zung reported that the MAST test-retest reliabilities for lifetime alcohol problems across a 1-day interval was .97. In another group of psychiatric patients, the MAST temporal stability for a test-retest interval of 4.8 months was .84 (Skinner & Sheu, 1982). In the present study, for the total trainee sample, the internal consistency for the 24-item MAST for lifetime alcohol problems was .70. For the women, the internal consistency was .65, and for the men the internal consistency was .73.

With respect to the individual classification rates of MAST scores, Storgaard et al. (1994) reviewed existing validity studies and found variable degrees of test sensitivity, ranging from .36 to .98, and selectivity, ranging from .57 to .96. While the lack of agreement on what constitutes alcoholism varied from study to study, Storgaard et al. indicated that across studies, a substantial relationship (.91) was found between the MAST positive predictive value (ratio of true positive classifications to all positive classifications) and the prevalence of alcohol problems. While the data suggest caution should be used in using the MAST scores for individual classification

purposes, the data indicate that the MAST has some utility as a screening instrument for detecting lifetime alcohol problems, especially when used on a group basis, as in the present study.

Sexual Events Questionnaire. A modified version of the Sexual Events Questionnaire (Finkelhor, 1979) assessed childhood sexual experiences. The questionnaire began by asking respondents to indicate (by marking either "yes" or "no") their experience with several types of sexual acts before the age of 14. The participants were not told to list only experiences with other people who were 5 or more years older than the participant or experiences wherein the other person used authority, bribes, threats, or physical force. The acts were listed in hierarchical order of severity, from seeing another person's sexual organs to having vaginal intercourse with a member of the opposite sex. For the last sexual experience item marked "yes," respondents were asked to provide more detail. The follow-on questions asked about the frequency and duration of the act, a description of the other person (i.e., stranger, neighbor, father, mother), respondent's age at the first occurrence, the age of the other person, and a reason why she/he understood the act occurred.

Because of the hierarchical ordering of the sexual acts and because the respondents were asked to provide details for only the last sexual act marked "Yes," some of the participants may have had a lower order experience with a person who was 5 or more years older but also a higher order experience with an age group peer. Therefore, they would have provided details for only the peer experience and the peer experience would not have been classified as child sexual abuse. The first or lowest order sexual act was, "Another person showed his/her sex organs to you." The last or highest order sexual act for men was, "A female had intercourse with you with any amount of penetration (ejaculation not necessary)." For the women the last sexual act was, "Another person had intercourse with you (vaginal, oral, or anal) with any amount of penetration (ejaculation not necessary)."

Sexual Experiences Survey (SES). An 11-item version of the SES was used to assess the incidence and prevalence of sexual aggression since the participant's 14th birthday (Koss & Gidycz, 1985; Koss & Oros, 1982). Male participants completed the standard 10-item version with an additional item added to attempt to obtain reports of involvement in gang rape (Koss & Gaines, 1993). Respondents were asked how frequently they had engaged in the questioned behavior for the past year and since they were 14 years old. A 5-point scale (0 = never, 1 =

once, 2 = twice, 3 = several times, 4 = often) was used for each time interval. The SES measures four levels of sexual aggression, (1) unwanted sexual contact, (2) sexual coercion, (3) attempted rape, and (4) rape.

Female participants completed a 5-item version of the SES which asked about only attempted rape and rape. These questions were answered with either a "yes" or "no." For each question answered "yes," participants indicated how long ago the experience occurred among one of five options that ranged from "less than 3 months" to "more than 2 years." SES internal stability (alpha) for the abuse scale is .74 for college women. A mean item agreement of 93% was found when SES administrations (for men) were one week apart for the 11-item version (Koss & Gidycz, 1985).

Procedure

The survey questionnaires used in the present study were administered as part of a more extensive survey package offered to Navy basic trainees during their first week at the RTC. Data collection began in January 1994. The data collection from the male trainees was completed in March 1994. Because there were relatively fewer female trainees, the data collection from women was completed in April 1994, after the number of women tested was approximately equal to the number of men tested. The survey was administered in a classroom by two (male and female) U.S. Navy Hospital Corpsmen who are qualified psychological technicians and experienced in administering psychological tests.

In the process of requesting that trainees participate in the study, a corpsman gave the trainees a description of the study, the informed consent, and privacy act statements. In addition, a corpsman read these materials to the trainees. Trainees who agreed to participate were told they could "leave blank any section or questions that you do not want to answer" and that they were "free to stop at any time before completing the survey." The participants were informed that professional counseling would be provided upon request if the recall of past traumatic experiences caused them distress.

Definition of Terms

No agreed upon unitary definitions exist for many terms used in violence or sexual abuse research (e.g., O'Donohue, 1992). The following operational definitions of terms will be used in the present study.

Alcoholic. Selzer (1971) defined a score of 5 or more points on the MAST as alcoholic and, for descriptive purposes, the same scoring was used in the present study.

Attempted rape. Respondents were scored as victims or perpetrators of attempted rape if they marked one or more items in the SES subscale for attempted rape. These items asked the respondent whether unwanted sexual intercourse had been attempted with the threat of force, or use of force. For men only, the perpetration of attempted rape was also defined as "attempting to have sexual intercourse with a woman when she didn't want to by giving her more alcohol or drugs than she could handle."

Childhood sexual abuse. Cases where respondents indicated that, before the age of 14, they had sexual contact with someone who was 5 or more years older; and/or, before the age of 14, reported physical-sexual contact with someone who used authority, bribes, threats of force, or force were defined as childhood sexual abuse. The term contact sexual abuse describes experiences where physical sexual contact occurred, such as fondling, stroking of sex organs, attempted intercourse, and oral, anal, or vaginal intercourse. Whereas noncontact sexual abuse is defined as experiences with exhibitionists or requests to engage in sexual activity but no physical contact occurred.

Childhood peer sexual experience. Respondents who had physical-sexual contact with someone, before the age of 14, who was not 5 years older and who did not use authority, bribes, threats of force, or force were considered to have had a childhood peer sexual experience.

Childhood physical abuse. A respondent was scored as a victim of child physical abuse if she/he indicated experiencing at least one of the behaviors listed in the CTS PC severe violence subscale. These items ask the respondents if a parent had ever kicked, bit, hit them with a fist, hit or tried to hit them with something, beaten them up, burned or scalded them, threatened them with a gun or knife, or had used a gun or knife used against them.

Intimate partner violence. A score of one or more on the violence subscale of the CTS IP was defined as an occurrence of intimate partner violence. The behaviors that comprise this subscale for perpetrators are: throwing something at; pushing, grabbing, shoving, or slapping; hitting or trying to hit, but not with anything; hitting or trying to hit with something hard; kicking, biting, or hitting with a fist; beating up; and/or threatening with a knife or gun an intimate partner. Victims of intimate partner violence are the recipients of one or more of the behaviors contained in the minor or severe violence scales of the CTS IP.

Intimate partner. Intimate partners were defined as someone the participant was, "...dating, seeing, going steady with, or were married (to)."

Prevalence. Generally, the word prevalence refers to the number of cases that exist in a population at any particular time (Campbell, 1981). In this report prevalence is defined as the number of cases that occurred (1) before the age of 14 for childhood sexual abuse, (2) before the age of 18 for childhood physical abuse, and (3) since the age of 14 for sexual assault.

Rape. Rape was defined as experiencing at least one instance of one of the behaviors contained in the SES subscale for rape. These behaviors indicate the respondent has been the perpetrator, for men, or victim, for women, of unwanted vaginal, oral, or anal sexual intercourse, after the age of 14, wherein alcohol, drugs (intentional incapacitation of the woman via alcohol or drugs), the threat of force, or force was used. For women only, rape was also defined as penetration by objects without consent through force or the threat of force.

RESULTS

The data set is too large to allow for a detailed analysis in a single paper. Therefore, only basic descriptive data for the (1) CTS PC, (2) childhood sexual experiences before the age of 14, (3) SES for women and men, (4) CTS IP, (5) MAST, and (6) selected background data will be reported here.

The relationship between prevalence rates for abusive behaviors and the demographic variables of ethnicity, education, family income, and geographic region were examined with chi-square analyses. These analyses may yield significant differences when large sample sizes are used; therefore, a conservative significance level of .01 was used. For significant findings, effect sizes (*w* for chi-squares) were calculated using Cohen's (1988) method to allow for a determination of their practical value. Cohen (1988) states that a *w* of .10 signifies a small effect, a *w* of .30 signifies a medium effect, and a *w* of .50 signifies a large effect. To allow for comparisons, the ethnic and the family income categories used in the present study are the same as those used by Koss et al. (1987a) and similar to those used in the U.S. census. Respondents were placed in one of three categories (less than a high school education, high school education or GED, and some college education) for the variable of education. For the variable of geographic region, respondents were placed in one of the four geographic census regions of Northeast, Midwest, South, or West according to their response to the question, "List the state that you have lived in for most of your life?" (U.S. Bureau of the Census, 1993). To facilitate comprehension of the results, some comparison data and discussion will be presented in this section.

Background Characteristics

Table 2 contains data related to the background characteristics of trainees that may be related to victimization (Finkelhor, Hotaling, Lewis, & Smith, 1990; Koss et al., 1987a). For descriptive purposes, data collected from a nationwide survey of college students are also presented (Koss, Gidycz, & Wisniewski, 1987b). As can be seen in Table 2 the majority of the female and male trainees' parents are either divorced or separated whereas, this was true for only about 1 in 4 of the college students' parents. Parental discipline was assessed by asking respondents, "How strict were your parents in making you obey their rules?" Table 2 shows similar distributions for the two groups, with a modal response of "Somewhat strict." However, a larger number of both

female and male respondents indicated their parents were "Very" or "Extremely strict" compared to "A little" or "Not at all strict." Combining the two categories of very and extremely strict, it can be seen that the strictest parental discipline was perceived by the female trainees (40.6%), followed by female college students (35.1%), with little difference between male trainees (30.9%) and college students (31.6%).

Separate questions queried trainees about running away from home, suicidal ideation, and whether they ever received counseling or psychotherapy. About 1 in 20 female students stated they ran away from home while this was true for about 3 in 20 female trainees. Conversely, a larger percentage of students reported suicidal ideation, which may indicate that the female college students internalized distress while the female trainees reacted behaviorally (i.e., "acted out"). Comparable data are presented in Table 2 for reported rates of counseling or psychotherapy.

Respondents' ages at first intercourse was solicited with the question, "How old were you when you first had sexual intercourse either forced or voluntary?" Although the age at first intercourse was similar for both women (Trainees, 15.6; students, 16.9) and men (Trainees, 15.1; students; 16.7) within groups, between groups the trainees reported having their first intercourse about one year earlier than the college sample did. A recent nationwide representative survey of men and women found that for people born between 1963 and 1967, the mean age at first intercourse is about 17.1 years for women and 16.4 years for men (Michael, Gagnon, Laumann, & Kolata, 1994).

