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New Crisis and Stress Management Programme Launched

United Nations Secretariat, New York, Wednesday, May 2, 2007

In an effort to enhance the quality of psychosocial support services provided to UN staff worldwide, the UN Department of Safety and Security (UNDSS) Critical Incident Stress Management Unit (CISMU) has instituted an intensive counselor training and certification programme. The training represents a key component of the Unit's strategic framework, which aims to provide harmonized, readily accessible, quality psychosocial services to UN staff utilizing professional resources at the country level.

The results of the pilot programme, initiated during the past two years, illustrate the efficacy of this model. Critical Incident Stress Intervention Cells (CISICs), comprised of locally-based counsellors and peer help ers, were established in Indonesia, Pakistan, and India. Assessment results after one year revealed that the programme was highly successful. Managers at the field level provided strong support for the structure, and the programme was acknowledged as a "best practice" in psychosocial management at the 2007 Humanitarian Coordinators' meeting. As a result of these successes, CISMU has proposed expanding the programme to the global level.

With a view toward building a worldwide network of UN affiliated counsellors and delivering services consistent with the best practices in crisis management, CISMU established a Consultative Working Group on Stress that included a panel of globally distinguished experts in traum atic stress management. Criteria for selection included recognized expertise in the area of traumatic stress management and accessibility to global networks of professional mental health practitioners. A meeting was held in Paris April 10-13, 2006 that included Mark Lerner (President of the American Academy of Experts in Traumatic Stress), Louis Crocq (President of the Francophone Association for Traumatic Stress and originator of the French National Medicopsychological Emergency Programme), Didier Cremniter (National Committee on Medico-psychological Emergencies), Nayla Chidiac (Medico Psychological Emergency Cells of Paris), Mark Van Ommeren (WHO focal point for Emergency Mental Health and Stress), Jeffrey Mitchell (International Critical Incident Stress Foundation), Ruth Sembajwe, (Head of the United Nations Staff Counsellor's Office, OHRM, DM), and Moussa Ba, Chief (UNDSS Critical Incident Stress Management Unit). As a follow up to the Paris initiative, a second meeting was held in December in New York to harmonize and finalize the contents of the Course.

As a result of the meeting, a group of the world's leading experts on crisis and traumatic stress management agreed on a scientific, holistic approach to the topic and further, assisted in developing a UN specific counsellors' training package. A ninety-hour course has been designed that incorporates both the strong practical and theoretical orientations of the experts. The material emphasizes the individual's inherent capacity for healing and recovering from ordeals while acknowledging important cultural and diversity perspectives. It comprehensively encompasses key aspects of stress and crisis management, providing an array of tools—including assessment and strategic planning, human communication and crisis intervention (for individuals and for small and large groups), management of mass disasters, and advice to decisions makers in crisis settings.

The inaugural Certification Training in Crisis and Stress Management Course included 15 UN counsellors from around the globe representing 11 nationalities and 10 UN duty stations or missions. Conducted in Glen Cove, Long Island March 11-23, 2007, the course was endorsed by the Consultative Working Group on Stress a nd administered in collaboration with four of the experts referenced above: Louis Crocq, Didier Cremniter, Mark Lerner, Jeffrey Mitchell and United Nations counsellors who provided vital input on topics particularly relevant to UN staff. Because the course content was equivalent to the extensive training offered by these respective organizations to practicing professionals, participants received official certification from the American Academy of Experts in Traumatic Stress, the French Institute of

Research and Education in Traumatic Stress and the International Critical Incident Stress Foundation.

The completion of this initiative represents a remarkable accomplishment within the field of critical incident stress management, building a bridge between the French and the American approaches to crisis and traumatic stress management and taking into account WHO's important recommendations in this area. The resources of leading experts on traumatic stress management have been adjusted to reflect the complex realities of the United Nations resulting in the development of a unified, standardized approach to crisis and stress management that will ultimately facilitate the provision of improved psychosocial services to UN staff members worldwide.

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Time of Psychiatric Patient Assaults: Fifteen-Year Analysis of the Assaulted Staff Action Program (ASAP)

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Abstract: *An emerging literature on human-perpetrated violence suggests that seemingly apparent random acts of violence may indeed have important embedded temporal patterns. This study reviews this literature and presents the temporal findings of a fifteen-year study of patient assaults on staff in health care settings. Temporal patterns were observed for the variables of season, days of month, and shift. The reasons for these findings and their implications for health care providers are presented. A brief review of patient assaults on emergency services personnel (EMS) is outlined and this study's findings and their implications for EMS personnel are discussed. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 89-96].*

Key words: *Assaulted Staff Action Program (ASAP), assaults, psychiatric patients, time, Emergency Services*

Except in cases of clear premeditation, most acts of human-perpetrated violence appear to be a series of random acts. However, closer empirical examination suggests that many acts of violence may have a temporal pattern to them. There are several examples of this phenomenon in adult violence. The majority of homicides appear to occur during the summer months with August having the highest frequency (Chu & Sorenson, 1996), and one-third of humanitarian workers die violently within the first ninety days of their assignments (Sheik, Gutiemez, Spiegel, Thieren, & Burnham, 2000). Many rapes occur between 8:00 p.m. - 4:00 a.m. on Sunday evenings (Manser, 1992); assaults other than those of domestic violence appear to occur between 8:00 p.m. - 4:00 a.m. on community streets (Wright & Kariya, 1997). Domestic violence incidents appear to occur between 8:00 and 11:00 p.m. on weekends in the kitchen (Flannery, 2004). These assaults often occur twelve hours after the assailant has been drinking heavily (Murphy, Winters, O'Farrell, Fals-Stewart, & Murphy, 2005) and in some instances may increase in frequency after some local teams win major football league games (White, Katz, & Scarborough, 1992).

In a similar way, there are patterns to youth violence. Most youth violence occurs after 3:00 p.m., when school is over (Flannery, 2000). It is often perpetrated by early devel-

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oping prepubertal boys (Costa-Robles, Neiss, & Rowe, 2002) and girls (Obeidallah, Brennan, Brooks-Gun, & Earls, 2004). The amount of time spent viewing aggression on television programming increases youth violence (Josephson, 1987), and school robberies occur with greatest frequency in grade seven in the United states, Canada, Japan, and Israel (Flannery, 2000).

Given the apparent propensity for some forms of human violence to aggregate temporally, it is plausible to assume that patient assaults on staff my also follow some temporal pattern. The general focus of this paper is to examine this possibility and, if present, its risk management implications for health care workers per se. This approach is further presented as a prototype for data collection and resource management by emergency services personnel (EMS) who are called upon to contain assailants, support victims, or transport either in the aftermath of other types of human-perpetrated violence.

The role of time in psychiatric patient assaults has received limited experimental inquiry in the patient assailant characteristics research. Two studies (Quinsey & Varney, 1977; Rasmussen & Levander, 1996) have reported no association between any aspect of time and patient assaults. Two studies (Anderson, 1989; Flannery & Penk, 1993) reported an increased risk for assault during the summer months, while a third study (Caldwell & Naismith, 1989) found an increased risk during the winter months. Two studies (Krakowski & Czobor, 2004; Mellesdal, 2003) reported an increased risk for assaults during the first week of admission on acute care services and five cross-sectional studies (Caldwell & Naismith, 1989; Cheung, Schweitzer, Tuckwell, & Crowley, 1996; Davis 1991; Hansen, 1996; Lipscomb & Love, 1992) have reported an association between patient assaults and periods of increased ward activity and patient interaction.

In the most detailed time analysis to date, Flannery and his colleagues (Flannery, Corrigan, Tierney & Walker, 2000) surveyed the timing of patient assaults during a ten-year period in inpatient and community settings. Assaults for both settings were generally stable across months and occurred more frequently on weekdays. In inpatient settings assaults occurred more frequently on the first shift, during mealtimes, and in the summer months. Assaults in community settings occurred more frequently during the hour before bedtime.

Although the research on the time variable is limited, the findings to date suggest that there may be, in fact, temporal patterns in the commission of patient assaults. The purpose of this present empirical study is to replicate the earlier ten-year study (Flannery et al., 2000) during a fifteen-year period to assess for possible temporal patterns and, if present, to examine their nature and stability over time.

METHOD

Subjects

The subjects were 1,047 male and 1,056 female assaultive psychiatric patients of the Massachusetts Department of Mental Health (DMH). During this fifteen-year period, they received treatment services in 7 DMH state hospitals and 9 DMH state or DMH-vendored community programs. There were 797 male and 757 female assaultive inpatients and 250 male and 299 female assaultive patients in community settings.

The sample was drawn from a population of 21,000 Department of Mental Health (DMH) child (15%) and adult (85%) patients. In 2004, there were 2,586 inpatients. This included 194 child (8%) and 2,393 (93%) adult inpatients. There were 1,569 male (66%) and 823 female (34%) adult, unduplicated inpatients. There were 1,746 Caucasian (73%), 401 Black (17%), 32 Asian (1%), and 210 (9%) other racial groups. The average age was 39.93 years ($\pm$ 12.86) and the estimated main diagnostic categories were schizophrenia (55%), major affective disorders (28%), and personality disorders (4%).

There were 102 male (53%) and 92 female (47%) child/adolescent unduplicated inpatients under age 18. There were 118 Caucasian (61%), 29 Black (15%), 3 Asian (2%), and 44 other racial groups (23%). The average age was 15.77 years ($\pm$ 2.46) and the main diagnostic categories were schizophrenia (4%), major affective disorders (19%), and posttraumatic stress disorders (17%).

In 2004, there were 7,353 adults in DMH state or vendor-operated community residences. There were 4,365 male (59%) and 2,988 female (41%) adult patients. There were 5,508 Caucasians (75%), 1,012 Blacks (14%), 136 Asians (2%), and 697 (9%) other racial groups. The average age was 41.65 ($\pm$ 14.34) years and the main diagnostic categories were schizophrenia (47%), major affective disorders (19%), and personality disorders (10%). There were no statistically significant

changes in gender ratio, racial composition, or diagnostic categories during the years of this study.

Measures of Assault

The four types of assaults included in this study remained the same as they have been since the program was fielded in 1990. Physical assaults were defined as unwanted contact with another person with intent to harm, including punching, kicking, slapping, biting, spitting, and throwing objects directly at staff. Sexual assaults were defined as unwanted sexual contacts and included rape, attempted rape, fondling, forced kissing, and exposing. Nonverbal intimidation referred to actions intended to threaten and/or frighten staff, such as pounding on the staff office door, random throwing of objects, and destruction of property. Verbal threats were statements meant to frighten or threaten staff, and included threats against life and property as well as racial slurs and other derogatory comments.