To determine how many different sexual partners of the opposite gender the respondents had sexual intercourse with they were asked, "Consider your experience with the opposite sex. With approximately how many different people have you had sexual intercourse?" This item was taken from Koss et al. (1987a). The following nine response categories were provided wherein respondents could indicate the number of sexual partners of the opposite gender: "none," "1 person," "2-5 people," "6-10 people," "11-15 people," 16-20 people," "21-30 people," "31-50 people" and, "over 50 people." Overall, of the 1,560 men and 1,618 women who responded to this item, the highest percentage of women (41.6%) and men (31.2%) indicated they had sexual intercourse with from 2 to 5 different people. The lowest percentage of women (1.2%) reported having sexual intercourse with more than 50 different males while the lowest percentage of men

(2.7%) reported never having sexual intercourse with a female. The midpoint of each response category was used to determine the mean number of sexual partners for women (M = 8.0, SD = 9.2) and men (M = 10.7, SD = 12.0).

About 2.0% of the women reported never having sexual intercourse with a male, 11.9% indicated one male, 20.8% indicated 6 to 10 males, 10.1% indicated 11 to 15 males, 5.5% indicated 16 to 20 males, 4.6% indicated 21 to 30 males, 2.5% indicated 31 to 50 males, and 1.2% indicated more than 50 males.

Approximately 2.7% of the men reported not having had sexual intercourse with a female, 12.6% of the men reported having sexual intercourse with one female, 20.4% indicated 6 to 10 females, 10.1% indicated 11 to 15 females, 8.4% indicated 16 to 20 females, 7.0% indicated 21 to 30 females, 4.4% indicated 31 to 50 females, and 3.3% indicated more than 50 females.

Table 2

Percentage Rates for Selected Background Characteristics of Basic Trainees and College Students*

	% Women		% Men	
Characteristic	*Trainees*	*Students*	*Trainees*	*Students*
Parents Divorced or Separated	60.0	25.2	54.4	22.4
Parental Discipline				
Not at all strict	5.7	3.5	5.6	3.6
A little strict	13.7	14.4	14.8	14.5
Somewhat strict	40.0	46.9	48.7	50.2
Very strict	32.7	30.3	26.3	29.1
Extremely strict	7.9	4.8	4.6	2.5
Witnessed Parental Violence				
Once or twice	16.5	12.3	12.8	11.3
3 - 5 times	5.8	2.9	2.7	1.5
6 - 10 times	3.2	1.1	1.7	.8
11 - 20 times	1.9	.4	1.3	.3
Over 20 times	3.6	.6	1.7	.5
Total of once or more	31.0	17.3	20.2	14.4
Ran Away From Home	16.1	5.0	12.3	**
Contemplated Suicide	16.9	23.0	10.8	15.7
Had Counseling or Psychotherapy	20.3	21.4	13.2	12.6

Note. * Data for college students are from Koss et al., 1987b. ** Not available.

Sexual Experiences Before the Age of 14

The percentage rates for trainees who reported sexual experiences before the age of 14 are shown in Table 3. The frequencies reported for the categories listed in Table 3 are mutually exclusive. Table 3 lists the rates for the trainees who (1) did not report a peer or abusive experience, (2) reported peer experiences, and (3) reported abusive experiences. Seventy-four (4.3%) of the female and 81 (4.3%) of the male respondents indicated they had a sexual

experience; however, because of missing data it was not possible to determine if their experience was a peer experience, occurred after the age of 14, or was a child sexual abuse experience. Therefore, the participants with missing data in this section were not included in Table 3.

Table 3

Prevalence Rates for Sexual Experiences of Basic Trainees Before the Age of 14

		Women		*Men*	
Experience		*n*	*%*	*n*	*%*
1.	None reported	846	46.6	921	51.0
2.	Peer experiences				
	Noncontact	150	8.3	185	10.3
	Contact				
	Physical	116	6.4	160	8.9
	Attempted intercourse	43	2.4	53	2.9
	Intercourse	59	3.2	265	14.7
	Total (contact)	218	12.0	478	26.5
3.	Sexual abuse experiences				
	Noncontact	102	5.6	52	2.9
	Contact				
	Physical	207	11.4	46	2.5
	Attempted intercourse	111	6.1	19	1.1
	Intercourse	183	10.1	103	5.7
	Total (Contact abuse)	501	27.6	168	9.3

Note. The final sample consisted of 1,817 women and 1,804 men.

As previously mentioned (see Test Instruments in the Methods section), the preface to this portion of the survey did not specify that only sexual experiences be reported that occurred prior to the age of 14 and involved another person who was either (1) 5 or more years older than the respondent, and/or (2) used authority, bribes, threats to hurt, or physical force. Thus, some of

the trainees who reported contact peer experiences prior to the age of 14 may have had another experience(s) that would be defined as abusive. Therefore, these estimates are believed to be conservative because it is not possible to determine if some of the 218 (12%) female trainees and the 478 (26.5%) male trainees may have reported contact peer sexual experiences in lieu of experiences with someone who was 5 or more years older. However, it seems reasonable to conclude that if only a peer noncontact experience was reported that a contact abuse experience did not occur. The overall percentage rate for noncontact and contact sexual abuse for female trainees is 33.2% and 12.2% for male trainees.

To determine the association between child sexual abuse (contact and noncontact) prevalence rates, the demographic variables of ethnicity, reported parental income, education level, and geographic area were examined with chi-square analyses. Effect size (Cohen, 1988) was computed when significant differences were found. The participants who reported peer childhood sexual experiences were not included in the chi-square analyses.

Statistically significant differences in the categories of ethnicity [women, $\chi^2(5, n = 1{,}442) = 19.59$, $p = .001$, $w = .11$; men, $\chi^2(5, n = 1{,}138) = 18.89$, $p = .01$, $w = .13$] and geographic region [women, $\chi^2(3, n = 1{,}344) = 16.66$, $p = .001$, $w = .11$; men, $\chi^2(3, n = 1{,}074) = 11.68$, $p = .01$, $w = .11$] were found for the prevalence of childhood sexual abuse (contact and noncontact combined) for both female and male trainees. Although the findings were significant, the effect sizes for both ethnicity and geographic region were small and indicate that they had little practical influence on the prevalence rates (Cohen, 1988). Prevalence of childhood sexual abuse did not vary by family income [women, $\chi^2(5, n = 1{,}425) = 3.06$, $p = .69$; men, $\chi^2(5, n = 1{,}125) = 4.52$, $p = .48$] or education [women, $\chi^2(2, n = 1{,}447) = .62$, $p = .73$; men, $\chi^2(2, n = 1{,}135) = 1.33$, $p = .51$].

Overall, the relatively small samples of American Indian women (69.2%, $n = 26$) and men (57.1%, $n = 14$) reported the highest (65.0%, $n = 40$) and Asian women (29.8%, $n = 47$) and men (12.5%, $n = 40$) reported the lowest (21.8%, $n = 87$) rates of childhood sexual abuse. Russell (1986) also found relatively low prevalence rates for childhood sexual abuse in her sample of Asian women and hypothesized that it may be attributed to the reluctance of the Asian women to report childhood sexual experiences. Prevalence rates for white/non-Hispanic (43.7%, $n = 893$)

and Hispanic women (43.8%, *n* = 112) were similar but higher than those for the African-American women (34.5%, *n* = 330). Comparable prevalence rates were found for white/non-Hispanic (17.9%, *n* = 806) and Hispanic men (18.9%, *n* = 90), but higher rates were found for African-American men (25.1%, *n* = 171). Combining the childhood sexual abuse rates for women and men in the ethnic groups of white/non-Hispanic (29.7%, *n* = 1,699), African-American (31.3%, *n* = 501) and Hispanic (32.7%, *n* = 202) yield very similar prevalence estimates across ethnicity. Concerning geographic areas, the highest rates of childhood sexual abuse were reported by participants raised in the West for both women (51.8%, *n* = 282) and men (24.6%, *n* = 228), while the lowest rates were found for participants raised in the Northeast for both women (35.2%, *n* = 210) and men (11.7%, *n* = 180). Combining the prevalence rates for women and men shows that the highest rate was still in the West (39.6%, *n* = 510), while the rates were similar for the Northeast (29.3%, *n* = 726), South (30.7%, *n* = 997), and the Midwest (32.4%, *n* = 521). The rates within gender for the Midwest (women, 43.1%, *n* = 306; men, 17.2%, n = 215) and South (women, 39.4%, n = 546; men, 20.2%, n = 451) were comparable. Similarly, Crewdson (1988), in a national telephone survey of childhood sexual abuse, found that the largest proportion of victims were from the Pacific Region (California, Alaska, Hawaii, Oregon, and Washington). The West geographic region used in the present study included the Pacific Region states plus Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming. Because ethnicity is not evenly distributed across geographic regions, the clarification of these results will require further analyses, which will be detailed in future reports. In summary, few studies have investigated the effect of ethnicity and geographic region on childhood sexual abuse prevalence rates; however, these variables do not appear to exert a significant effect (Peters, Wyatt, & Finkelhor, 1986; Salter, 1992).

Childhood Parent to Child Conflict Resolution

Table 4 presents the CTS PC results for trainees. These data represent the methods trainees' parents or stepparents used to resolve disputes with trainees before the trainees were 18 years of age. The subscales are composed of from 3 to 6 different items each. Both the severe violence and the very severe violence subscales have been used as measures of child physical abuse

(Straus & Gelles, 1990). Exact sample sizes are shown in Table 4 for each subscale along with the percentage of trainees who marked at least one occurrence of a scale item.

An objective of the present study was to examine CTS PC data from respondents who indicated they had resolved conflicts with their parents. Therefore, the respondents (4 women and 4 men) who indicated their parents had "never" used any of the CTS conflict resolution techniques were excluded from the analyses. The very severe violence subscale consists of the same items as the severe violence subscale except that it does not include the item, "Hit or tried to hit you with something." The violence subscale consists of all of the items in the minor, severe, and very severe subscales.

Table 4

CTS PC Violence Subscale Percentage Rates for Basic Trainees*

	Women		*Men*	
Subscale	*n*	*%*	*n*	*%*
Minor	1,854	75.1	1,839	75.5
Severe	1,874	41.4	1,857	39.1
Very Severe	1,866	27.7	1,846	25.8
Violence	1,874	75.8	1,858	76.4

Note. * Due to missing data n varies for both women and men.

Prevalence rates for childhood physical abuse differed by ethnicity for women, $\chi^2(5, n = 1{,}862) = 28.43$, $p < .0001$, $w = .12$, but not for men, $\chi^2(5, n = 1854) = 11.66$, $p = .04$. The rates also varied by education for women, $\chi^2(2, n = 1{,}871) = 15.00$, $p = .001$, $w = .09$, but not for men, $\chi^2(2, n = 1{,}850) = 5.60$, $p = .06$. Significant differences in prevalence rates were found between levels of reported family income for men, $\chi^2(5, n = 1{,}832) = 29.02$, $p = .0001$, $w = .13$, but not for women, $\chi^2(5, n = 1{,}842) = 11.48$, $p = .04$. Rates of childhood physical abuse did not vary by geographic region for women, $\chi^2(3, n = 1{,}741) = 3.63$, $p = .30$, or for men, $\chi^2(3, n =$

1,753) = 1.43, p = .70. Despite the significant findings, the computed effect sizes were determined to be small and they therefore should be interpreted with caution (Cohen, 1988).

The highest prevalence rates for childhood physical abuse were reported by women who indicated that they belonged to an "Other" (51.2%, n = 43), African-American (50.5%, n = 422), or Hispanic (49.3%, n = 134) ethnic group. Lower rates of childhood physical abuse were reported by American Indian (41.2%, n = 34), white/non-Hispanic (37.3%, n = 1,178), and Asian (35.3%, n = 51) women. The level of reported childhood physical abuse among women decreased as a function of education: Female trainees who did not finish high school (51.9%, n = 81) had the highest rate followed by high school graduates (44.3%, n = 1,055) while female trainees with some college (36.3%, n =735) had the lowest rate. For male trainees the highest rates of physical childhood abuse were found for those reporting family incomes of less than $7,500 (50.7%, n = 140) and between $15,001 and $25,000 (49.0%, n = 294). Approximately equal rates were found for those reporting family incomes of between $7,501 to $15,000 (38.9%, n = 221) and over $50,000 (38.4%, n = 398). The lowest rates were found for the male trainees who reported family incomes of $25,001 to $35,000 (33.2%, n = 352) and $35,001 to $50,000 (34.4%, n = 427).

Demographic variables, including level of education, ethnicity, and family income have been found to be confounded in previous studies of childhood physical abuse rates (Cazenave & Straus, 1990). Further, Straus et al. (1988) and Cappelleri, Eckenrode, and Powers (1993) have stated that it is not possible to interpret ethnic differences in childhood physical abuse rates without controlling for other relevant demographic factors such as family income and education.

Intimate Partner Conflict Resolution

The CTS IP was used to determine the methods trainees used to resolve conflicts between themselves and their intimate partners. Trainees were asked to report how often they engaged in (or inflicted) a specified behavior ("I did") and how often their intimate partner engaged in (or they sustained) the same behavior ("He/She did"). The percentage of trainees who reported engaging in at least one incident of one behavior contained in a subscale is presented in Table 5. The minor violence subscale contains the following three items: (1) "Threw something at the other person"; (2) "Pushed grabbed, or shoved"; and (3) "Slapped the other person." The severe

violence subscale contains the following five items: (1) "Hit (or tried to hit) the other person, but not with anything"; (2) "Hit (or tried to hit) the other person with something hard"; (3) "Kicked, bit, or hit with a fist"; (4) "Beat the other person up"; and (5) Threatened the other person with a knife or gun." The total violence subscale consists of all subjects who endorsed at least one of the minor violence or severe violence items.

In general agreement with the intimate partner violence literature, the female trainees reported inflicting more violent behaviors against their males partners than did male trainees against their female partners. Conversely, male trainees reported sustaining more violent behaviors from their female partners than did female trainees from their male partners. There are several possible explanations for the higher frequencies reported by women. For example, LeJeune and Follette (1994) suggest that men are less likely to take responsibility for their violent behavior than are women. Men have also been found to underreport their own violent behavior (Jouriles and O'Leary, 1985). Finally, Stets and Straus (1990) concluded that women are as violent as men in intimate relationships when violence is measured by acts. However, when intimate partner violence is measured by injuries, men are more violent than women (see Table 6). Although the intimate partners of the trainees may also have been trainees, the rates of intimate partner violence were not collected from matched couples (i.e., the female trainees are not reporting on the behaviors of the male trainees and the male trainees are not reporting on the behaviors of the female trainees).

Table 5

CTS IP Violence Subscale Percentage Rates for Self and Intimate Partner for Basic Trainees

	Women		*Men*	
Version/Subscale	*n*	*%*	*n*	*%*
Self ("I Did")				
Minor	1,676	45.3	1,558	32.1
Severe	1,684	31.2	1,582	16.1
Total violence*	1,700	47.5	1,601	34.8
Partner ("He/She Did")				
Minor violence	1,606	38.8	1,500	41.9
Severe violence	1,645	26.0	1,524	29.1
Violence*	1,648	41.0	1,542	44.6

Note. * The violence subscale consists of all items in the minor and severe violence subscales.

The relationship of prevalence rates for intimate partner abuse for both inflicted or "I did" and sustained or "He/She did" to the demographic variables of ethnicity, reported parental income, education level, and geographic region was examined by chi-square analyses. As previously noted, effect size (Cohen, 1988) will be shown along with significant results.

Prevalence rates of inflicted intimate partner violence did not vary by reported parental income, [women, $\chi^2(5, n = 1,675) = 10.13, p = .07$; men, $\chi^2(5, n = 1,583) = 4.63, p = .46$] or geographic region [women, $\chi^2(3, n = 1,591) = 7.32, p = .06$; men, $\chi^2(3, n = 1,518) = 9.95, p = .02$]. Rates of inflicted intimate partner abuse varied by ethnicity for women, $\chi^2(5, n = 1,691) = 14.48, p = .01, w = .09$, and for men, $\chi^2(5, n = 1,598) = 35.22, p = .0001, w = .15$. Although the rate of inflicted intimate partner abuse varied by level of education for women, $\chi^2(2, n = 1,698) = 13.71, p = .001, w = .09$, it did not for men, $\chi^2(2, n = 1,594) = 5.61, p = .06$.

For women, higher rates of inflicted intimate partner abuse were reported by African-American (55.1%, $n = 390$), Asian (53.8%, $n = 39$), and American Indian (51.6%, n = 31) ethnic groups, while lower rates were reported by white/non-Hispanic (45.2%, $n = 1,072$), "Other" (43.2%, $n = 37$), and Hispanic (41.0%, $n = 122$) ethnic groups. However, for men, higher rates

were reported by African-American (50.6%, n =233), Hispanic (36.5%, n =115), and white/non-Hispanic (32.2%, n = 1,169) ethnic groups, while lower rates were reported by Asian (22.7%, n = 44), "Other" (22.2%, n = 18), and American Indian (21.1%, n = 19) ethnic groups. Prevalence rates of intimate partner abuse varied by level of education for female trainees, with comparably higher rates reported by women with a high school education (51.2%, n = 965) and women who did not finish high school (50.7%, n = 75) and a lower rate reported by women with some college (41.9%, n = 658).

Prevalence rates for sustained intimate partner violence did not vary by ethnicity among women, $\chi^2(5, n = 1{,}638) = 5.41$, $p = .37$, but it did vary among men, $\chi^2(5, n = 1{,}539) = 19.52$, $p = .01$, $w = .12$. Sustained abuse rates varied by level of education for women, $\chi^2(2, n = 1{,}646) = 15.63$, $p = .001$, $w = .10$, and men, $\chi^2(2, n = 1{,}535) = 11.83$, $p = .01$, $w = .09$. Sustained abuse rates differed by reported family income for women, $\chi^2(5, n = 1{,}623) = 15.30$, $p = .01$, $w = .10$, but not for men, $\chi^2(5, n = 1{,}524) = 5.02$, $p = .41$. Prevalence rates did not vary by geographic region for women, $\chi^2(3, n = 1{,}544) = 3.25$, $p = .35$, or men, $\chi^2(3, n = 1{,}461) = 2.50$, $p = .48$, for sustained intimate partner physical abuse.

The highest rate of sustained intimate partner abuse was reported by female and male trainees who had not completed high school (women, 50.7%, n = 69; men, 58.6%, n = 58), followed by trainees with a high school education (women, 44.2%, n = 938; men, 46.7%, n = 876), while trainees with some college reported the lowest rates (women, 35.2%, n = 639; men, 39.8%, n = 601). For women, the highest rate (49.8%, n = 303) of sustained intimate partner abuse was reported by trainees who indicated their family income for the previous year was $15,001 to 25,000, while the lowest rate (35.7%, n = 230) was reported by trainees who indicated their family income was more than $50,000 for the previous year. For the other categories of reported family income for women, 37.6% (n = 343) with family incomes of $25,001 to $35,000, 39.6% ($n$ = 328) with family incomes of $35,001 to $50,000, 39.9% ($n$ = 178) with family incomes of $7,500 or less, and 44.0% (n = 241) of those with family incomes of $7,501 to $15,000 for the previous year indicated they had sustained intimate partner abuse.

Few nationwide studies of intimate partner violence have been conducted, and only one study was found that investigated intimate partner violence among unmarried women and men. White

and Koss (1991) conducted a national survey (n = 6,159) of intimate partner violence in college students and did not find ethnic or family income differences for women or men. However, White and Koss (1991) did report geographic regional differences for men but not for women. Straus and Gelles (1990) investigated assault rates in a nationwide, representative sample of 104 couples and did not report ethnic, family income, level of education, or geographic regional differences. In summary, studies employing large, nationally representative community samples of unmarried dating couples have not been conducted; therefore, comparison data are not available. The significant chi-square results found in the present study will be further explored in a future report.

Physical Injury

Although the CTS IP ("Did to me" or sustained) assessed the occurrence of physically violent acts, it did not ask the respondents if they had been injured by an intimate partner. Therefore, immediately following the CTS IP items, an additional item ("Were you ever physically injured by an intimate partner?") with five-options was used to determine whether the respondent had ever been physically injured by a romantic partner. The options ranged from "No, I was never injured" to "Yes, the injury required hospitalization." Response distributions for this item are presented in Table 6. Overall, 24% of the women and 9.3% of the men reported being injured by an intimate partner. The majority of the female (69.8%) and male (79.0%) trainees injured by an intimate partner indicated the injury they received was minor and that no treatment was required. Conversely, 30.2% of the female and 20.95% of the male trainees injured indicated that the injury they received required treatment. Although it is possible that the perpetrators of the injuries were also trainees, the trainees matched couples (i.e., the female trainees were not reporting the behaviors of the male trainees and the male trainees were not reporting the behaviors of the female trainees).

Table 6

Percentage of Basic Trainees Injured by an Intimate Partner

	Women		*Men*	
Response Option	*n*	*%*	*n*	*%*
1. No, I was never injured.	1394	76.1	1,628	90.7
2. Yes, but the injury was minor, and no treatment was required.	305	16.7	132	7.4
3. Yes, but the injury was treated by someone other than a medical professional.	87	4.8	27	1.5
4. Yes, the injury required professional medical treatment.	36	2.0	4	0.2
5. Yes, the injury required hospitalization.	9	0.5	4	0.2
Total injured	437	24.0	167	9.3

Chi-square and effect size analyses were computed to determine whether the prevalence rates for intimate partner physical injury varied by demographic variables. For these analyses the five response options listed in Table 6 were scored as follows: Option 1 was scored 1 point and Options 2 through 5 were scored 2 points. The use of this scoring approach meant that the last four response categories were collapsed into one category.

Prevalence rates of physical injury by an intimate partner varied by ethnicity among female trainees, $\chi^2(5, n = 1{,}819) = 18.29$, $p = .01$, $w = .10$, but not among male trainees, $\chi^2(5, n = 1{,}793) = 10.65$, $p = .06$. The highest rate of physical injury was reported by the relatively small groups of American Indian women (33.3%, $n = 33$) and women who indicated they had an "Other" (30.0%, $n = 40$) ethnic background, while the lowest rate was reported by Asian women (6.8%, $n = 44$). About 26.2% of the white/non-Hispanic women ($n = 1{,}151$), 19.7% of the African-American women ($n = 417$), and 19.4% of the Hispanic women ($n = 134$) reported being injured by an intimate partner. Rates of physical injury by an intimate partner did not vary by family income [women, $\chi^2(5, n = 1{,}802) = 5.26$, $p = .38$; men, $\chi^2(5, n = 1{,}770) = 4.36$, $p = .50$] or level of education [women, $\chi^2(2, n = 1{,}828)$, $= 6.40$, $p = .04$; men, $\chi^2(2, n = 1{,}788) = 1.34$, $p = .51$] or geographic region [women, $\chi^2(3, n = 1{,}704) = 5.25$, $p = .15$; men, $\chi^2(3, n = 1{,}700) = 1.91$, $p = .59$]. No other reports of prevalence rates of intimate partner physical injury have

been found. The association between intimate partner physical injury and physical aggression (as measured by the CTS IP) will be detailed in a future report.