Procedure

The information on the characteristics of patient assailants and time of assaults was gathered from the medical chart and incident report records and was recorded on Assaulted Staff Action Program (ASAP) report forms, after ASAP services had been provided (Flannery, 1998; Flannery, Juliano, Cronin, & Walker, 2006). ASAP is a voluntary, system-wide, peer-help, crisis intervention program to assist staff victims to cope with the psychological sequellae of patient assaults. When an assault occurs, the ASAP team member on-call goes to the patient care site of the incident and offers individual ASAP services. If the services are accepted, the team member assures the safety of those present and then assists the staff victim to restore functioning and to monitor for the presence of the symptomatology associated with psychological trauma. The same team member contacts the staff victim three days and ten days later to assess post-incident recovery and to offer additional ASAP services, if needed.

In addition to individual crisis counseling, ASAP also utilizes group crisis intervention procedures, staff victims' support groups, staff-victim family outreach, and private referrals to trauma specialists as indicated. About 95% of ASAP services are individual crisis interventions. ASAP provides needed support to staff victims and is also associated with sharp reductions in assaults facility-wide (Flannery, 1998). During the past 15 years, ASAP has grown to include 31 teams in five states with more than 1,000 ASAP-trained responders. ASAP programs have been fielded in adult and child, public and private, inpatient, outpatient, day care, homeless shelters, and community residence settings. Since various state laws preclude the transmission of patient information across state lines, each state's ASAP programs keep their own state data. Thus, this study reports only on data from the 16 Massachusetts teams that were fielded during this 15-year period. No Massachusetts team was online for the full 15-year period.

ASAP team members practiced completing ASAP report forms until acceptable levels of skill and reliability were obtained. To guard against underreporting (Lion, Snyder & Merrill, 1981), the inpatient charge nurse or the community residential house director were required to call the ASAP person on-call for completion of a DMH incident report and an oral review of the incident at daily staff meetings. This analysis assumes that all staff were at equal risk for the full period, except for some brief hospitalizations during which community patients were absent from residential placements. At times, total numbers do not equal 100% because of occasional missing data. All data are reported as assault incidents. There were no ASAP teams in community child/adolescent programs. Thus, there are no reports of child/adolescent community assaults.

RESULTS

From 1990 to 2005, the MA ASAP teams responded to 2,152 patient assaults on staff. ASAP services were accepted in 1,857 incidents (86%) and declined in 295 others (14%). There were 1,613 inpatient assaults (75%) and 539 community assaults (25%) committed by 1,047 male (49%) and 1,056 (49%) female patient assailants. As can be seen in Table 1, in inpatient settings the most assaults occurred in August (165; 10%) and the least in February (97; 6%). Similarly, in community settings, the most assaults occurred in March (59; 11%) and the least in September (34; 6%). Assault data by quarters can be inferred from Table 1 also. In inpatient settings, most assaults occurred during the third quarter, summer (462; 29%) and the least during the first quarter, winter (345; 21%). The reverse was true for community settings. There were 145 community assaults in the first quarter (27%) and 126 assaults in the third quarter (23%). This seasonal difference was statistically significant at the $p < .001$ level ($\chi^2 = 9.72$; $df = 3$).

Table 1
Total Inpatient and Community Assaults by Month:

Month	Inpatient	Community
January	113	50
February	97	36
March	135	59
April	129	47
May	157	43
June	120	40
July	143	51
August	165	34
September	154	34
October	136	38
November	143	44
December	123	55

Days of Month/Week

Although the 18th day of the month in inpatient settings and the 5th day of the month in community settings were the days with the highest frequency of assaults, an analysis of the data by ten-day increments permits a more clear understanding of trends. The most significant increments were seen in 573 assaults (36%) committed during days 11-20 in inpatient settings and 250 assaults (47%) committed in community settings. This finding was statistically at the .001 level ($\chi^2 = 39.40$; $df = 2$). Wednesday was the day with the highest risk for assault in inpatient settings (311; 19%) and Sunday presented the highest risk in community settings (88; 16%).

Shift/Meal Times

The hours of 8:00 a.m. and 11:00 a.m. in inpatient settings and the hours of 10:00 a.m. and 11:00 a.m. in community settings were the hours of most frequent assaults. However, an analysis of time across shifts and meal periods permits a more robust examination of possible additional trends. In both inpatient (905; 56%) and community settings (292; 54%), the greatest risk for assault occurred during the first shift. Similarly, the breakfast meal time (7:00 – 9:00 a.m.) presented the greatest risk for assault in both inpatient (387; 41%) and community settings (113; 40%). The findings for shifts were statistically significant at the .001 level ($\chi^2 = 10.40$; $df = 2$). A summary of the time variables may be found in Table 2.

Table 2
High risk for Assaults by Time Variables

Time Variable	Inpatient	Community
Season	Summer	Winter
Month	August	March
Days of Month	Days 11-20	Days 1-10
Days of Week	Wednesday	Sunday
Shift	First	First
Meal times	7-9 a.m.	7-9 a.m.
Other Hours of Day	8 & 11 a.m.	10 & 11 a.m.

DISCUSSION

This study's findings are consistent with previously reported research on human-perpetrated violence across a range of crimes that document temporal patterns to what appear to be, on first inspection, random acts of violence (Chu & Sorenson, 1996; Costa-Robles et al., 2002; Flannery, 2000, 2004; Josephson, 1987; Manser, 1992; Murphy et al., 2005; Obeidallah et al., 2004; White et al., 1992; Wright & Kariya, 1997). This study's findings are also generally consistent with the previously published literature on the timing of patient assaults (Anderson, 1989; Cheung et al., 1996; Caldwell & Naismith, 1989; Davis, 1991; Flannery et al., 2000; Hansen, 1986; Krakowski & Czobor, 2004; Lipscomb & Love, 1992; Mellesdal, 2003; Quinsey & Varney, 1977; Rasmussen & Levander, 1996). Health care providers, like other victims of crime, are not at equal risk at all times. From the present study there appear to be many dimensions of time that may be contributing to risk at any one point.

In this study, staff in inpatient settings were most at risk in the middle of the week in the middle of the month on the first shift during breakfast hours. This was especially true during the summer months. For their part, community staff were most at risk at the beginning of the week at the beginning of the month on the first shift, again during breakfast hours. In this latter setting, the winter months presented the greater risk. This study's quarterly findings support previously published research that found both the summer months (Anderson, 1989; Flannery & Penk, 1993) and the winter months (Caldwell & Naismith, 1989) present increased risks. The increased risk in inpatient settings in the summer may be due to the ambient air temperature (Anderson, 1989), the tendency of patients to want to be off of the ward, or disruptions in social networks as staff terminate employment or go on vacation (Flannery & Penk, 1993). The increased risk during the winter months in community settings may come

from patients having to cope with snow, ice, and cold temperatures as they move about in community treatment settings.

The finding of more assaults in both settings on the first shift during breakfast hours is consistent with previous findings (Davis, 1991; Flannery et al, 2000; Hansen, 1996) and suggests that active periods on the patient care sites may be associated with increased assault risk. First shift and mealtimes reflect taking medications, showering, eating, preparing for day programs, and the changing of staff. It may be that patients whose cognitive functioning is impaired by psychosis or organic impairment may perceive this activity as overwhelming, excessive, and aversive. This state may result in assaults. The increased risk for assault in community programs at the beginning of the month may be due to patients receiving their monthly benefits. Nights on the town with alcohol use may lead to assaults as could patients running out of funds, if the benefits were spent fully in a day or two. The risk for assault in inpatient settings during the middle of the month may be a function of physicians' orders being written at the first of the month. Any decreases or increases in medications may begin to manifest themselves in the middle of the month in those patients withdrawing from or beginning to take medications.

In addition to these health care findings, this study's findings support patterns of temporal dimensions in other types of seemingly random acts of violence (e.g. Chu & Sorenson, 1996; Manser, 1992). These various acts of violence appear to be a function of complex time patterns. Even in patient assaults where the assailant's cognition may be compromised by acute psychotic thinking or organic involvement, there appears to be a complicated pattern that involves several different aspects of time. Future research on time for different types of the same violent acts may yield additional levels of complexity. For example, the time of highest risk for patient assault is early in the day, whereas the highest risk or assault on community streets is between 8:00 p.m. and 4:00 a.m. (Wright & Kariya, 1997) and at home is between 8:00 p.m. and 11:00 p.m. (Flannery, 2004). These conflicting findings suggest that other variables of importance as well as the moment of opportunity may both shape and be shaped by the same act of violence.

Methodological Implications

The present findings and similar previous research suggest that time patterns may be an important variable to examine. Such research may yield information about possible precipitants or other co-variants that occur at a specific point in time and this information may be helpful in preventing incidents, apprehending assailants, and deploying resources to assist victims.

Unlike other types of operational definitions (e.g. definitions of patient assaults), operational definitions of time variables by their very nature should yield high concurrence among investigators, and the development of a standard set of time variables to be assessed would further contribute toward a standardization process that would permit generalizations to be drawn across studies. The types of violence being investigated need to have clear operational definitions, and the field would benefit from some standardized assessment procedure. Presently, data is gathered from patient records, incident reports, staff self-reports, and the like. A standardized assessment protocol would further enhance generalizability. Longitudinal studies would appear to yield more detailed information than cross-sectional studies because some time variable patterns may not emerge until a later point (e.g., months and years). The field would also benefit from prospective, randomized controlled studies of time to enhance the reliability and validity of findings.

Service Delivery Implications

Health Care Providers

Health care facilities will likely benefit from keeping a data base on patient assaults. This data base would yield information of patient assailant characteristics and precipitants and also important information about the timing of such events. Since the research suggests certain similarities (Davis, 1991; Hansen, 1996) and differences (Caldwell & Naismith, 1989), there will likely be specific patterns for specific facilities. In-house data bases can be augmented with published findings as they emerge.

In the interim, certain risk management strategies suggest themselves. Treatment plans should include interventions to reduce patient anger. These might include anger management and trauma treatment groups as well as patient-at-risk, psychopharmacology, behavioral, and forensic consults as needed (Flannery et al., 2006). In addition, patient-care site procedures may be altered with efficacious outcomes. Some examples: Nurses in administrative roles might be made available at patient-care sites during the breakfast hour and then hold their administrative meetings later in the day. Day programs could be moved back by half an hour to reduce

possible excess sensory stimulation and the day's first groups might be exercise or relaxation groups to further reduce possible excess stimulation. In community settings, monies might be distributed over the month rather than at one time, and during the winter months groups for coping with the winter dreariness could be added. In inpatient settings, perhaps medication changes could be staggered across the month in some individual cases and efforts employed to have patients outside more often during the hot summer months. In addition, efforts could be made in the month of May to pair clearly identified staff teams of two for patients, when one of the two staff is leaving. This may reduce the patient's anger and sense of abandonment with staff that may be retiring or going on extended vacations.