Female Sexual Experiences Since Age 14

Female trainees sexual experiences since age 14 are presented in Table 7. Comparison data from Koss et al. (1987a) are presented for descriptive purposes only. Koss et al. (1987a) and the present study used the SES to collect data and asked respondents to report sexual experiences since the age of 14. Simply totaling the number of trainees who reported each individual behavior would have produced an inflated estimate of the total number of sexually victimized trainees. Therefore, trainees were classified based on the most severe sexual experience they reported. This is the same scoring procedure Koss et al. (1987a) used. Koss et al. (1987) included an item asking about attempted unwanted sexual intercourse through the use of alcohol or drugs. This item was not included in the survey of female trainees. The "total rape" shown in Table 7 is 45.5% (834) and includes rape and attempted rape, both of which meet a legal definition of rape (Koss et al., 1987a). In summary, of the 834 female trainees who reported being the victim of sexual assault, 65.6% (547) exclusively involved reports of the use of force or the threat of force; 17.9% (149) exclusively involved the use of alcohol or drugs; and 16.5% (138) involved both the threat of or use of force and the use of alcohol or drugs.

Table 7

Prevalence Rates for Sexual Experiences Since the Age of 14 for Female Basic Trainees and College Students

Sample	*Attempted rape*		*Rape*		*Total* Rape*	
	n	%	*n*	%	*n*	%
Female Trainees (*n* = 1,832)	173	9.4	661	36.1	834	45.5
College Students (*n* = 3,187)**	386	12.1	491	15.4	877	27.5

Note. * "Total rape" includes attempted and completed rape, and both meet legal definitions of rape (Koss et al., 1987a). ** Koss et al., 1987a

Chi-square tests revealed a significant effect for sexual assault prevalence rates by ethnicity, $\chi^2(5, n = 1{,}820) = 23.82$, $p = .001$, $w = .12$. The highest percentage rate for sexual assault was reported by white/non-Hispanic women (49.7%, $n = 1{,}162$), while the lowest rate was reported by Asian women (32.6%, $n = 46$). Additionally, sexual assault was reported by in 43.8% ($n = 32$) of the American Indian women, 42.9% ($n = 42$) of the women who indicated their ethnic background was "Other," 40.2% ($n = 132$) of the Hispanic women, and 37.4% ($n = 406$) of the African-American women. Koss et al. (1987a) reported rates of attempted and completed rape of 40% ($n = 20$) for American Indian, 16% ($n = 2{,}655$) for white/non-Hispanic, 12% ($n = 106$) for Hispanic, 10% ($n = 215$) for African-American, and 7% ($n = 79$) for Asian women.

In the present study, rates of sexual assault did not vary by reported parental income, $\chi^2(5, n = 1{,}801) = 11.23$, $p = .05$, by level of education, $\chi^2(2, n = 1{,}830) = 4.92$, $p = .09$, or by geographic region, $\chi^2(3, n = 1{,}700) = 4.36$, $p = .22$. Koss et al. (1987a) did not find a difference between reported levels of parental income, but they did report geographic regional differences with women in the "Great Lakes" and "Plains" states having higher rates.

Male Sexual Experiences Since Age 14

Male trainees' and college students' (Koss et al., 1987a) experiences with sexual aggression are presented in Table 8. Koss et al. (1987a) included an item that asked about unwanted penetration with objects other than the penis and oral and anal intercourse. This item was not included in the male version of the trainee survey. Some of the male trainees reported several different types of sexual aggression. Simply totaling the number of trainees who reported each individual behavior would have produced an inflated estimate of the total number of sexually aggressive trainees. Therefore, trainees were classified based on the most severe sexually aggressive behavior they reported. This is the same scoring Koss et al. (1987a) used. The "total rape" shown in Table 8 is 14.8% (260) and includes rape and attempted rape, both of which meet the legal definition of rape (Koss et al., 1987a). In summary, of the 260 male trainees who reported perpetrating a sexual assault, 14.6% (38) exclusively involved force or the threat of force, 57.7% (150) exclusively involved the use of alcohol or drugs; and 27.7% (72) involved both the threat or use of force and alcohol or drugs.

Koss and Gaines (1993) developed an additional SES item in an attempt to determine the number of men involved in gang rape, which was used in the present study. The item asked respondents to indicate how often, during the past year and since the age of 14, they had, "Stood in line to have sex with a party girl." Koss and Gaines (1993) included this item in their scoring of rape; however, the validity of this item is not known. Koss et al. (1987a) did not use the "party girl" item in their studies. This item was included in the present study, and 7.9% (138) of the male trainees indicated that they had participated in this activity (but not one of the other experiences categorized as attempted or completed rape) at least once since the age of 14. The inclusion of these respondents in the rape total shown in Table 8 would result in a rape prevalence rate of 22.7% for male trainees.

Table 8

Prevalence Rates for Sexual Experiences Since Age 14 for Male Basic Trainees and College Students

	Male Trainees (n = 1,754)		College students (n = 2,972)*	
Behavior	*n*	*%*	*n*	*%*
Unwanted sexual contact	304	17.3	303	10.2
Use of coercive behavior	150	8.6	214	6.9
Attempted rape	62	3.5	98	3.2
Rape	198	11.3	131	4.6
Total rape**	260	14.8	229	7.8

Note. * Koss et al. (1987a). ** "Total rape" includes attempted and completed rape, and both meet legal definitions of rape (Koss et al., 1987a).

Chi-square analyses were used to determine the relationship between male sexual aggression and the demographic variables of ethnicity, reported parental income, education level, and geographic region. The prevalence of sexual aggression did not differ by ethnicity, $\chi^2(5, n = 1{,}753) = 6.00$, $p = .31$, parental income, $\chi^2(5, n = 1{,}733) = 12.71$, $p = .03$, by level of education, $\chi^2(2, n = 1{,}750) = 1.96$, $p = .38$, or by geographic area, $\chi^2(3, n = 1{,}662) = 1.82$, $p = .61$.

MAST Categories

The distribution of scores for the MAST are presented in Table 9. The MAST was scored using procedures described by Selzer (1971). As previously stated, the term "alcoholic" was used by Selzer (1971) to describe those individuals who scored 5 or more points on the MAST. The use of the term "alcoholic" in these tables should not be interpreted to mean that the trainees who scored 5 or more points on the MAST would be clinically diagnosed as alcoholic.

Table 9

MAST Categories and Points for Female and Male Basic Trainees*

	Females		*Males*	
Category and Points	*n*	*%*	*n*	*%*
1. Nonalcoholic (<4)	600	36.5	423	25.8
2. Suggestive of Alcoholism (4)	292	17.8	261	15.9
3. Alcoholic (5 or more)	751	45.7	955	58.3
Total 2. & 3.	1,043	63.5	1,216	74.2

Note. * A score of 4 is categorized as "suggestive of alcoholism" and a score of 5 or more as "alcoholic."

Chi-square analyses were computed to determine whether MAST scores varied by the demographic variables of ethnicity, reported parental income, level of education, and geographic region. For these analyses the respondents were placed into one of two categories, those who scored 5 or more points and those who scored 4 or less points. This was done to allow for a clear demarcation from Selzer's (1971) category of "alcoholic." Neither female or male trainees' MAST scores varied by ethnicity [women, $\chi^2(5, n = 1{,}635) = 19.93, p = .03$; men, $\chi^2(5, n = 1{,}637) = 12.84, p = .23$] by reported family income [women, $\chi^2(5, n = 1{,}619) = 15.65, p = .11$; men, $\chi^2(5, n = 1{,}619) = 5.98, p = .82$], or by geographic region [women, $\chi^2(3, n = 1{,}538) = 4.12, p = .66$; men, $\chi^2(3, n = 1{,}554) = 4.15, p = .66$]. MAST scores did not differ by level of education for women, $\chi^2(2, n = 1{,}640) = 3.91, p = .42$, but they did differ for men, $\chi^2(2, n = 1{,}632) = 14.37, p = .01, w = .10$. Men with less than a high school education had the highest (69.4%, n = 62), while men with a high school diploma or GED (59.5%, n = 932), and men with

some college (55.5%, n = 638) had similar rates of MAST scores of 5 or more. No other study that has analyzed MAST score by ethnicity, reported family income, education level, or geographic region has been found.

DISCUSSION

In the present study a battery of instruments was administered to a large sample of U.S. Navy basic trainees to ascertain their pre-enlistment maltreatment histories. The primary goal of the study was to estimate base rates for pre-enlistment abusive experiences among trainees. The data were collected during the trainees' first week of basic training. The results indicate that 41.4% of the female and 39.1% of the male trainees were the victims of at least one incident of childhood physical abuse as measured by the CTS (Gelles & Straus, 1988) severe violence subscale. A modified version of Finkelhor's (1979) instrument found conservative estimates of childhood contact sexual abuse of 27.6% for female trainees and 9.3% for male trainees. Intimate partner violence was assessed with a modified version of Straus and Gelles (1990) CTS IP, minor violence subscale, and showed that 41% of the women indicated they were physically abused by an intimate partner, while 47.5% of the women indicated they physically abused an intimate partner. Conversely, 44.6% of the men reported being physically abused by a intimate partner, and 34.8% reported abusing an intimate partner. The frequency of sexual assault was measured with the Koss and Oros (1982) SES and found that 45.5% of the women indicated they had been the victim of at least one behavior that is legally defined as rape. The perpetration of sexual assault was reported by 14.8% of the men who admitted to engaging in at least one behavior that meets a legal definition of rape. The relatively high levels of these prevalence rates provides convincing evidence that a substantial number of basic trainees report histories of victimization and perpetration of abusive behaviors. Additionally, the MAST (Selzer, 1971) assessment of trainees' experiences with alcohol shows that 63.5% of the women and 74.2% of the men scored in the "suggestive of alcoholism" or "alcoholic" range. Taken together, these data have direct implications for the development of social services and medical treatment, prevention, education, and research programs within the Navy.

The following discussion will briefly compare and contrast the results of the present study with those of previous studies conducted in the United States. Studies conducted with non-U.S. samples were excluded to minimize the confounding of comparisons by cultural differences (e.g., Koss, 1993a).

Childhood Maltreatment

Childhood sexual abuse. The present study was principally concerned with the prevalence of contact sexual abuse because abuse-related negative effects have been found to be associated with contact abuse but not with noncontact abuse (Collings, 1995; Haugaard & Emery, 1989; Peters, 1988). The term contact sexual abuse describes all experiences where physical sexual contact occurred, such as fondling, stroking of sex organs, attempted intercourse, and oral, anal, or vaginal intercourse, whereas noncontact sexual abuse is defined as experiences with exhibitionists or requests to engage in sexual activity in which no physical contact occurred. Unfortunately, it is not always possible to strictly compare contact rates because many studies only report combined rates for contact and noncontact abuse (Finkelhor, 1986; O'Donohue & Geer, 1992).