Emergency Service Providers

The published literature has documented the fact that EMS personnel are at risk for assaults from many types of patients, only some of whom are psychiatrically impaired (Corbett, Grange, & Thomas, 1998; Mechem, Dickinson, Shofer, & Jaslow, 2002). These assaults and other types of patient violent acts have resulted in death, medical injury, hospital care, psychological trauma, and lost work time (Gershon, Vlahov, Kelen, Conrad, & Murphy , 1995; Maguire, Hunting, Smith, & Kevick, 2002; Mechem et al., 2002).

When are EMS personnel most at risk for this violence? What month? What day? What time of the day? Two recent studies have begun to explore this temporal dimension (Cheney, Gossett, Fullerton-Gleason, Weiss, Ernst, & Sklar, 2006; Mechem at al., 2002). The Mechem study (Mechem et al., 2002) tracked assaults on paramedics and firefighters in Philadelphia, PA. Of 44 assaults over a two-year period, 41 occurred during the actual moments that patient care services were being provided and 26 of these assaults were intentional. The Cheney study (Cheney et al., 2006) studied the relationship between restraint use, patient injury, and assaults on EMS personnel in Albuquerque, NM. They found that assaults most frequently occurred between midnight and 6:00 a.m. by female patients who were violent and/or arrested.

Detailed information such as this permits EMS personnel to identify potential high risk assailant/victim characteristics and to develop policies and procedures to minimize violence during such incidents. The gathering of such information is cost-effective and easily tracked. This research suggests the need to train EMS personnel in primary prevention. This training might include protocols for restraint procedures, alternatives to restraint, some system of nonviolent self-defense, communication strategies for agitated patients, the use of protective gear, the impact of past and current psychological trauma on patients, and the like. These general strategies have been successfully utilized by health care providers; health care training manuals are already in place that can be drawn upon. When properly adapted to EMS needs, these strategies would result in increased safety, prevent unnecessary risk, and enhance the EMS services being rendered.

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Homicide-Suicide in Police Families: Aggression full circle

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Abstract: *Police officers are considered to be at increased risk for suicide, and such self-aggression may be extended to others. This paper describes antecedents of police family homicide-suicides in a sample of 29 cases. Police experiences with violence and aggression, domestic violence, and availability of lethal weaponry are possible correlates. Results from this sample suggested that police family homicide-suicides are increasing, as approximately twice as many cases were reported in 2006 as in the two previous years. The majority of homicide victims were women (N=24; 83%), however, five of the victims were men killed by women police officers. The majority of incidents occurred in younger age groups (< 40 years of age). The primary weapon employed was the police service firearm (90%). Most incidents occurred on the local police departmental level (76%) as opposed to state and federal level departments. Similar to the majority of nationwide homicide-suicides, the homicide victim was primarily a spouse or female acquaintance. In three cases a child was also killed by the perpetrator. While exposure to violence in police work cannot be changed, the establishment of a strict domestic violence policy by police agencies is discussed as one strategy to reduce the incidence of violence in the police family. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 97-104].*

Key words: *homicide-suicide, police, police suicide, domestic violence*

"*Suicidal individuals are profoundly aggressive*"

(Buie & Maltsberger, 1989)

Palermo (1994) suggested that homicide-suicide should be considered as an extension of aggression first turned inward in the form of suicide. He contends that the perpetrator acts primarily out of a realistic sense of loss, which might be, at times, compounded by psychological and sociological factors. In his view, the perpetrator is unable to accept the failure of what he thought was a satisfactory relationship. The perpetrator is viewed as an aggressive individual who hides behind a facade of self-assertion, is unable to withstand the reality of an unexpected rejection, and possibly a drastic life change. He commits suicide after killing his extended self.

This paper describes some of the possible antecedents of homicide-suicide in police families. Police officers themselves are considered to be at increased risk for suicide, and such self-aggression may be easily extended to others (Violanti, in press). There are certain factors in policing that increase the risk of homicide-suicide, including aggression, domestic violence, violence exposure, the availability of lethal weaponry, and work-related attributes of police officers. Additionally, this paper will provide a description of police homicide-suicide cases.

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Background: Homicide-Suicide

Although homicide-suicide has a low rate of occurrence nationwide, it has a profound impact on the police officer's children, extended family, community, and department (Morton , Runyan , Moracco, et al., 2003). Past studies of homicide-suicide have estimated rates of occurrence in the United States to be between 0.2 and 0.38 per 100,000 persons annually (Bossarte, Simon, & Barker, 2006; Marzuck, Tardiff, & Hirsch, 1992; Barraclough & Harris, 2002). Homicide-suicide incidents usually include one victim and one perpetrator. In a majority of incidents the perpetrator is male, older than the victim, and is likely to be Caucasian (Bossarte et al., 2006). A history of depression and/or mental illness is also common among perpetrators (Rosenbaum, 1990).

Victims of these incidents are more likely to be women who have separated or are divorced from their partners. In previous studies of homicide-suicides, more than 95% of the perpetrators were known to the victims. Most often, the perpetrator was a former or current husband or other intimate partner with the homicide taking place in the home of the victim (Bossarte et al., 2006; Chan, Beh, & Broadhurst, 2004). The perpetrator is more likely to die by suicide when the motive is related to possessiveness/jealousy, sickness, or stress and these incidents are more likely to be premeditated than a homicide alone (Dawson, 2005). The majority of deaths associated with homicide-suicides in the United States involve a firearm, with handguns being used most frequently. Other weapons associated with homicide-suicide incidents include knives, blunt objects, and motor vehicles; other methods of homicide have included strangling/asphyxiation, poisoning, and physical assault (Violence Policy Center, 2002).

An interesting study recently conducted by Bossarte et al., 2006 provided important information on homicide-suicide in the United States. Sixty-five incidents were identified for the year 2003; 144 incidents for the year 2004. In 2003, with seven states reporting, there were 65 homicide-suicide incidents, including 84 homicide victims (homicide rate = 0.230/100,000 persons) and 65 suicides (suicide rate = 0.177/100,000 persons). In 2004, with 13 states participating, there were 144 homicide/suicide incidents, including 164 homicides (homicide rate = 0.238/100,000 persons) and 144 suicides (suicide rate = 0.205/100,000).Among male perpetrators, nearly one third (30.6%) of those who killed their intimate partner (n = 438) also ended their own lives, while only 1.7% of those who killed a non-intimate (n = 3459) also killed themselves.

Homicide-Suicide in Police Families

The Police Occupation: Exposure to Aggression and Violence

Police officers work in an occupational culture premised on violence. They also have firearms available, a lethal method for both suicide and homicide. Police officers may be more prone to violence at home due to their exposure at work. Studies have shown that the estimated incidence of domestic violence among police officers (25-40%) is significantly higher than in the general population (16%; Pam, 2001). Because of job-related factors, police officers appear to be disproportionately at risk for homicide-suicide. They have access to guns, which some use as instruments of violence against others or themselves, usually with lethal results. Domestic violence appears to be heavily implicated in police homicide-suicide. The police culture encourages control, aggression, authoritarianism, domination, a strong sense of entitlement, and other conduct that correlates with aggressive behavior at home (Pam, 2001).

Exposure of police officers to violence and aggression may increase the risk of homicide-suicide. Several studies have suggested associations of suicide and aggression (Romanov et al., 1994). Farberow and colleagues (1990) compared suicide completers with accident victims, and concluded that suicide completers were more likely to have histories of angry outbursts. Other associations noted in relation to suicide are hostility and irritability. Officers considering suicide may be more likely to have a history of violence and act violently in a greater variety of relationships, especially spousal (D'Angelo, 2000).

One of the major determinants of police suicide is relationship problems (Violanti, 1997). The aggression and rage developed from bad relationships in police families can provide a direct route to homicide-suicide as well. A link between severe domestic violence, partner estrangement, and suicide has been firmly established in studies of homicide-suicide (Felthous & Hempel, 1995; Marzuk et al., 1992) and homicide alone (Wilson & Daly, 1993). Partner relationship disruptions preceding completed suicide such as divorce, separation due to arguments, breakup of steady dating, and serious arguments with a romantic partner leading to a change in the relationship have previously received attention (Heikkinen & Lonnqvist, 1995; Rich, Warsradt, Nemiroff, Fowler, & Young, 1991). Murphy and colleagues (1992) concluded that disruptions in partner relationships were the most prevalent type of disruption preceding homicide-suicide. Simi-

larly, spousal separations were judged to be the primary precipitants for suicide more often in younger than older men and more often in men than women (Heikkinen et al., 1992).

Police Domestic Violence: A Precursor to Homicide-Suicide?

The escalation of violence from street to home is reflected in domestic violence in police families. If not stopped, violence in the home can continue to escalate to the level of deadly consequences. Two studies on police domestic violence present a detailed analysis. In the first study, Neidig and colleagues (1992a) surveyed 385 male officers, 40 female officers, and 115 female spouses attending in-service training and police conferences. This study included measures on demographics, work-related factors, and a Conflict Tactics Scale. Results indicated 25% of male and 27% of female officers reported minor assaults on their spouses. Only 3% of the male and none of the female officers reported severe assaults on their spouses. The overall rates of violence remained consistent across respondents, ranging from 37% to 41%. When compared to civilian and military populations, police rated higher in all aggressive acts except those involving severe violence (Straus & Gelles, & Steinmetz, 1980).

Neidig et al. (1992a) also focused on work-related variables. The highest rate of domestic violence existed among narcotics and patrol officers, officers working night shifts, officers working more than 50 hours a week, and officers who used more than 19 sick days a year. A second study by Neidig and colleagues (1992b) yielded similar results. Surveying a sample of 1,042 police and auxiliary officers at a national Federation of Police (FOP) conference, they found approximately 24% of male and 22% of female officers reported relationship violence. Police officers also had a higher annual incidence of marital aggression when compared to civilian populations.

A study by the Southwestern Law Enforcement Institute (1995) stands among the first to survey police agencies about the problem of police domestic violence. Of the 123 departments responding, approximately 29% reported that domestic violence cases had increased. A large percentage of departments (79%) attributed such an increase to an increase in reporting due to changing social attitudes and values. Roughly 45% stated they have no specific policy for dealing with domestic violence and generally handled them on a case-by-case basis. When asked about discipline following a first-sustained offense, approximately 52% imposed counseling upon the offending officer. After a second-sustained offense, approximately 48% replied that suspension and days off without pay served as proper discipline.

An investigation by the Los Angeles Board of Police Commissioners, Domestic Violence Task Force, Office of the Inspector General (1997), provided a comprehensive view of domestic violence in the Los Angeles Police Department (LAPD) from 1990 to1997. Overall, the LAPD findings indicated the department sustained 40% of the 227 reported cases of domestic violence from 1990 to1997. Discipline imposed appeared extremely light upon examination of the facts of each case. Alcohol abuse appeared a prominent factor in many of the cases. Additionally, the study found approximately 31% of all allegations involved repeat offenders. Only 6% of all reported incidents concluded with an arrest within the city limits of Los Angeles, while 16% resulted in arrest by jurisdictions outside the city limits.