Two factors may have attenuated the estimates of childhood contact sexual abuse among trainees in the present study. The first factor is the absence of the specification of a 5-year age differential in the preamble of the instrument used to collect childhood sexual abuse histories. The second factor is the use of a checklist of sexual experiences wherein the respondent is asked to provide further data for only the highest order (most severe) experience. These factors, singly and in combination, most likely influenced a portion of the trainees to report peer experiences in lieu of experiences that would be defined as abusive. It is not possible to determine if the trainees who reported contact peer experiences as their highest order (most severe experience) also had a less severe contact experience that would be defined as contact childhood sexual abuse. Despite the high probability that these factors had a conservative effect on the child sexual abuse rates, a considerable percentage (18.5%) of the trainees reported childhood contact sexual experiences. These experiences were with someone who was 5 or more years older or with an age group peer who used coercion or physical force, which a number of previous studies have defined as constituting contact childhood sexual abuse (O'Donohue & Geer, 1992; Peters et al., 1986; Russell, 1984; Wyatt & Peters, 1986).

Large discrepancies exist in the reported prevalence rates in the childhood sexual abuse literature. The estimates may differ according to the characteristics of the sample (e.g., college students versus psychiatric patients), the method used to collect data (e.g., interviews versus questionnaires), and the types of abuse included (contact versus noncontact). However, estimates

also vary within the same population and when the same methods of data collection are used because estimates are primarily dependent upon the three criteria used to define the following: (1) sexually abusive experiences, (2) the upper age limit of a child, and (3) the age differential between the respondent and the person with whom the experience occurred (Haugaard & Emery, 1989; Wyatt & Peters, 1986).

In an extensive review of the childhood sexual abuse prevalence literature, Peters et al. (1986) found very little support for the notion that prevalence rates are affected by demographic variables. However, as can be seen in Table 1, the trainee sample is generally comparable to U.S. census data. For instance, about 38% of the trainees have attended college compared to about 40% of the general population. Therefore, for descriptive purposes, the rates found for trainees may be optimally compared with those of community samples when the respondents are of a similar mean age and when analogous methodology was employed. However, college samples usually use participants who are similar in age to U.S. Navy trainees, whereas community and other samples contain participants of all ages.

Finkelhor (1979) completed one of the first retrospective studies of childhood sexual abuse of college students and used an instrument comparable to the one used in the present study. He surveyed a sample of 530 college students for histories of childhood sexual abuse using a criterion age of less than 17 years for when the abuse began. In the present study, the age criterion was less than 14 years for when the abuse began. Finkelhor (1979) found a combined rate of 19% for contact and noncontact abuse for women, and for men he reported a rate of 9% for both types of abuse. Finkelhor's (1979) rates for contact and noncontact abuse for college women is considerably less than the 33.2% rate found for female trainees and is less than, but similar to, the 12.2% rate for male trainees. Other studies of college samples have found combined rates for contact and noncontact abuse that range from 5% (Haugaard & Emery, 1989) to 24% (Fromuth & Burkhart, 1987) for men, and from 12% (Haugaard & Emery, 1989) to 22% (Fromuth, 1986) for women. In summary, the combined rate for contact and noncontact abuse found for female trainees is considerably higher than that found in college samples of female students; the combined rate found for male trainees is at the upper end of the range reported for male college students.

Studies of male college students typically have found a rate of about 5% for contact abuse only (e.g., Fritz et al., 1981). The contact rates found for female colleges students have ranged from 8% (Fritz, Stoll, & Wagner, 1981) to 19% (Gold, Milan, Mayall, & Johnson, 1994). The contact rate found for female trainees (27.6%) appears to be substantially higher than those found for female college students, while the rate found for male trainees (9.3%) is higher than that found in most studies of male college students.

The childhood sexual abuse rates found in studies that have used community samples vary widely, which may be partially attributable to their methodological differences. For example, Kercher and McShane (1984) randomly sampled 1,056 Texas adults with valid driver's licenses via a mailed survey and found that 11% of the women and 3% of the men reported a contact or noncontact childhood sexually abusive experience before the age of 18. They did not specify an age differential between the respondent and the perpetrator, and their return rate was 47%. The highest rate (48%) for combined contact and noncontact abuse was found by Russell (1983), who used in-person interviews with a community sample of 930 women in San Francisco. She found a rate of 28% for contact abuse only. The refusal rate for her study was 50%, and Russell (1983) asked about abuse that began before the age of 14. A third study, Wyatt (1985), solicited 248 female participants by random digit dialing followed by face-to-face interviews and reported a rate of 47% for both types of abuse prior to the age of 13. The completion rate for Wyatt's (1985) study was 55%, and voluntary peer experiences prior to the age of 12 were included. The lowest rate of 8% for community samples for contact abuse of women was reported by Fritz et al. (1981) and the highest rate of 36% for abuse that occurred before the age of 13 was reported by Wyatt (1985). For men, prevalence rates for both types of abuse range from 3.4% (Kercher & McShane, 1984) to 16% (Timnick, 1985). Contact rates found in community samples of men do not exceed 5% (e.g., Fritz et al., 1981). Taken together, for numerous methodological reasons, it is difficult to compare directly the prevalence rates found in previous studies with those of the present study. However, especially in view of the conservative methodology, the prevalence rates for retrospective reports of childhood sexual abuse that were found in the present study are elevated when compared to the majority of studies that have used college and community samples.

Childhood physical abuse. The prevalence rates for childhood physical abuse in the present study relied upon retrospective self-reports of young adults. These reports must be deemed conservative because many children are abused prior to the age of 3 years, and events that occur prior to the age of 3 years may not be accurately recalled (Berger, Knutson, Mehm, & Perkins, 1988). This effect probably moderated the reports of physical abuse and is especially important because Gil (1970) estimated that about 33% of physically abused children are less than 3 years old at the time of the abuse. In contrast, Straus and Gelles (1990) used a broad definition of physical child abuse and stated that about 93% of parents of children 3 years old and under reported abusing their children one or more times during the previous year, usually by hitting.

Although a number of studies have collected retrospective childhood physical abuse data from young adults using the CTS or similar instruments (for reviews see Stark & Flitcraft, 1991; White & Koss, 1993), few of the studies used methodology analogous to that of the present study. However, three studies were found that used methodology similar to that of the present study, and the results of those studies may be compared generally with the results of the present study. The first study, Berger et al. (1988), surveyed a sample of 4,695 Iowan college students (mean age = 18.6 years) using an instrument similar to the CTS. Berger et al. (1988) used "rather stringent" criteria for childhood physical abuse in this investigation and found a total rate of 9% for both women and men. Berger et al. (1988) did not report sample sizes for women and men separately nor did they report rates for women and men separately. The present study used the relatively more liberal criteria of Gelles and Straus (1988) and found rates of 40.2% (severe violence subscale) and 26.8% (very severe violence subscale) for women and men. For contrast, the rates for the individual items used by Berger et al. (1988) would be a better comparison with the present study than would the overall abuse rates. Unfortunately, the item frequencies reported by Berger et al. (1988) are not mutually exclusive. The Berger et al. (1988) item with the highest frequency rate, "Hit with objects," is similar to the Straus (1979) item, "Hit or tried to hit you with something." This item is part of the severe violence subscale and the Berger et al. (1988) rate for this item was 34.7%. The rate for the trainees for this item was 33.8%. Straus et al. (1988) reported physical child abuse rates for a nationally representative sample of intact families with children from 3 to 17 years of age (see Table 10). In their study parents of intact families were asked about the methods they had used to resolve conflicts with their children.

Straus et al. (1980) stated that single-parent families are more prone to use violence and therefore their rates may be underestimates of parental use of violence. The third study (Muller, 1991b) asked a sample of college students consisting of 595 women (mean age = 18.89, *SD* = 1.8) and 252 men (mean age = 19.3, *SD* = 1.6) to recall what methods their parents had used with them to resolve conflicts prior to the age of 17 (see Table 10). Parental marital status of the Muller (1991a) subjects is not known. However, 60% of the female and 54.4% of the male trainees reported their parents were either divorced or separated.

For descriptive contrasts, Table 10 presents the frequency counts for the items that comprise the Gelles and Straus (1988) very severe violence subscale for the present study and the Muller (1991b) and Straus et al. (1980) studies. Respondents who reported one instance of a behavior were included in the frequency computation for the percentages in Table 10. Therefore, the total is less than the sum of the individual items because some respondents reported the occurrence of more than one behavior. All percentages for the Muller (1991b) and present study are for the total samples.

As can be seen in Table 10, it appears the trainees, as a group, may have been subjected to harsher parental abuse, especially being "beaten up," in comparison with Muller (1991b) subjects. A higher percentage of the female trainees compared to the male trainees reported being beaten up, with the very severe violence subscale frequency for the female trainees being higher than that of the male trainees. This is noteworthy because most studies have found that boys are at a higher risk of physical abuse than girls are (Straus & Gelles, 1990).

Table 10

Prevalence Rates for the CTS Very Severe Violence Items and Subscales for Parent to Child Reports of Basic Trainees, College Students, and Parents

	Trainees		*Muller**		*Straus***
	Women	*Men*	*Women*	*Men*	*et al.*
Item	*%*	*%*	*%*	*%*	*%*
Kicked, bit or hit you with a fist	24.1	22.7	16.0	20.2	8.0
Beat you up	13.8	11.2	3.7	4.8	4.0
Burned or scalded you	2.9	5.3	1.3	2.0	-.-
Threatened you with a knife or gun	5.4	5.9	1.2	2.0	3.0
Used knife or gun against you	2.0	3.9	2.9	5.6	3.0
Very severe violence subscale frequencies	27.7	25.8	19.2	24.2	-.-

Note. * Muller, 1991b. ** Straus et al., 1980.

Finally, the determination of child physical abuse by child protection agencies is primarily dependent upon the observation of injury. The CTS subscales do not provide for a legal determination of child abuse; the subscales permit the measurement of behaviors that are consistent with the legal definition of assault. In addition to being consistent with the legal definition of assault, the rationale for the measurement of behaviors instead of injuries are: (1) they reflect humane values, (2) there is an association between injury and assault, (3) they provide for a more reasonable measure of rates, (4) psychological injury may occur even without physical injury, and (5) they provide data for planning prevention programs (Straus & Gelles, 1990).

Intimate Partner Physical Violence

Numerous studies have collected data from heterosexual intimate partners, both unmarried and married, using the CTS IP version or a comparable instrument (for reviews see Stark & Flitcraft, 1991; White & Koss, 1993). Because the studies have employed different modifications of the CTS, methodology, and participants it is not possible to directly compare the data from these studies with the data from the present study. For example, Riggs (1993) and Riggs,

O'Leary, and Breslin (1990) asked participants to report only physically aggressive behaviors that occurred during their present relationship, and Riggs (1993) added the item "physically force partner to have sex" to his instrument and the computation of his violence subscale; two of the studies requested participants report aggression that occurred in the previous year (O'Leary et al., 1989; White & Koss, 1991) and White & Koss (1991) added the CTS verbal aggression subscale item "Threatened to hit or throw something" to their computation of their "physical aggression" scale. Three investigations did not specify a reporting period (i.e., they asked participants to report the occurrence of physically aggressive acts in all past relationships) and used the same CTS items to compute their violence subscale (Arias, Samios, & O'Leary, 1987; Lane, Gwartney-Gibbs, 1985; Sigelman, Berry, & Wiles, 1984). With the exception of the O'Leary et al. (1989) study, which used a community sample, all of the studies reported in Table 11 used samples of college students. Additionally, the White and Koss (1991) study is the only study that used a nationally representative sample of college students. The other studies used convenience samples or randomly sampled within a select geographic or university area. Despite the preceding caveats, Table 11 is presented to allow for a descriptive comparison of CTS IP data for trainees, college students, and a community sample. As can be seen in Table 11, rates of reported inflicted ("I did") physical aggression range from 35% to 52% for women and 14% to 54% for men. Rates of sustained ("He/She did") physical aggression ranged from 29% to 48% for women and 27% to 59% for men. Except in the White and Koss (1991) and Sigelman et al. (1984) studies, a higher percentage of women reported physical aggression against an intimate partner than did men. Three of the studies reported that men sustained more physical aggression than women, while two studies reported women sustaining more physical aggression. Of the seven studies found that reported CTS IP totals, two studies (Arias et al., 1987; Sigelman et al., 1984) reported a higher rate for women and two studies (Sigelman et al., 1984; White & Koss, 1991) reported a higher rate for men for the infliction of physical aggression than did the present study. Two studies (Lane & Gwartney-Gibbs, 1985; Sigelman et al., 1984) reported a higher rate for women and two studies (Arias et al., 1987; Sigelman et al, 1984) reported a higher rate for men for sustaining physical aggression than did the present study.

Table 11

CTS Physical Violence Subscale Frequency Rates for Basic Trainees, College Students, and a Community Sample

Sample	*"I did"* % F*	% M**	*"They did"* % F	% M	*N*	*Type of* Rate***
College students						
Arias et al. (1987)	49	30	38	50	272	P
Lane & Gwartney-Gibbs (1985)	41	30	42	34	325	P
Riggs (1993)	36	22	29	27	651	I
Riggs et al. (1990)	39	23	-	-	408	I
Sigelman et al. (1984)	52	54	48	59	504	P
White & Koss (1991)	35	37	32	39	4,707	I
Unweighted mean percent	41	33	38	42		
Community sample						
O'Leary et al. (1989)	44	31	-	-	544	I
Trainees	48	35	41	45	3,776	P

Note. * F = females. ** M = males. *** P = prevalence rate ; I = incidence rate.

Table 12 presents selected individual CTS IP item rates for the present study and studies by O'Leary et al. (1989), Pan et al. (1994), and Sigelman et al. (1984). These data are provided for descriptive contrast purposes only. O'Leary et al. (1989) collected data from a community sample of 272 women and 272 men who were engaged to be married and later did marry (see Table 12). The mean educational level for both women and men was 14.7 years. The mean age for women was 23.6 years and 25.3 years for men. The O'Leary et al. (1989) rates are a combination of self-reports of the respondent's behaviors and reports of the respondent's behavior by a partner during the year before marriage. The CTS data collected from intimate partners by Pan et al. (1994) is of interest because they used a military sample of U.S. Army personnel who were either married or cohabiting and had been members of the military for about 8 years (see Table 12). Their sample was older than the trainees in the present study, mean age for their

female and male subjects was 27.3 years and 29.3 years, respectively. Also, the Pan et al. (1994) study used a larger percentage of African-Americans than did the present study (22.5% men, 36.6% women; see Table 1). A very important difference between the intimate partner data collected for the present study compared to the O'Leary et al. (1989) and the Pan et al. (1994) studies is that the present study did not ask participants to report behaviors that occurred during a specific time period. O'Leary et al. (1989) and Pan et al. (1994) asked participants to report behaviors during the previous year. However, Sigelman et al. (1984) asked participants to report behaviors that had ever occurred and they reported higher violence subscale frequency rates than did the present study. Sigelman et al. (1984) collected CTS IP data from a convenience sample of 496 (384 women and 112 men) college students at Eastern Kentucky University, Richmond, Kentucky. The mean age of the Sigelman et al. (1984) participants was 21.4 years and 89.3% were Caucasians.

Table 12

CTS IP Physical Violence Subscale Item Rates for Basic Trainees and Comparison Groups

		Trainees		*Pan*		*O'Leary*		*Sigelman*	
Item		*% F**	*% M***	*% F*	*% M*	*% F*	*% M*	% F	% M
				Self, "I did"					
1.	Thrown something at you	18.8	12.8	24.1	10.7	12.6	6.8	27.0	18.0
2.	Pushed, grabbed, or shoved	32.7	26.3	29.7	26.9	32.2	27.5	28.8	42.3
3.	Slapped	29.2	13.1	17.3	12.5	20.7	7.7	34.5	17.1
4.	Kicked, bit, or hit with fist	20.5	9.9	15.1	6.4	12.6	3.4	18.4	9.0
5.	Beat up	5.9	6.8	3.9	4.5	1.1	0.0	1.3	2.7
6.	Threatened with a knife or gun	4.8	4.9	7.4	2.9	0.0	0.0	1.3	1.8
				Partner, "He/She did"					
1.	Thrown something at you	15.3	19.3	16.8	21.6	-	-	19.5	31.2
2.	Pushed, grabbed, or shoved	33.8	29.0	32.3	23.6	-	-	42.3	37.5
3.	Slapped	18.7	27.7	16.8	19.1	-	-	20.4	39.3
4.	Kicked, bit, or hit with fist	15.9	20.1	14.0	14.6	-	-	13.3	27.7
5.	Beat up	8.8	6.9	9.1	4.2	-	-	3.6	3.6
6.	Threatened with a knife or gun	6.4	6.4	6.3	6.4	-	-	3.1	2.7

Note. * F = females. ** M = males.

In summary, the total percentage of trainees reporting physical aggression in intimate relationships is higher than that found by the majority of studies found in the literature. The trainees reported experiences that occurred in intimate relationships prior to entering the Navy, or prevalence rates, while the participants in most of the other studies reported experiences that occurred during the previous year, or incidence rates. Generally, the individual item rates for trainees are higher than those found by O'Leary et al. (1989) and similar to those of Pan et al. (1994). Overall, the rates for the milder forms of violence (throwing, pushing, slapping) are lower than those reported by Sigelman et al. (1984) but the rates for the more severe forms of violence (kicked, beat up, threatening with a knife or gun) are higher among the trainees.

Although women have been found to be as violent or more violent than men in intimate relationships, the negative effects of the violence are more pronounced for women (Stets & Straus, 1990). In the present study physical injury by an intimate partner was reported by a higher percentage of female trainees (24%) than by the female college students in Makepeace's (1986) study (8.6%). Likewise, the physical injury rate for male trainees (9.3%) was higher than the 1.5% rate found by Makepeace (1986) in a study of male college students. Neither study used samples of couples reporting on the same experiences.

Female Sexual Assault

Data concerning sexual assault were collected with the SES. Conceptually, the SES was developed to determine whether respondents had a sexual experience wherein coercion, threats of force, or physical force were used (Koss & Oros, 1982). Five SES items were used in the present study to determine whether female respondents had a sexual experience with a man who used alcohol or drugs, threats of force, or physical force to attempt or to achieve oral, anal, or vaginal penetration. Although it cannot be determined conclusively that the 36.1% of the female trainees who reported experiences coded as rape were actually raped, the experiences they reported meet a legal definition of rape. These include acts of nonconsensual penetration obtained by physical force, by threat of bodily harm, or when the victim is incapable of giving consent by virtue of mental illness, mental retardation, or intoxication (Koss, 1993a; Searles & Berger, 1987).

Prevalence estimates of rape and attempted rape vary as a function of the methodology employed, characteristics of the sample, and the social or sociocultural climate of the geographic

area (George, Winfield, & Blazer, 1992; Koss, 1993a). Therefore, the following overview of the literature will briefly relate the results of a study of high school students and studies of college students and community samples that have and have not used the SES.

Acquaintance rape was investigated in a group of 137 (grades 9-12) female high school students in Louisiana by Davis, Peck, and Storment (1993). They used an in-house developed instrument and reported a 100% response rate, with 26% of the women indicating they had experienced an acquaintance rape.

Many studies of sexual assault among college students have used in-house developed instruments. For instance, Soeken and Damrosch (1986) surveyed 368 nursing students in Baltimore, Maryland, and reported a rape rate of 15%. Using 380 college introductory psychology students as subjects, Muehlenhard and Linton (1987) reported a rape rate of 14.7% at a "large, southwestern, public university." Alzenman and Kelley (1988) mailed surveys to 400 female students at Rutgers University City, New Jersey. They had a 51% response rate and stated that 29% of the respondents reported having an experience of acquaintance rape, while 51% "successfully avoided" an acquaintance rape. Their rates are not mutually exclusive.

As previously indicated, comparison data from Koss et al. (1987a, 1987b) have been placed in the Results section, Table 7. This study of a nationally representative sample of female college students used the same instrument, the SES, as the present study. As can be seen in Table 7, the rate for rape found in the present study (36.1%) was more than twice the rate of 15.4% found by Koss et al. (1987a); however, the rate for attempted rape for the present study of 9.4% was less than the 12.1% reported by Koss et al. (1987a). Since these rates are mutually exclusive, it appears that the percentage of female rape victims among trainees is significantly larger than that among these college students. The comparison of sexual assault rates with this college sample is valuable because they used the same instrument and the subjects were of a similar age. However, many of the trainees had not attended college, and therefore a comparison of rates with community samples are also of value.

Although a national survey of rape prevalence has never been completed, rape incidence estimates are collected in a yearly National Crime Survey conducted by the Bureau of Justice Statistics (BJS). Their combined rate for attempted and completed rape is 1.2 per 1,000 women and girls (BJS, 1991). These rates are 10 to 15 times lower than those found in college and

community samples collected by independent researchers, which is probably attributable to differing methodology (Koss, 1992).

Russell (1984) surveyed a community sample of 930 women in San Francisco. The refusal rate for her study was 50%. She reported prevalence rates of 19% for completed rape and 31% for attempted rape by men other than husbands. Russell's (1984) rates were for lifetime prevalence whereas the present study asked about assaults since the age of 14. Additionally, she used in-person interviews with an average length of 1 hour and 20 minutes.

In a telephone survey of 601 women from the ages of 18 to 29 years, Kilpatrick et al. (1985) reported a rate of 6.3% for attempted rape and 8.6% for rape. Kilpatrick et al. (1985) used an in-house developed instrument and had a completion rate of about 78%. All of the respondents lived in Charleston County, South Carolina. Similarly, Sorenson, Stein, Siegel, Golding, and Burnam (1987) used in-person interviews to gather sexual assault data from about 1,644 women from the ages of 18 to "65+" in Los Angeles, California. They defined sexual assault as any unwanted touching of a sexual nature, including sexual intercourse, and reported a rate of 13.5%. Using "nearly identical measures," George et al. (1992) found a rate of sexual assault of 5.9% for 1,157 women from the ages of 18 to 64 living in North Carolina. Finally, Wyatt et al. (1992) used the Wyatt Sex History Questionnaire to survey, in-person, 248 randomly selected women in Los Angeles County, California. Wyatt et al. (1992) found a rate of 22.2% for women, 18 to 36 years old, who reported experiencing at least one incident of attempted or completed rape since the age of 18.