Kirschman (1997) suggested a correlation with violence in police families: type of work assignment, sleep deprivation due to long hours and shift work, burnout, job dissatisfaction, poor coping skills, and excessive sick leave. The legitimate use of aggression often becomes necessary in policing, but such aggression may spill over into the officer's home life. Officers can become desensitized to verbal, physical, and emotional violence because they have become second nature due to work exposures (D'Angelo, 2000). D'Angelo suggests that police officers can actually become addicted to violence which involves the inability to control the amount, frequency, or duration of violence. The expression of anger and rage progresses over time with increases in amount and severity. Such interactions can ultimately result in homicide-suicide.

Police Alcohol Use and Homicide-Suicide

Alcohol use has long been characterized as a problem among police officers (Richmond, Wodak, Kehoe, & Heather, 1998; McNeill, 1996, McNeill & Wilson, 1993; Violanti, Marshall, & Howe, 1985). Davey, Obst, and Sheehan (2000) utilized the Alcohol Use Disorders Identification Test (AUDIT) on a large sample of police officers and found that 32% scored at risk for harmful alcohol consumption range. Richmond, Kehoe, Hailstone, and colleagues (1999) found that 48% of their male and 40% of their female police sample were drinking alcohol to an excess. Alcohol use was even higher among younger police officers.

It is not uncommon to find a synergistic effect of alcohol use and suicide. Violanti (2004) suggested that certain traumatic police work exposures increased the risk of high level posttraumatic stress disorder (PTSD) symptoms, which subsequently increased the risk of high alcohol use and suicide ideation. The combined impact of PTSD and increased alcohol use led to a ten-fold increase risk for suicide ideation.

Alcohol use is a common risk factor in homicide-suicides (Bossarte et al., 2006). In a review of factors associated with perpetration of a homicide followed by suicide where toxicological information was available, 34% of the perpetrators had detectible blood alcohol content during postmortem exams and other substances were identifiable in 18% of that same group (Morton, Runyan, Moracco, et al., 2003).

METHODS

Data on police homicide-suicides was collected from police_dv@yahoogroups.com, a website devoted to topics concerning domestic violence and related problems in police families. Accounts of police homicide-suicides were extracted from newspaper accounts of the incidents described on the website. A sample of 29 homicide-suicide cases were collected, ranging from January 1, 2003 to February 28, 2007. There were several newspaper articles on each incident, providing increased robustness of information for the present study. While some may question the validity of newspaper reports, Rainey and Runyan (1992) point out that newspapers are a viable source of information for intentional injury surveillance. They found that newspaper reports were decidedly more complete for variables of interest than reports filed with governmental officials in the area of the event, and have potential value in raising public awareness.

RESULTS

Table 1 provides a descriptive analysis of characteristics of the police homicide-suicide incident.

Based on reporting frequency, Table 1 suggests that police homicide-suicides are increasing yearly. There were approximately twice as many cases reported in 2006 as in the two previous years. The mean age of the homicide victim was approximately 33 years of age (*SD* = 10.2); approximately 39 years (*SD* = 8.3) was the mean age for the perpetrator. The majority of homicide victims were women (*n* = 24; 83%), however five of the victims were men killed by women police

Table 1.
Descriptive Characteristics of the Police Homicide-Suicide Sample

Homicide Victim

Year of occurrence	*n*	(%) **
2003	1	3.4
2005	7	24.1
2006	15	51.7
2007*	3	10.3

Age of victim	*n*	(%) **
7-30 yrs	8	38%
31-40 yrs	9	42%
41-56 yrs.	4	15%

Gender of victim	*n*	(%)
Male	5	17
Female	24	83

Relationship to perpetrator	*n*	(%)
Wife/ex-wife	16	55
Girlfriend/ex-girlfriend	8	28
Child	3	11
Husband	2	6

Homicide –Suicide Perpetrator

Age of perpetrator	*n*	(%) **
24-35 yrs.	6	35
36-40 yrs.	6	35
41-57 yrs.	5	30

Gender of perpetrator	*n*	(%)
Male	27	93
Female	2	7

Weapon used	*n*	(%)
Service Firearm	26	90
Other	2	10

Rank level	*n*	(%)
Patrol officer	15	52
Higher rank	14	48

Type of department	*n*	(%)
Local	22	76
State	6	21
Federal	1	3

Circumstances

Motivation for act	*n*	(%) **
Divorce/estrangement	10	35
Domestic violence	12	42
Marital problems	2	7
Other	1	4
Presence of domestic violence	*n*	(%)
Yes	18	62
No	11	38
Past domestic violence	*n*	(%)
Yes	20	70
No	9	30

N = 29
* - as of February, 2007
** - % do not add up to 100% due to missing cases

officer perpetrators. The primary weapon employed was police service firearm (90%). Most incidents occurred on the local police departmental level (76%) as opposed to state and federal level departments. The use of alcohol before or during the incident could not be determined from the data available. However, Comstock, Mallonee, Kruger, et al. (2003) reported that it is common to find alcohol use in the majority of homicide-suicide cases. Similar to the majority of nationwide homicide-suicides, the homicide victim was primarily a spouse or female acquaintance. In three cases, a child was also killed by the perpetrator.

A Description of Police Homicide-Suicide Cases

The following case descriptions are presented to further enhance an understanding of the police homicide-suicides in this sample.

Case 1

A county deputy jailer was fatally shot inside her home early Sunday in what police are calling a domestic-violence killing. The woman, 42 years of age, was shot in the chest in her home shortly after midnight Sunday. She died several hours later. The killing marks the third time in less than a week that domestic violence turned deadly. As authorities searched for the man Sunday in Tennessee and Arkansas, her car, which was stolen after the shooting, was found about 12:40 p.m. The body of a man was inside the car, dead from a gunshot. Police were working to identify the man. Before the woman died, she identified the man who shot her as a corrections officer. Police have identified a corrections officer as the man they say killed his ex-girlfriend, and then himself in a domestic violence incident that turned deadly.

Case 2

A birthday argument between a guard and his wife escalated into a homicide-suicide last Wednesday night. Both were found dead on the second floor of their home just before 11 p.m. According to police, he shot his wife with a 9 mm pistol and then turned the gun on himself. Neighbors reportedly saw the couple arguing outside their home both earlier in the week and in the hours before the shooting. The husband believed his wife was having an affair with a co-worker. She had threatened a month earlier to leave him, friends said.

Case 3

A 33-year-old Police Deputy Inspector shot his 28-year-old wife several times, killing her. It happened on Friday night during an argument the couple had in their car. The officer had earlier approached his wife in a cafeteria and ordered her into the car. He later committed suicide. During the month prior to the homicide, the wife told friends she felt threatened and afraid. However she never filed any claims or notified the police. He was well-known as a campaigner against domestic violence, only weeks earlier receiving praise for his efforts in the protection of women.

Case 4

A county Sheriff's Office jailer shot his 4-year-old son, his wife, and then himself. The jailer called 911 and informed the dispatcher of the situation prior to turning the weapon on himself. Shortly after the killings, the Sheriff said that the jailer had been in good spirits and had not exhibited signs of depression or agitation at any time prior to the homicides. Last week, the Sheriff investigated allegations made by the jailer's wife, accusing the sheriff's office of not acting on information regarding abuse at the hands of her husband. The wife's father said Friday that he had contacted County officials multiple times to report domestic abuse, but officials did not act. He alleges his daughter was the victim of physical abuse, and said he had witnessed his daughter with black eyes.

Case 5

Sheriff kills wife, then himself - Two people are dead after an apparent homicide-suicide Saturday evening, the first violent deaths in the county this year. The county Sheriff said the wife died of multiple gunshot wounds at the hands of her estranged husband, 34, moments before he turned the gun on himself. The incident happened just before 5 p.m. at the residence of her brother. Evidently they had been having troubles. She died the same day she had left her husband and had gone to stay with her brother. Just before 5 p.m., the wife was sitting in her car in a relative's driveway just when the husband, 34, walked up to the vehicle and shot her several times. The family had three children, a grown child, a teenaged son who was at the residence when the incident occurred, and a 7 year old daughter.

Case 6

A detective was stabbed and shot to death by her estranged husband yesterday - in front of their three children - before he turned the gun on himself, police said. About 2 p.m., the husband took a large kitchen knife and stabbed his wife several times in the back and torso, the police said, then took her semiautomatic handgun and shot her in the head. He then went outside and fatally shot himself - all while their three young children were home. Almost 18 months before she died, cops were called to their house when her husband threw a block of knives at her and then picked up one of them to threaten her. She declined to press charges. A major obstacle to a successful prosecution is that often the victim, because of fear or other concerns, will make a complaint, then later recant.

Case 7

Officers arrived at the home where an officer lived with his 29-year-old wife. The two were found dead inside the home. Information from family and friends indicate they were having some problems. The fatal gunshot wound to the officer appeared to have been self-inflicted, the chief said. Relatives and neighbors have told investigators the couple was having marital problems. They believe the wife was suffocated.

Case 8

The bodies of officer, 52, and his wife, 50, were found inside their home about 7:30 p.m. Monday, after neighbors saw the couple argue in the front yard and heard shots fired in the home a short time later, police said. The wife filed for divorce last week, police said. Officer worked for the police force for 17 years, police said.

Conclusion

Data from the present sample suggests that homicide-suicide in police families appears to be increasing. However, the present results should be interpreted with caution due to the small sample size and possible reporting bias to the website. It is likely, however, that the number of homicide-suicide cases reported is much lower than the actual number. In this sense our sample estimate is quite conservative and should serve only as a first look at this tragic topic.

The present results suggest that domestic violence coupled with exposure to violence and aggression which police officers encounter may be common triggers for homicide-suicide in police families. While exposure to violence at work cannot be changed, the extension of such violence into the police family can be reduced. The key to prevention of homicide-suicide may thus lie with reduction of domestic violence. Many departments are now considering a formal policy to deal with this problem. The Los Angeles Police Domestic Violence Task Force (1997, p. 39), for example, provided recommendations:

- Create specialized unit within Internal Affairs Division with the primary responsibility of conducting investigations of officers involved in domestic violence situations.
- Treat offending police officers no differently than any other citizen. A crime report should be taken in every instance where a crime is alleged or there exists evidence that a crime occurred. Make an arrest in every legally mandated instance.
- Refer every domestic violence investigation with prima facie evidence of criminal misconduct to the appropriate prosecuting agency in a timely manner.
- Do not discontinue domestic violence investigations merely because the victim recants or indicates unwillingness to testify in disciplinary hearings.
- Mandate termination of employees in serious cases of domestic violence where officers demonstrate by a convincing pattern that they cannot control their abusive conduct.

- Increase suspensions for sustained acts of domestic violence in length and severity. Mete out long-term suspensions or terminations to those who have repeated instances of sustained allegations.
- Document sustained allegations of misconduct and consider them in performance reviews and promotions.
- Develop a Batterers Program under the direction of the Behavioral Science Services Section. Require contracts to include mandatory counseling in all sustained complaints involving domestic violence.

Difficulty in the internal detection of police domestic violence exists for other reasons. Many victims will not report domestic violence incidents to authorities because of shame, guilt, or fear of reprisal. As one police spouse stated, "You don't anger your husband when he carries a gun." In reported incidents, police administrators may not take complaints seriously. They may not fully understand the dynamics of domestic violence and thus may fail to take proper action. Other supervisors may believe ignored domestic violence problems will solve themselves (Violanti, 2001).

Recent passage of the federal Domestic Violence Gun Ban Law prohibits persons convicted of domestic violence offenses from owning or using firearms. While the law intends to decrease the risk of injury or death, it may also add to obstructing detection of police domestic violence. Officers will increasingly hesitate to report other officers for domestic violence because such officers will have their firearms taken away and will likely lose their jobs. Chief John W. Lamb, head of the Denver Police Department's Civil Liability Bureau, succinctly stated, "The police department has no unarmed positions, so if this law is not changed, it will be career ending for those affected by it. If you can't carry a gun, you can't do your job" (cited in Clark, 1997).

We hope that this first attempt to categorize possible antecedents and demographics of police homicide-suicides will help to stimulate further research on this issue. Many national databases such as the National Violent Death Reporting System (NVDRS) are in the process of providing linkages of homicide-suicide incidents. With the addition of occupational linkages, such databases will allow a more comprehensive picture of this tragedy in police families.

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School Violence: Effective Response Protocols for Maximum Safety and Minimum Liability

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Independent Practice

Abstract: *Despite the recent preoccupation with terrorism, most Americans are still killed by our own citizens, and school violence continues to be a significant source of mortality and trauma. This article describes the basic facts, features, and dynamics of school violence and presents a prevention, response, and recovery protocol adapted from the related field of workplace violence. This model may be used by educators, law enforcement professionals, and mental health clinicians in their collaborative efforts to make our academic institutions safer and healthier places to learn. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 105-110].*

Key words: *school violence, school and workplace violence, crisis intervention in schools*

School violence is not really back in the news because it never really left. Eclipsed by the war on terror, recent campus mass violence incidents such as Virginia Tech – as with Jonesboro, Littleton, Columbine, and others before it – remind us that most killers of Americans are still our own citizens and that many of these murders take place where we expect them least, our schools. This article will provide some insight into the psychology of this modern form of mass murder and provide some practical recommendations for preventing, responding to, and recovering from school violence that can be utilized by law enforcement, education, and mental health professionals.

Demographics of School Violence

The good news is that youth violence as a whole has been decreasing in frequency since the 1970s. However, during the same period, the severity of juvenile violence has dramatically increased, with a greater number of homicides and the involvement of more potent weapons. In addition, students are committing violence at increasingly younger ages. According to National School Safety Center, almost 3 million crimes are committed on or near a school campus each year, accounting for 11% of all reported crimes in the United States (Bender & McLaughlin, 1997).

In this context, high-profile multiple murders on school campuses, horrific though they may be, are still relatively low-frequency events. Much more common are the everyday instances of bullying, harassment, and nonlethal violence that occur on school campuses across the nation and the world. These, too, can be psychologically traumatizing and may set the stage for episodes of explosive violence.

School Victimization

The kinds of intimidation and harassment that would get an employee fired at almost any job are routinely tolerated by school authorities when they occur between students. In

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many of the cases of school violence studied, the perpetrators had been harassed or persecuted in some way by other students and their efforts to have their cases resolved by school authorities were rebuffed or ignored. Of course, a far greater number of bullied students suffer in silence without seeking to redress their injustice with a greater atrocity.

Peer victimization is the experience of being a target of the aggressive behavior of other students. Indirect aggression is carried out through a third party or in some way that conceals the identity of the aggressor. Relational aggression is behavior which damages peer relationships and acceptance within the social group. In verbal victimization, the student's status is attacked or threatened with words; this can be exceedingly vicious and damaging to a student's psyche and self-image (Bjorkvist, 1994; Crick et al, 1999; Hawker & Boulton, 2000; Olweus, 1993; Ross, 1996).

Studies have shown the effects of school victimization to include lowered self-esteem, increased loneliness and isolation, anxiety and panic attacks, depression and suicidal thoughts, psychosomatic symptoms, and posttraumatic stress disorder. Victimized children miss more days from school, suffer impaired academic performance, and make more trips to the doctor. Only rarely do disturbed, desperate students resort to violence but, when they do, it often highlights systemic problems that have occurred for a long time – a strong parallel with workplace violence (Hawker & Boulton, 2000; Johnson, 2000; Miller, 2002b; Pitcher & Poland, 1992).

School Violence Perpetrators

For all the media attention given to school violence, very little empirical work has been done in the psychology of this kind of youthful mass murder. Accordingly, much of what we know about school violence perpetrators has been extrapolated from studies of other types of mass murder, especially older perpetrators of workplace violence, who have been studied for several decades, as opposed to school shootings, which are a more recent phenomenon (Johnson, 2000; Miller, 1999, 2001a, 2001b, 2002a, 2002b; Pitcher & Poland, 1992).

The cycle of violence typically begins when the student undergoes an event or series of events that he perceives as the "last straw" in a cumulative series of humiliations. Based on his predisposing personality and psychological dynamics, his reaction will consist of some combination of persecutory ideation, projection of blame, and violent revenge fantasies. As thoughts and emotions stew, the student isolates himself from the input of others and enters a mode of self-protection and self-justification in which a violent act may come to be perceived as "the only way out." The actual commando-style mission may be executed impulsively and all at once, or it may undergo numerous revisions and months of planning. The violent act itself may be carried out alone or with the collaboration of like-minded compatriots. In most cases, the episodes end with the death of the perpetrator(s), either by their own hand or by responding law enforcement authorities.

Preventing School Violence

Academic administrators who remain unmoved by the human costs of school violence might want to consider the potential legal and financial liabilities. In Stoneking v. Bradford Area School District, 1988, the court found that, if a school is aware of dangerous and unlawful activities on its premises and takes insufficient action to address them, it may be found liable under the 14th Amendment. School officials may be protected from liability, however, if they can demonstrate due diligence in their prevention of crime on campus. Accordingly, the following recommendations are adapted from a large body of work in the area of workplace violence that can be productively applied to the academic setting (Braverman, 1999; Kinney, 1995; Labig, 1995; Johnson, 2000; Miller, 1998, 1999, 2001a, 2001b, 2002a, 2002b, 2006, in press; Namie & Namie, 2000; Pitcher & Poland, 1992; Ross, 1996; Schouten, 2006).

Clear Policies

Schools should have clear, strong, consistent, written policies against bullying, intimidation, and harassment. They should have effective security programs, a standardized, confidential, and user-friendly reporting system, a supportive faculty, open channels of communication, and training in verbal negotiation and conflict resolution skills. Schools must have a clearly understood policy of zero tolerance for violence. This should be contextualized as a safety issue, the same as with rules regarding fire prevention or disaster drills. Plans should be in place that specify how and to whom threats are reported, as well as a protocol for investigating threats.

Safe Discipline

As in the workplace, many acts of violence relate to the perpetrator feeling he was treated unfairly by the administration; some of this relates to confusion over the very zero-tolerance policy cited previously. Schools should develop an individualized disciplinary program that strikes a balance between a too heavy-handed approach that might discourage reporting and participation, and a too lax approach that gives the impression of ambivalence and lack of control. Discipline should occur in stages, with a clear policy and rationale for each action taken. School officials should not be afraid to "pull rank" where student safety is concerned.

Safe Suspension or Expulsion

If disciplinary or corrective measures prove ineffective, suspension or expulsion from school can be clear and firm without being inhumane. This should include a systematic process of documentation of the precise behaviors and rule violations that have necessitated these actions. The student and his family should be treated with reasonable respect, but should understand that the action is final and will be backed up. The student should be informed of any counseling or other services offered by the school for the transition period. For behaviors that constitute criminal acts, school officials should report these to local law enforcement or their own school police if they have them.

Responding to School Violence

Sometimes, despite the best efforts at prevention, a dangerous situation begins to brew and a violent incident becomes a distinct possibility. Or the incident just erupts explosively and personnel have to respond immediately. In either case, the effectiveness of the response will be determined by how thorough the pre-incident planning and training have been.

Warning Signs of Impending Violence

It is always best for school officials to know their individual students, but generic warning signs include deterioration or changes in dress, speech, or facial expression; increased agitation, anxiety, isolation and/or depression; evidence of substance use; or preoccupation with violent events in the media. Almost always, the student's peers will know something is up long before parents or teachers, which is why a safe and confidential reporting system is so important.

Defusing a Dangerous Situation

Planning and training for defusing potentially violent episodes should be developed, put in place, and reviewed periodically. Elements of such a protocol include initial actions to take when danger begins to escalate, codes and signals for summoning help, chain of command for handling emergencies, appropriate use of verbal control strategies and body language, scene control and bystander containment, tactics for dealing with weapons, and hostage negotiation procedures.

Recovering from School Violence

The crisis is not over when the police and TV crews leave. Students or faculty may have been killed, others wounded, some held hostage, and many psychologically traumatized. Schools should proactively establish policies, procedures, and training for responding to the aftermath of a violent incident, and the plan should include the following elements.

Law Enforcement, Physical Security, and Cleanup

A school representative should be designated to work with local, regional, and/or federal law enforcement. Within the limits of safety, the crime scene should be kept intact until investigators have gone over the area. There should be someone assigned to immediately check, protect, or restore the integrity of the school's data systems, computers, and files. Physical cleanup of the area, pending approval from law enforcement, should be conducted in as respectful a manner as possible.

Mental Health Mobilization

This includes a prearranged plan for school representatives to contact local mental health professionals immediately; arrange for the clinicians to meet first with school officials for updates and briefings; conduct crisis counseling with affected students, faculty, and families; and arrange follow-up schedules for mental health clinicians to return to provide psychological services as needed.

Student and Family Interventions

Another designated school official should notify the victims' families of the incident and be ready to offer them immediate support, counseling, and referral services. The school should arrange time off for grieving and traumatized students and faculty. After the initial stages of the incident have passed, mental health clinicians should help students and school officials find constructive ways of memorializing the victims.

Media and Public Relations

A media spokesperson or public information official should be designated to brief the media and shepherd them away from grieving students, family members, and faculty. School officials should cooperate with law enforcement authorities regarding the timing and content of news releases.

Legal Issues and Post-Incident Investigations

These measures include notifying the school's legal counsel, who should be asked to respond to the scene if necessary. Investigatory questions include the nature of the perpetrator(s), their relationship to fellow students and faculty, history of disciplinary action or suspension, specific circumstances or institutional stressors that may have led to the incident, the role of mental illness or substance abuse, any warning signs that should have been heeded, and a thorough review of the school's overall security, threat assessment, and critical incident response protocols.