The foregoing overview of the sexual assault prevalence literature shows that other studies have found rates for rape that vary from less than 5.9% (George et al., 1992) to 29% (Alzenman & Kelley, 1988), while rates for attempted rape vary from 6.3% (Kilpatrick et al., 1985) to 51% (Alzenman & Kelley, 1988). No other study has reported a higher rate for rape than the 36.1% found in the present study. However, many of the other studies (Alzenman & Kelley, 1988; Koss et al., 1987a; Russell, 1984) found higher rates for attempted rape than the 9.4% found in the present study.

Male Sexual Aggression

Table 8, in the Results section, contains data related to self-reported male sexual aggression among trainees and college students. The present study and the Koss et al. (1987a) study both

used the SES to measure male sexual aggression since the age of 14. As can be seen in Table 8, 40.7% of the male trainees and 24.9% of the college students in the Koss et al. (1987a) sample admitted to behaviors that are categorized as sexually aggressive. While about 1 in 3 (32.1%) male trainees admitted engaging in a behavior classified as unwanted sexual contact, rape, or attempted rape, about 1 in 6 (18.0%) of the male college students in the Koss et al. (1987a) study reported the same behaviors. Unwanted sexual contact was defined as touching a women's buttocks, breasts, or genital area against her wishes.

Although the rate for attempted rape among the male trainees (3.5%) is about the same as that among the Koss et al. (1987a) respondents (3.3%), the rate for completed rape (11.3%) is more than twice that of the sample of college students (4.6%). Overall, the male trainees (1 in 7) appear to have engaged in significantly more sexually aggressive behaviors that meet a legal definition of rape than did the male college students (1 in 13). In a related study that used different instrumentation Muehlenhard and Linton (1987) found that 7.1% (1 in 14) of 294 male college students enrolled in a "large, southwestern, public university" reported engaging in a behavior defined as rape.

Overall, this brief review of the literature shows that a comparatively large percentage of male trainees self-reported engaging in at least one instance of a behavior that meets a legal definition of rape. A determination cannot be made that the 14.8% of the male trainees categorized as self-reporting an act of rape actually committed rape. However, they reported behaviors that meet a legal definition of rape, which includes acts of nonconsensual penetration obtained by physical force, by threat of bodily harm, or when the victim is incapable of giving consent by virtue of mental illness, mental retardation or intoxication (Koss, 1993a; Searles & Berger, 1987).

Alcohol Use and the Michigan Alcoholism Screening Test (MAST)

High rates of alcohol use and the negative health consequences of alcohol misuse among Navy personnel other than trainees previously have been well documented (Bray et al., 1983, 1986, 1988, 1992; Durning & Jansen, 1976; Kolb & Gunderson, 1981, 1983). For example, in 1980 90% of Navy personnel said they drank alcohol, with 78.3% of the drinkers categorized as "moderate" to "heavy" drinkers (Bray et al., 1980, cited in Bray et al., 1992). Recently, Bray et al. (1992) found that 81% of Navy men and 72% of Navy women drink alcohol, while the

comparable percentages for civilians are 53% of women and 68% of men. Both samples were from 18- to 55-years-old. For active duty men and women, 17- to 25 years-old, Bray et al. (1992) reported that 81% drink alcohol, which declined to about 73% for those members 35 and older with an overall rate of "moderate" to "heavy" drinkers of 60.9%. Though still at a high level, Bray et al. (1992) stated that the percentage of personnel who drink alcohol, in any amount, and the percentage who engage in "heavy" drinking has significantly decreased since 1980. Overall, from 1980 to 1992 the percentage of Navy personnel that drank alcohol declined from 90% to 77%, while "moderate" to "heavy" drinking declined from 78% to 61%.

The MAST (Selzer, 1971) was used in the present study as a gauge of alcohol-related problems among Navy trainees prior to entering the Navy. The MAST has well-established psychometric properties and allows respondents alcohol-related problems to be scaled via specific events and behaviors instead of by units of alcohol consumption. Drinking consumption histories are collected by many studies; however, accurate drinking histories are difficult to obtain. Problem drinkers tend to relate inaccurate levels of consumption, and a consumption oriented instrument with proven psychometric properties does not exist (Embree & Whitehead, 1993; Watson, Tilleskjor, Hoodecheck-Schow, Pucel, & Jacobs, 1984). Individuals with potential alcohol problems who may need further evaluation can be screened with the MAST. Additionally, screening instruments such as the MAST which yield more false positives than false negatives, are desirable because they are less likely to misclassify respondents with an actual problem (Storgaard et al., 1994).

Only two studies were found that used the MAST to screen groups similar in age to Navy trainees. Table 13 summarizes the MAST results for trainees and for the two studies of college students (Favazza & Cannell, 1977; Silber, Capon & Kuperschmit, 1985). The data presented in the studies of college students do not allow for a breakdown of the percentage of those who scored 5 or more points on the MAST. Although the percentage of trainees who scored 4 or more points on the MAST is more than twice as high as that for the college students, it should be remembered that these studies used convenience samples and only collected data at two colleges. Such samples are probably not representative of all college students. For instance, Wechsler, Davenport, Dowdall, Moeykens, and Castillo (1994), in a study of alcohol consumption

among college students at 140, 4-year, colleges found that the level of "binge" drinking varies from 1% to 70%, depending on the type and location of the college.

Table 13

MAST Scores ≥ 4 for Basic Trainees and College Students*

Sample	*Study*	*n*	*M Age*	*%*
College Students				
	Favazza & Cannell:	245	20.0	32
	Silber et al.:	200	22.0	17
	Total:	445	21.0	25
Trainees		3,152	20.2	69

Note. * A score of 4 is categorized as "suggestive of alcoholism" and a score of 5 or more as "alcoholic."

Despite the label of "alcoholic" that Selzer (1971) attached to a score of 5 or more on the MAST, it is not possible to determine what percentage of the trainees would meet the clinical criteria for alcohol dependence or alcohol abuse. MAST scores, however, have been shown to be superior valid measures of alcohol misuse when compared to studies that have used the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) criteria (Storgaard et al., 1994). The results of the Storgaard et al. (1994) review of 15 studies that used the MAST revealed a mean predictive positive value (PVpos) of about .64. PVpos is the ratio of true positive results to all positive results. Using the PVpos of .64 as a multiplier yields a frequency rate of alcoholism of about 21.5% for male trainees and 16.9% for female trainees. In summary, probably not all trainees who scored 5 or more points on the MAST meet the DSM-III criteria for alcohol dependence or alcohol abuse. However, a reasonable assumption that can be drawn from the MAST results is that a high percentage of trainees have had problems associated with the consumption of alcohol at some time in their lives prior to entering the Navy.

Comparisons of the results of the present study with the results of studies conducted with civilian samples are difficult because of the unique instrumentation and sampling strategies used in each study. Nevertheless, two large-scale studies have collected descriptive data from groups, similar in age to the trainees, that allow for simple contrasts with trainee alcohol use rates. The first study, Johnston, O'Malley, and Bachman (1991), surveyed a nationwide random sample of more than 15,000 high school seniors and found that 77% drank alcohol and about 30% engaged in binge drinking. Johnston et al. (1991) defined binge drinking, for both men and women, as consuming 5 or more drinks in a row during the previous two weeks. A second study (Wechsler et al., 1994), surveyed a nationally representative sample of 17,096 students at 140 colleges. Wechsler et al. (1994) reported that 84% of the students drank alcohol while 44% engaged in binge drinking, defined as consuming 4 (women)/5 (men) or more drinks in a row, in the previous two weeks. The binge drinkers were found to have more injuries, missed classes, unprotected sex, and problems with law enforcement than did nonbinge drinkers. Wechsler et al. (1994) also found that binge drinkers are 2-3 times more likely to physically assault, harass, damage property, and disturb the sleep of classmates than are nonbinge drinkers.

Table 14 presents a descriptive comparison of the results of the Johnston et al. (1991), Wechsler et al. (1994), and the present study. Because of the different interpretations that may be given to the questions asked in the studies, a direct comparison of rates of self-reported drinking is not possible. All percentages in Table 14 are based on the total samples. The percentage of trainees that drink to intoxication was computed by collapsing the two groups that, in response to the question, "Which statement generally describes you when you drink? (Assume you are not driving), said that, "I get drunk but generally stay in control," or "I get wasted." Categories 1 and 2 for the trainees in Table 14 may contain the same type of drinkers that are contained in categories 1 and 2 of the high school and college students. Both are subjective reports of drinking, with the trainees reporting the effect of their drinking, while the students reported the quantity and the effect is inferred. Intoxication is the inferred effect of consuming 5 (men)/4 (women) or more alcoholic drinks in a row. Overall, the data in Table 14 suggest that trainee rates are about the same as high school seniors, but when compared to college students, a smaller percentage of trainees drink alcohol and drink to intoxication.

Table 14

Comparison of Basic Trainees' and Students' Alcohol Use

Sample	*Category*	*Women %*	*Men %*	*Total %*
Trainees				
1.	Drunk or wasted	20	30	25
2.	Get a buzz but not drunk	47	43	45
3.	Nondrinkers	33	26	30
High School Students (12th Graders)*				
1.	Binge drinkers	21	38	29
2.	Nonbinge drinkers	55	41	48
3.	Nondrinkers	24	21	23
College Students**				
1.	Binge drinkers	39	50	44
2.	Nonbinge drinkers	45	35	40
3.	Nondrinkers	16	15	16

Note. *Johnston et al. 1991; **Wechsler et al. 1994.

The comparison of trainees' alcohol consumption and alcohol-related problems to those of students is problematic for many reasons. For example, the trainee and college student populations may come from different environments. The possible effect of environmental influences on drinking behavior has been summarized by Wechsler et al. (1994) who stated, "...colleges may create and unwittingly perpetuate their own drinking cultures through selection, tradition, policy, and other strategies" (p. 1677). Appearing to support the Wechsler et al. (1994) contention, Johnston et al. (1991) found college-bound seniors reported less binge drinking than did the non-college-bound students. However, after entering college, college students' rates of binge drinking exceeded those of the non-college-bound students. Although about 38% of the trainees have attended college, 62% did not, which indicates that most of the trainees who drink were not influenced by a college environment.

The results of the MAST and the two items that measured the frequency of alcohol use and its subjective effect suggest that, as a group, alcohol misuse and alcohol-related problems among trainees are at a substantial level. However, compared to college students, a smaller percentage of trainees drink to intoxication and more trainees are nondrinkers. Given that trainees may drink to intoxication less frequently than college students, and that fewer still drink alcohol at all, the number of trainees that self-report drinking to intoxication is still considerable.