In summary, if any good can come out of an episode of school violence, it will be in the form of improved policies and procedures that adopt a best-practices model to the prevention, response, and recovery to and from any kind of institutional mass violence. This kind of proactive effort can save lives, improve student health, and reduce costs and liabilities from both everyday school bullying and harassment, and more uncommon lethal mass violence.

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Combat and Operational Stress Control

Major Edward A. Brusher
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Abstract: *Combat and Operational Stress (COS) includes all the physiological and emotional stresses encountered as a direct result of the dangers and mission demands of combat. Combat and Operational Stress Control (COSC) in the U.S. Army may be defined as programs developed and actions taken by military leadership to prevent, identify, and manage adverse Combat and Operational Stress Reactions (COSR) in units. This program optimizes mission performance, conserves the fighting strength, and prevents or minimizes adverse effects of COSR on Soldiers and their physical, psychological, intellectual, and social health. Its goal is to return Soldiers to duty expeditiously. COSC activities include routine screening of individuals when recruited; continued surveillance throughout military service, especially before, during, and after deployment; and continual assessment and consultation with medical and other personnel from garrison to the battlefield. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 111-122].*

Key words: *combat stress, combat and operational stress control, combat stress reaction*

Combat and Operational Stress Control is one of the ten identified Medical Battlefield Operating Systems (Medical BOS), which also include Command Control and Communication; Hospitalization and Surgery; Preventive Medicine, Laboratory, Blood; Dental Services; Health Service Logistics; Combat Stress Control; Patient Evacuation and Regulation; and Area Medical Support; and Veterinary Services.

The purpose of this article is to provide an overview of the U.S. Army Combat and Operational Stress Control Program as outlined by current published Field Manual (FM), FM 4-02.51, Combat and Operational Stress Control, July, 2006; and FM 6-22.5, A Leader's Guide to Combat and Operational Stress (Small Unit), DRAFT, February, 2007.

Historical Perspective

There have been high rates of COSR casualties in all wars in this century. When the recent Southwestern Asia military operations, [Operation Desert Storm (ODS), 1991] and Operation Iraqi Freedom (OIF; 2003), the Afghanistan and Balkans operations in 2001, or the stability and reconstruction operations in the Western Hemisphere are compared to World War I (WWI) or World War II (WWII) we notice different types of wars. The levels of intensity in which war was waged are essentially the same. However, the

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technology and lethality of modern conflicts is potentially greater.

Historically, within US military operations, COSR have accounted for up to one-half of all battlefield casualties, depending upon the difficulty of the conditions. As a result of institutionalizing COSC into military operational functioning, losses due to COSR have significantly decreased. In today's Battlespace, military leaders can expect to retain and have returned to duty (RTD) more than 95% of the service members that react to COS. Combat and operational stress control is a tactical consideration that must not be overlooked or minimized. Service members - especially military leaders - must learn to recognize the symptoms and prevent or reduce the disruptive effects of COS.

Effects of COSR in Current Operations

In today's modern asymmetrical battlefield, everyone is a Soldier. Whether performing the role of an infantryman, healthcare provider, or providing logistical support, there is a threat of potential attack from a dedicated enemy force. Operational stressors from routine existence in a combat zone affect all military assets executing assigned tasks and duties. Service members are routinely placed at risk for exposure to a range of significant stressors.

There exists a scarcity of rigorous, empirical research conducted explicitly on the mental health and well-being of service members and families during periods of major military operations (Johnson, Sherman, Hoffman et al., 2007). Most of the existing studies that have examined the effects of combat on mental health were conducted among veterans years after their military service had ended (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004). Deployment-related stressors have been linked to increased rates of subsequent health problems.

Some studies have found that exposure to severe combat stressors relates to the subsequent development of a range of physiological diseases (Boscarino, 1997), while others have documented the association between exposure to deployment-related stressors and the development of psychiatric disorders (Hoge et al., 2004; Jordan et al., 1991; King, King, Foy, Keane & Fairbanks, 1999; Wolfe, Erickson, Sharkansky, King & King, 1999). Deployment is also associated with increased symptoms of Posttraumatic Stress Disorder (PTSD; Hogeet al., 2004), depression (Hogeet al., 2004; Jordanet al., 1991), and anger problems (Adler, Dolan, & Castro, 2000; McCarroll et al., 2000). Furthermore, while symptom reports may be low during the immediate post-deployment period, studies with Soldiers have found that these symptoms increase three to six months later (Bliese, Wright, Adler, & Thomas, 2006; Hoge, Auchterlonie, & Milliken, 2006). In all, it is estimated that 20-30% of US military personnel returning from current combat operations report significant psychological symptoms (Cox, 1995).

COSC: What We Know

The effects of Combat and Operational Stress are experienced by all Soldiers, spanning every type of military operation in both peace and war. COSR is not restricted only to combat operations, but may also occur as a result of combat-like conditions present throughout the entire spectrum of military operations. The range of these operations includes training, all phases of deployment, peace-keeping, humanitarian missions, stability and reconstruction, government support missions, and those missions that may include weapons of mass destruction (WMD) and/or chemical, biological, radiological, nuclear and explosive (CBRNE) weapons.

The stressors of the military environment are ever-present for service members. They continually face the potential for deployment and combat, long and arduous training missions, and separations from families. These stressors are greatest during actual combat, but often begin with notification of a deployment. Combat and Operational Stress often continues after the fighting is over as the participants deal with the aftermath of the battlefield, whether they were in support units, in combat units, were prisoners of war (POW), or experienced severe injuries.

The impact of Combat and Operational Stress may manifest itself in the form of Long Term Stress Reactions (LTSR). LTSR describes a range of possible outcomes along a continuum of stress reactions that may be experienced weeks or even years after Combat and Operational Stress exposure. LTSR includes adaptive resolution to the stressors of combat operations, as well as mild COSR and the more severe symptoms that are often associated with PTSD. Leaders, Soldiers, and health care providers must understand this continuum and know the difference between adaptation, COSR, and PTSD.

The goal of COSC is to enhance unit cohesion and combat capability in the face of high stress operational environments and maximize posttraumatic growth (PTG), a

phenomenon in which positive outcomes occur among survivors of a wide range of traumatic experiences, such as car accidents, fires, sexual abuse/assault, military combat, and being held as a refugee. Posttraumatic growth among trauma survivors has included improved relationships, renewed hope for life, an improved appreciation of life, an enhanced sense of personal strength, and spiritual development (Calhoun & Tedeschi, 1998).

The term *Battlemind* has been used to describe the Soldier's inner strength in facing fear and adversity with courage during combat. It is the will to persevere and win. It is resilience. Combat skills and the battle mindset are what the Soldier utilizes to sustain and survive in high stress operational environments. Battlemind refers to Soldier-survivor skills, but those same skills must be adapted as Soldiers' transition from a combat or operational mission back to garrisoned and home environments. Every Soldier will transition to home in their own way. The key to a successful transition home is to adapt combat skills so that they are just as effective at home as they were in combat. Present day COSC builds on these Battlemind skills as proven strengths in the transition to post-combat or operational functioning.

COSR and PTSD

Military leaders, Soldiers, and medical providers must understand the difference between COSR and PTSD. COSR is not the same as PTSD. COSR represents the broad group of physical, mental, and emotional signs that result from Combat and Operational Stress exposure. COSR must therefore be considered a subclinical diagnosis with a high recovery rate if provided appropriate attention and time. PTSD is an anxiety disorder associated with serious traumatic events and characterized by such symptoms as survivor guilt, reliving the trauma in dreams, numbness, avoidance, or recurrent thoughts and images. PTSD is a clinical diagnosis as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR, 2000) and the International Statistical Classification of Diseases and Related Health Problems (ICD 10, 1992). PTSD is one of many possible long term outcomes resulting from Combat and Operational Stress exposure and collectively classified as a Long Term Stress Reaction (LTSR). COSR and PTSD may share some common symptoms in presentation, but COSR is recognizable immediately or shortly after exposure to traumatic events and captures any recognizable reaction resulting from exposure to that event or series of events. PTSD has specific chronological requirements and symptom markers that must be satisfied in order to diagnose the disorder. PTSD is only diagnosable by a trained and credentialed healthcare provider. Military personnel and providers must focus their efforts on the management of COSR and mitigating factors to control COSR in an effort to shape the long term reaction of their organization and individual Soldiers.

Combat and Operational Stress Control as a Leader Function

Combat and Operational Stress Control is the military commander's responsibility at all levels. The commander is assisted with his responsibility for COSC by his staff, unit leaders, unit chaplain, and organic medical personnel. Organic medical personnel are those personnel that are assigned to the unit and are authorized as a requirement by existing military table of organization and equipment guidelines. The commander may also receive assistance from organic COSC personnel at brigade and above, and from corps and above medical company/detachment COSC behavioral health (BH) personnel. The key concern for combat commanders is to maximize the return-to-duty (RTD) rate of Soldiers who are temporarily impaired or incapacitated with stress-related conditions or diagnosed behavioral disorders.

The purpose of COSC is to promote Soldier and unit readiness by:

- Enhancing adaptive stress reactions.
- Preventing maladaptive stress reactions.
- Assisting Soldiers with controlling COSRs.
- Assisting Soldiers with behavioral disorders.

Combat and Operational Stress Threat

Many stressors in a combat situation are due to deliberate enemy actions aimed at killing, wounding, or demoralizing our Soldiers and our allies. Other stressors are due to the natural environment, such as intense heat or cold, humidity, or poor air quality. Still others are due to leaders' own calculated or miscalculated choices (e.g., decisions about unit strength, maneuver, the time of the attack, and plans for medical and logistical support). Sound leadership works to keep operational stressors within tolerable limits and prepares troops mentally and physically to endure them. However, in some cases excessive stress can affect both leaders' and

Soldiers' decision-making and judgment, resulting in missed opportunities, or worse, high casualties and/or failure to complete the mission. Finally, some of the most potent stressors are interpersonal in nature and can be due to conflict within the unit or on the home front. Extreme reactions to such stressors may involve harm to self (as in the case of a Soldier who becomes suicidal on discovering that his wife wants a divorce) or to others (as in the case of a Soldier who impulsively fires a weapon at his noncommissioned officer out of rage over perceived unfairness). These stressors must be identified and, when possible, corrected or controlled.

Cohesion and Morale

Cohesion, defined here as the bonds between Soldiers, traditionally has been posited as the primary motivation for Soldiers in combat (Wong, Kolditz, Millen, & Potter, 2003). Unit cohesion and morale is the best predictor of stress resiliency within a unit or organization. Units with high cohesion tend to experience a lower rate of COSR casualties than those with low cohesion and low morale. High cohesion and high morale enhance adaptive stress reactions in Soldiers and organizations. Esprit de corps is the one major entity that can transcend the problems of race and prejudice. The upkeep of morale and cohesion in combat are recognized as vital elements in the production of combat power in tactical units (Cox, 1995).