A popular presumption is that the military culture and stresses of military life encourage alcohol use (Holcomb, 1982; Polich, 1979). The foregoing literature review and the results of the present study would seem to partially support this hypothesis. The Bray et al. studies found that more Navy personnel, other than trainees, drink alcohol and at a higher level than does a sample of civilians. Conversely, the present study found that fewer trainees drink alcohol compared to Bray et al.'s (1992) sample and college students. Trainees were also found to drink alcohol at lower levels than college students but at about the same as high school students. Finally, the larger percentage of nondrinkers found among the recruits compared to the Bray et al. studies suggest that many trainees begin drinking after entering the operational Navy. All in all, it appears that a percentage of Navy personnel who drink alcohol may be an outgrowth of a history of violence and their lack of coping skills combined with the demands (stressors) of Navy life.

However, almost 20 years ago Durning and Jansen (1976) surveyed 2,045 male basic trainees and 67% reported either "heavy intake," "binge," or "high consequence drinking." Durning and Jansen (1976) concluded that "... whatever drinking climate may exist within the Navy is likely to be a function of the individuals recruited into the service rather than the organizational structure and mission of the Navy per se." The present study's MAST results lend support to Durning and Jansen's (1976) conclusions. These results show that the majority (68%) of trainees have had alcohol-related problems prior to entering the Navy. It may be that after college students have finished their schooling they discontinue drinking at problematic levels. On the other hand, trainees with histories of problems related to alcohol use may continue to misuse alcohol after entering the Navy. This may be especially true of those trainees who have attended but did not complete college because individuals who fail to achieve a postsecondary educational goal have been shown to be at higher risk for the development of alcohol abuse or dependence

(Crum, Helzer, & Anthony, 1993). This may partially explain the higher rates of "moderate" and "heavy" drinking found among Navy personnel compared to civilians found by Bray et al. (1992).

The long-term adverse medical consequences of alcohol misuse among Navy personnel were revealed by Kolb and Gunderson (1983) who found that problem drinkers spent twice as many days in the hospital, for all reasons, compared to controls for their first 12 years of naval service. A conclusion of Kolb and Gunderson's (1981) study was that if alcohol abusers could be identified and treated early in their careers demonstrable savings in health care and the avoidance of debilitating diseases would occur.

Taken together, the foregoing literature review and the results of the present study suggest that the two superficially oppositional ideas that (1) personnel who misuse alcohol are recruited and not created by the Navy (Durning & Jansen, 1976), and (2) the military environment stimulates the misuse of alcohol (Holcomb, 1982; Polich, 1979) may both be partially correct. Regardless of the precision of the comparison of estimates, the results of the present studies show that a substantial number of trainees enter the Navy with alcohol misuse histories. These difficulties may continue through their tenure in the Navy with negative repercussions for the individual and the Navy. Further, although the rate of alcohol and "heavy" drinking has decreased significantly since 1980, a substantial number of Navy personnel continue to drink alcohol at levels that would be expected to have adverse medical, psychological, occupational, and interpersonal consequences (Bray, Guess, Marsden, & Herbold, 1989).

Of greater concern, for the purposes of the present study, are the MAST results of the trainees. The rationale for using the MAST in the present study was to gain a psychometrically valid measure of trainees history of problems with the use of alcohol. The goal of using the MAST was not to provide a categorical, alcoholic versus nonalcoholic, detection of trainees but rather a dimensional assessment of their involvement with alcohol. Regardless of whether the 68% of the trainees who scored in the "suggestive alcoholism" or "alcoholic" range on the MAST would be clinically diagnosed as "alcoholic," these trainees reported having had a varying range of problems related to alcohol use that is reflected in their MAST scores. Therefore, the MAST results may provide a measure of the well-established association of alcohol misuse with individuals who have been the victim and/or perpetrator of abusive behavior. Future reports will

detail the relationship of MAST scores to trainees who have perpetrated or been the victims of abusive behavior.

In the present study 19.8% of the female and 30.2% of the male trainees reported drinking to intoxication when they drank alcohol. A conservative inference made from the MAST results is that 29% of the female and 37% of the male trainees evidence markers for alcohol dependence and/or alcohol abuse. The results of this study combined with the results of previous studies (Bray et al., 1992; Kolb & Gunderson, 1983) strongly suggest that a significant number of Navy personnel drink alcohol at levels detrimental to the mission of the Navy, their health, and their interpersonal relationships. The development of assessment and intervention programs at the trainee level would allow for the early identification and treatment of trainees with alcohol-related problems. For example, alcohol misuse has been shown to be a factor in the perpetration of spouse abuse (O'Leary & Murphy, 1992), child sexual abuse (National Research Council, 1993), child physical abuse and neglect (Kelleher, Chaffin, Hollenberg, & Fischer, 1994), and adult sexual assault (White & Humphrey, 1994). Alcohol misuse may also be a sequela of being a victim of child physical abuse (Straus & Kantor, 1994), child sexual abuse (Green, 1993), and adult sexual assault (White & Humphrey, 1994).

Conclusions

The high rates of childhood sexual and physical victimization and adult victimization and perpetration of abusive behaviors found among female and male basic trainees have serious implications for the delivery of general medical and psychological health care services to Navy personnel. Additionally, the long-term consequences of the abusive experiences reported by trainees also may have a significant impact on attrition, job performance, retention, and interpersonal behavior.

For example, women with a history of victimization require an increased amount of health care. Indeed, victimization has been identified as one of the factors responsible for excessive health care costs in the United States (Koss et al., 1991), and intimate violence tends to show a repetitive pattern (Straus & Gelles, 1990). Victims often will not volunteer information about abuse, and health-care providers often neglect to ask. Because of this, failure to diagnose victimization often perpetuates the problem and multiplies the impact on health-care requirements (Koss et al., 1990). The establishment of services and interventions for victimized personnel

would decrease human suffering and the use of medical, psychological, and administrative facilities. Additionally, the productivity of victimized personnel would increase.

In community samples, victimization has been shown to have an acute and chronic negative impact on health (Koss et al., 1991; Koss et al., 1990). Further, stress may exacerbate the somatic and psychological consequences of victimization. More specifically, stress has also been shown to mediate the effects of childhood trauma on the recurrence of somatic and psychological illnesses (e.g., Kessler & Magee, 1994). In addition, somatic and psychological trauma incurred through victimization may recur chronically for unknown reasons (e.g., Briere & Runtz, 1993; Koss & Heslet, 1992). Therefore, it would seem reasonable to conclude that basic trainees with a history of victimization, all of whom will be exposed to numerous novel environmental, psychosocial, and job stressors, will have an increased need for unique medical and psychological services. Although stress may mediate some victimization-related somatic and psychological conditions, victimization is most likely the causal factor (Trickett & Putnam, 1993).

The relatively high rate of male perpetration of sexual assault found in the present study combined with the high rate of histories of alcohol misuse indicate a need for early interventions to aid in preventing future aggression. For example, White and Humphrey (1994) have shown that a history of sexual aggression predicts future aggression and that past use of alcohol/drugs during a sexual assault predicts future use in a sample of college men. White and Humphrey (1994) found that during sexual assault the perpetrator and victims were using alcohol and/or drugs 51.5% of the time, while for consensual sex the individuals were both using alcohol and/or drugs 16.1% of the time. When only one person was using alcohol/drugs it was almost always the perpetrator. Because only about 5% of rapes are reported to police (Koss et al., 1987a), early identification and treatment of sexually aggressive men may be the most practical option for reducing recidivism (Pithers, 1993).

Previous studies have shown that victims of abusive behavior are at a high risk of incurring somatic and/or psychological problems that require treatment by health care professionals. Untreated, the effects of traumatization may interfere with training and the performance of duty. Without intervention, perpetrators of both sexual and physical aggression are at a high risk of repeating their behavior. The high levels of alcohol use and abuse among trainees may be related to their histories of victimization and may place the trainees at greater risk of adverse somatic

and psychological consequences. Alcohol misuse also has been linked to the perpetration of aggressive behaviors, the vulnerability for victimization, and general negative behaviors.

The high rates of basic trainees' histories of abusive behaviors indicate that it may be cost effective to establish treatment, education, and prevention programs at the trainee level. These programs would allow for the earliest, optimal resolution of behaviors that may interfere with the performance of their duties in the Navy.

To ensure that trainees receive an accurate diagnosis and treatment of their complaints, medical department personnel should be trained to detect and understand abusive behavior, its symptoms, and its effects on somatic and mental health. Further, the results suggest the Navy and the trainees would benefit if the following American Medical Association's recommendations were adopted: (1) routinely collect victimization histories when patients enter the Navy health-care system; and (2) establish methods for referring victimized patients to education, treatment, and prevention programs (Council on Scientific Affairs, 1992). The exceptionally high levels of female sexual victimization and male sexual aggression show an urgent need for the establishment of intervention programs for the prevention of sexual assault revictimization, the perpetration of sexual assault, and the abuse of alcohol at the training commands.

A longitudinal study is needed to determine the effect of maltreatment histories on the health and functioning of U.S. Navy personnel. The scientific literature suggests that personnel with histories of victimization and perpetration of abusive behaviors serving in the Navy would require more medical, psychological, and administrative services than personnel with no maltreatment histories. However, early medical and psychological interventions may reduce the need for subsequent treatment of the chronic somatic and psychological effects of such histories. The information gained in such a study would allow for the creation of treatment and education programs and strategies for Navy personnel, with maltreatment histories, which may improve retention and reduce their impact on the medical, psychological, and administrative systems.

Future studies should be conducted to clarify the questions raised by the results of this study, such as: (1) A study that will compare basic trainees being discharged for mental health and somatic reasons with trainees who successfully complete training to determine whether a significantly greater number of trainees with abusive histories are failing to complete basic training; (2) A longitudinal study of trainees with maltreatment histories compared to trainees

without such histories should be conducted to aid in determining the impact of victimization on the trainee's career, physical and psychological health, and the Navy's health-care system; (3) Medical and psychological health care personnel should be surveyed to ascertain their knowledge of abusive behavior and it effects on somatic and mental health to determine if a need exists for training and education programs.

This is the first in a series of reports that will examine U.S. Navy basic trainee abusive histories. Future reports will detail among trainees (1) the relationship between childhood physical abuse, intimate partner abuse, and adult potential for child physical abuse; (2) adult intimate partner physical abuse histories; (3) adult sexual assault histories; and (4) posttraumatic symptomatology associated with victimization and the implications for treatment.

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13. ABSTRACT *(Maximum 200 words)*

The primary goal of this study was to establish base rates for childhood and adult physical and sexual violence to allow for the development of future studies and treatment, prevention, and education programs. U.S. Navy basic trainees (1,891 women, 1,885 men) were administered a battery of psychometrically valid instruments. Overall, (1) 41.4% of the women and 39.1% of the men reported sustaining at least one instance of parental physical violence, (2) 27.6% of the women and 9.3% of the men indicated they had been the victims of childhood sexual abuse, (3) 41.0% of the women and 44.6% of the men reported sustaining intimate partner physical violence, (4) 47.5% of the women and 34.8% of the men indicated they had inflicted intimate partner physical violence, (5) 24.0% of the women and 9.3% of the men reported being physically injured by an intimate partner, (6) 45% of the women indicated they had been the victim of attempted or completed rape, and (7) the assessment of trainees' experiences with alcohol indicated that 63.5% of the women and 74.2% of the men have misused alcohol. Comparison data are presented.

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