Supportive leadership always matters. Whether a Soldier has been to combat or not, supportive leadership is related to how Soldiers are doing, both at a personal level (i.e., personal morale) and at a unit level (i.e., unit morale, cohesion, and combat readiness). This is good news for the military, because leaders can be trained to be more supportive of their Soldiers and, therefore, improve the chances of the Soldiers having higher personal morale, higher unit morale, better unit cohesion, and higher perceptions of combat readiness (McGurk, Castro, Thomas, Messer, & Sinclair, 2005). Today's American Soldiers, much like Soldiers of the past, fight for each other. Unit cohesion is alive and well in today's U.S. Army (Wong, Kolditz, Millen, & Potter, 2003)

Effects of Stress

Focused stress is vital to survival and mission accomplishment. However, stress that is too intense or prolonged results in COSR that impairs a Soldier's ability to function effectively. Some stressors may contribute to misconduct, requiring disciplinary action, and may take the Soldier from duty for legal action and incarceration. In a broader context, stress may cause battle and non-battle injuries through inattention, clumsiness, and reckless behavior. These resultant injuries can include equipment losses and friendly fire incidents. Stress may increase disease rates by impairing the body's immune defenses and by disrupting hygiene and protective measures. Stress may progress to emotional and behavioral disorders, or suicidal and/or homicidal behaviors. Excessive stress in combat contributes to lapses in operational and tactical judgment and to missed opportunities that could increase the numbers of Soldiers injured over time.

Mental and Physical Stressors

A rough distinction between a mental and physical stressor can be made. A mental stressor is one in which the brain receives information about a given threat or demand, but this information results in only indirect physical impact on the body. Instead, its primary effect is to place demands on and evoke reactions from the perceptual, cognitive, and/or emotional systems of the brain. Examples include information overload, perceived lack of control, or grief-producing losses.

A physical stressor has a direct, potentially harmful effect on the body. These stressors may be external environmental conditions (such as temperature) or the internal physiologic demands required by or placed upon the human body. Examples of physical stressors include the need for hydration or an immune response to a viral infection.

Figure 1 provides examples for the two types of physical stressors (environmental and physiological) and the two types of mental stressors (cognitive and emotional). Mental stressors can lead to adaptive or maladaptive stress behaviors that decrease or increase the exposure to physical stressors.

Stress Behaviors in Combat and Other Operations

Combat and Operational Stress Behavior is the generic term that is used for the full spectrum of Combat and Operational Stress Behaviors. The term covers the range of reactions, from adaptive to maladaptive. Figure 3 provides a listing of typical adaptive and maladaptive stress reactions.

Figure 1. Examples of Combat and Operational Stressors

PHYSICAL STRESSORS	MENTAL STRESSORS
ENVIRONMENTAL Heat, cold, wetness, dust Vibration, noise, blast Noxious odors (fumes, poisons, chemicals) Directed-energy weapons/devices Ionizing radiation Infectious agents Physical work Poor visibility (bright lights, darkness, haze) Difficult or arduous terrain High altitude	**COGNITIVE** Information (too much or too little) Sensory overload or deprivation Ambiguity, uncertainty, unpredictability Time pressure or waiting Difficult decision (rules of engagement) Organizational dynamics and changes Hard choices versus no choices Recognition of impaired functioning Working beyond skill level Previous failures
PHYSIOLOGICAL Sleep deprivation Dehydration Malnutrition Poor hygiene Muscular and aerobic fatigue Overuse or underuse of muscles Impaired immune system Illness or injury Sexual frustration Substance use (smoking, caffeine, alcohol) Obesity Poor physical condition	**EMOTIONAL** Being new in unit, isolated, lonely Fear and anxiety-producing threats (of death, injury, failure, or loss) Grief-producing losses (bereavement) Resentment, anger, and rage-producing frustration and guilt Inactivity producing boredom Conflicting/divided motives and loyalties Spiritual confrontation or temptation causing loss of faith Interpersonal conflict (unit, buddy) Home-front worries, homesickness Loss of privacy Victimization, harassment Exposure to combat/dead bodies Having to kill

Adaptive Stress Reactions

Stressors, when combined with effective leadership and good peer relationships, may lead to adaptive stress reactions which enhance individual and unit performance. Examples of adaptive stress reactions include:

- The strong personal trust, loyalty, and cohesiveness (called horizontal bonding), which develops among peers in a small military unit.
- Personal trust, loyalty, and cohesiveness that develop between leaders and subordinates (called vertical bonding).

Esprit de corps is defined as a feeling of identification and membership in the larger, enduring unit with its history and ideas. This may include the unit (such as battalion, brigade combat team [BCT], regiment or division) the branch (such as infantry, artillery, or military police [MP]) and beyond the branch to the U.S. Army level.

Unit cohesion is the binding force that keeps Soldiers together and performing the mission in spite of danger and death. Cohesion is a result of Soldiers knowing and trusting their peers and leaders and understanding their dependency on one another. It is achieved through personal bonding and a strong sense of responsibility toward the unit and its members. The ultimate adaptive stress reactions are acts of extreme courage and almost unbelievable strength. They may even involve deliberate self-sacrifice.

Maladaptive Stress Reaction

Combat and operational stress reaction and misconduct stress behaviors comprise the maladaptive stress reactions.

Combat and Operational Stress Reactions: The Army uses the DOD-approved term/acronym COSR in official medical reports. This term can be applied to any stress reaction in the military unit environment. Many reactions look like symptoms of mental illness (e.g., panic, extreme anxiety, depression, hallucinations), but they likely are only transient reactions to the traumatic stress of combat and the cumulative stresses of military operations. Some individuals may have behavioral disorders that existed prior to deployment or disorders that were first present during deployment, and need BH intervention beyond the interventions for COSR.

Misconduct Stress Behaviors: Examples of misconduct stress behaviors are listed in Figure 2. These range from minor breaches of unit orders or regulations to serious violations of the Uniform Code of Military Justice (UCMJ) and the Law of Land Warfare. Misconduct stress behaviors are most likely to occur in poorly trained, undisciplined Soldiers. However good and heroic, some Soldiers under extreme combat stress may also engage in misconduct. Generally, misconduct stress behaviors range from minor breaches of unit orders or regulations to serious violations of the UCMJ and the Law of Land Warfare. But, they may also become a major problem for highly cohesive and proud units. Such units may come to consider themselves entitled to special privileges and, as a result, some members may relieve tension unlawfully when they stand-down from their military operations. They may lapse into illegal revenge when a unit member is lost in combat. Stress control measures and sound leadership can prevent such misconduct stress behaviors, but once serious misconduct has occurred, Soldiers must be punished to prevent further erosion of discipline. Combat stress, even with heroic combat performance, cannot justify criminal misconduct.

Overlapping Stress Behaviors: The distinctions among adaptive stress reactions, misconduct stress behaviors, and COSRs are not always clear. Indeed, the three categories of combat and operational stress behaviors may overlap. Soldiers with COSR may show misconduct stress behaviors and vice versa. Soldiers with adaptive stress reactions may also suffer from COSR. Finally, excellent combat Soldiers that have exhibited bravery and acts of heroism may also commit misconduct stress behaviors.

It is common for stress reactions to persist or arise long after exposure to distressing events. When there is impairment in social and/or occupational functioning, a clinical assessment is warranted. Combat and Operational Stress Control is important to sustain Army strength over the long-term and reduce the cost to society, the DoD, the Soldiers, and the families of Soldiers.

Model for Combat and Operational Stress Control Interventions

Combat and Operational Stress Control assessments are performed during all phases of combat operations, stability and reconstruction operations, and support operations so the term COSC may refer to any of these different types of Army operations. The COSC assessments are performed at unit and individual level. They consider the range of variables according to a model, which recognizes that biological, psychological, and social factors influence each other. The COSC assessment reviews the interaction systematically to a depth appropriate to the need. The assessment identifies which variables can be modified to improve coping or outcome. Based on these assessments COSC personnel recommend courses of action (COA) to the commander. They identify and initiate COSC interventions to improve unit effectiveness and Soldier efficiency and well-being. Figure 3 is a conceptual model of stress, its mitigating and aggravating factors and potential outcomes on Soldiers and families. This model can be helpful when designing COSC interventions to improve short-term and long-term outcomes.

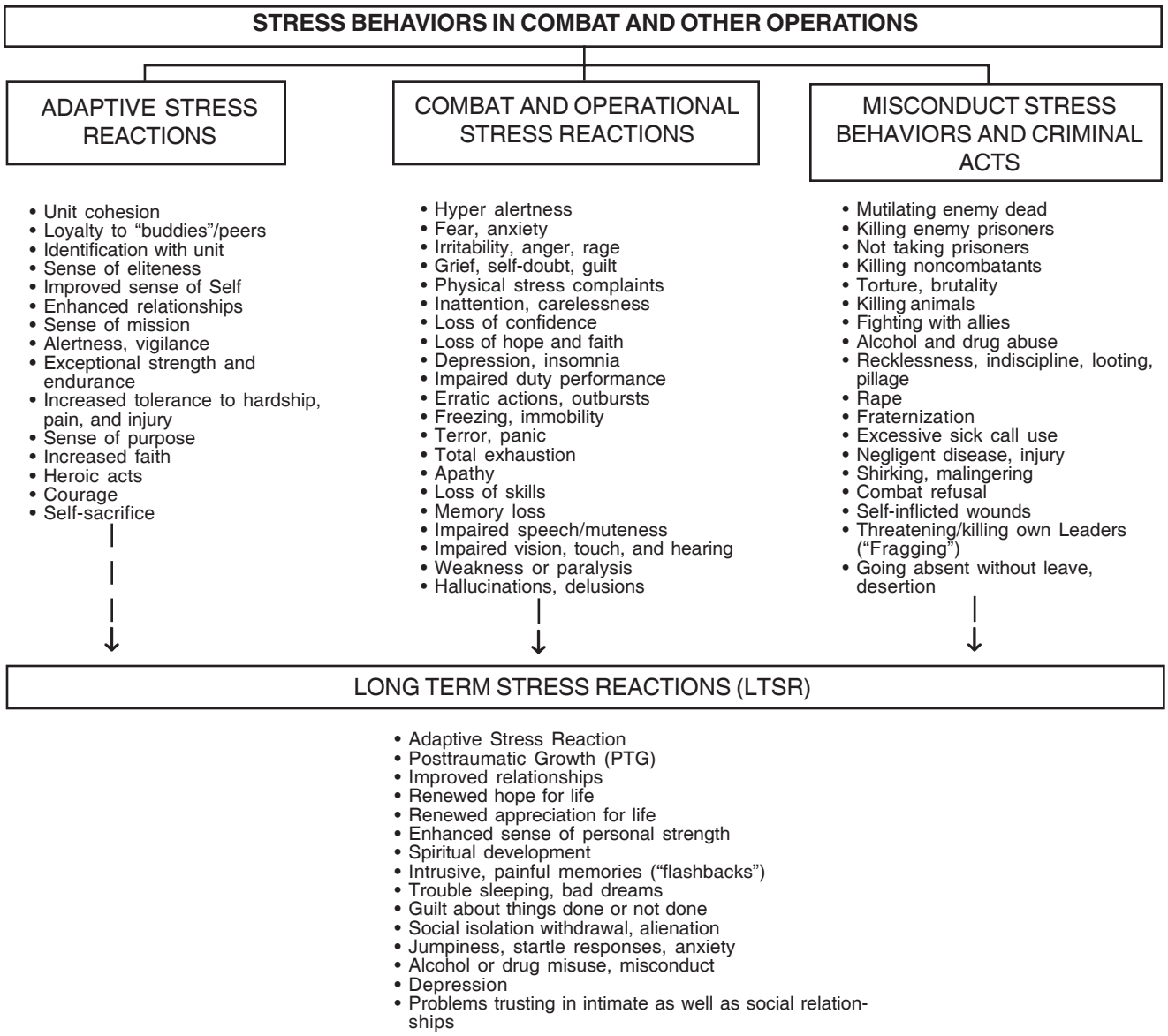
Combat and Operational Stress Control Interventions

Soldier and unit readiness is best achieved through an active, prevention-focused orientation. Their applications may differ based on a particular level of care and other factors pertaining to the mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT-TC).

Preventive interventions seek to reduce the occurrence or severity of COSR and behavioral disorders, thereby sustaining Soldier and unit readiness. These interventions are tailored to the needs of the population. There are four categories of preventive interventions that include:

Universal: Interventions targeted to the general population or an assigned AO.

Figure 2. Stress Behaviors in Combat and other Operations



Selective: Interventions targeted to a unit or Soldier whose risk is higher than average.

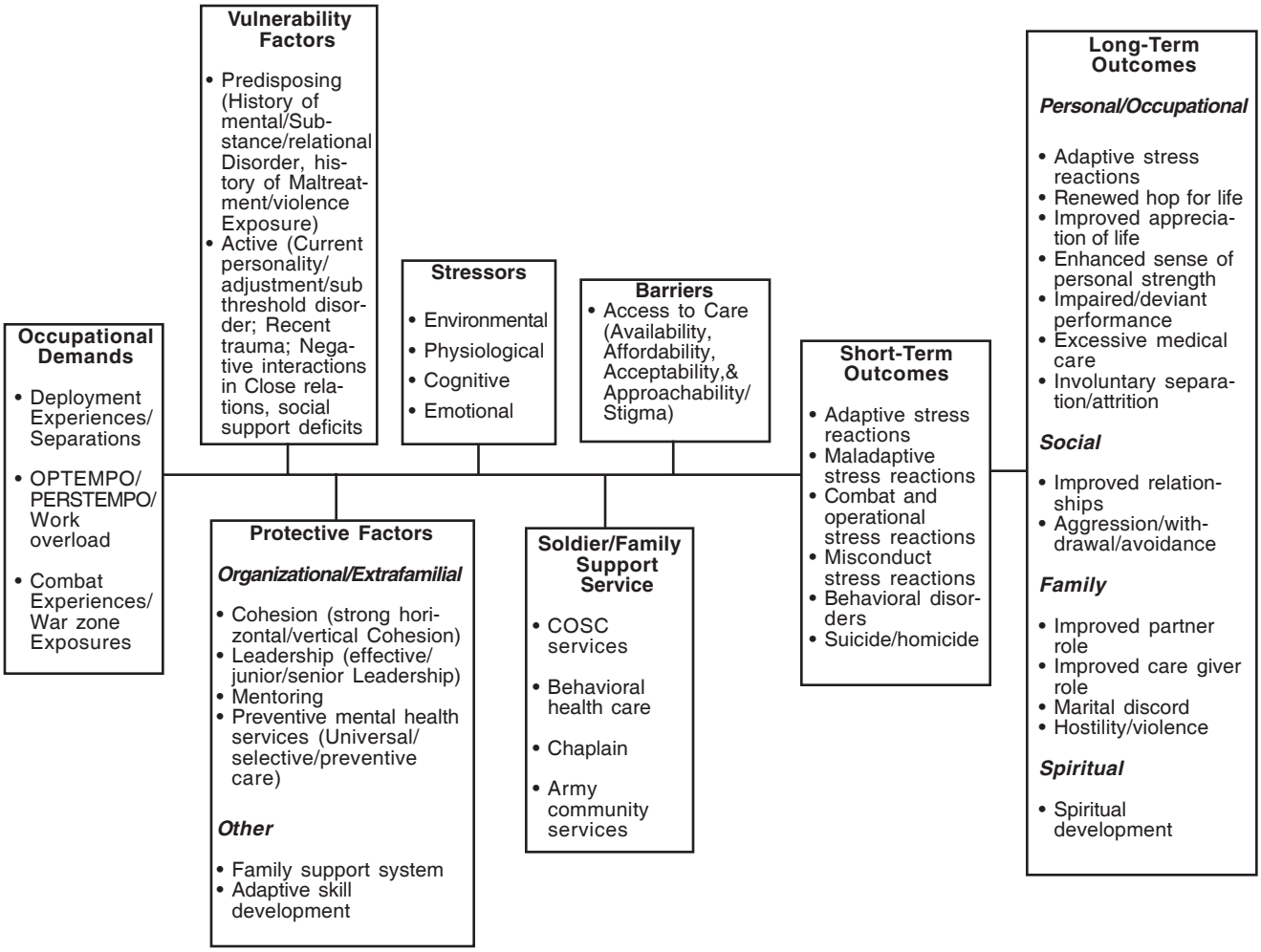
Indicated: Interventions targeted to Soldiers with COSR or indications of a potential behavioral disorder, and to units that show signs their mission effectiveness is being affected by combat and operational stressors.

Treatment: Interventions targeted to treat and follow-up Soldiers with behavioral disorders to prevent their loss from duty; identify life- or function-threatening medical, surgical, or psychiatric condition as soon as possible; and provide those patients emergency treatment.

Combat and Operational Stress Control Management Principles

COSC utilizes the management principles of brevity, immediacy, contact, expectancy, proximity, and simplicity (BICEPS). These principles apply to all COSC interventions or activities throughout the theater, and are followed by COSC personnel in all BH/COSC elements. These principles may be applied differently based on a particular level of care and other factors pertaining to METT-TC.

Figure 3. Model of stress and its potential Soldier and family outcomes



Using BICEPS is extremely important in the management of Soldiers with COSR and/or behavioral disorders:

Brevity: Initial rest and replenishment at COSC facilities located close to the Soldier's unit should last no more than one to three days. Those requiring further treatment are moved to the next level of care. Since many require no further treatment, military commanders expect their Soldiers to RTD rapidly.

Immediacy: It is essential that COSC measures be initiated as soon as possible when operations permit. Intervention is provided as soon as symptoms appear.

Contact: The Soldier must be encouraged to continue to think of himself as a war fighter, rather than a patient or a sick person. The chain of command remains directly involved in the Soldier's recovery and RTD. The COSC team coordinates with the unit's leaders to learn whether the overstressed individual was a good performer prior to the COSR. Whenever possible, representatives of the unit or messages from the unit tell the Soldier that he is needed and wanted back. The COSC team coordinates with the unit leaders, through unit medical personnel or chaplains, any special advice on how to assure quick reintegration when the Soldier returns to his unit.

Expectancy: Initially, the individual is explicitly told that he is reacting normally to extreme stress and is expected to recover and return to full duty in a few hours or days. A military leader is extremely effective in this area of treatment. Of all the things said to a Soldier suffering from COSR the words of his small-unit leader have the greatest impact due to the positive bonding process that occurs. A simple statement from the small-unit leader to the Soldier that he is reacting normally to COSR and is expected back soon has positive impact. Small-unit leaders should tell Soldiers that their comrades need and expect them to return. When they do return,

the unit treats them as every other Soldier and expects them to perform well.

Proximity: Soldiers requiring observation or care beyond the unit level are evacuated to facilities in close proximity to but separate from the medical or surgical patients at the battalion aid station (BAS) or medical company nearest the Soldiers' unit. It is best to send Soldiers who cannot continue their mission and require more extensive intervention to a facility other than a hospital, unless no other alternative is possible. Combat and Operational Stress Reactions are often more effectively managed in areas close to the Soldier's parent unit. On the noncontiguous battlefield characterized by rapid, frequent maneuver and continuous operations, COSC personnel must be innovative and flexible in designing interventions that maximize and maintain the Soldier's connection to his parent unit.

Simplicity: Indicates the need to use brief and straightforward methods to restore physical well-being and self confidence. The actions used for COSR control (commonly referred to as the 5 R's) involve the following actions:

- Reassure of normality.
- Rest (respite from combat or break from the work).
- Replenish bodily needs (such as thermal comfort, water, food, hygiene, and sleep).
- Restore confidence with purposeful activities and contact with his unit.
- Return to duty and reunite Soldier with his unit.

Combat and Operational Stress Control Functional Areas

Combat and operational stress control interventions and activities are organized into nine functional areas. These functional areas cover the full spectrum of BH care from preventive through clinical intervention. The functional areas are as follows:

Unit Needs Assessment: Unit needs assessment is the systematic and frequent assessment of supported units to determine the priority and types of BH interventions required.

Consultation and Education: Consultation involves the liaison with and preventive advice to commanders, staff of supported units, and Soldiers. Education involves training in concepts and skills for increasing Soldier resilience to stress.

Traumatic Events Management: Traumatic events management blends other COSC functional areas to create a flexible set of interventions specifically focused on stress management for units and Soldiers following potentially traumatizing events (PTE). Like other functional areas, COSC providers must tailor TEM to the needs of the unit and the Soldier.

Reconstitution Support: Reconstitution is extraordinary action that commanders plan and implement to restore units to a desired level of combat effectiveness commensurate with mission requirements and available resources. It transcends normal day-to-day force sustainment actions. However, it uses existing systems and units to do so. No resources exist solely to perform reconstitution. In COSC reconstitution support, COSC personnel are responsible for providing unit Soldier restoration and conducting the COSC functions. This support is provided to units following traumatic events and during reconstitution, redeployment, and transition among levels of operational tempo (OPTEMPO).

Combat and Operational Stress Control Triage: Combat and Operational Stress Control triage is the process of sorting Soldiers with COSR and/or BH disorders based upon where they can best be managed.

Combat And Operational Stress Control Stabilization: This function provides initial management of Soldiers with severe COSR or behavioral disorders. Their safety is ensured and they are evaluated for RTD potential or prepared for further treatment or evacuation.

Soldier Restoration: Soldier restoration involves the one- to three-day management of Soldiers with COSR or behavioral disorders normally near a medical treatment facility (MTF) in close proximity to his unit. This approach uses the 5 R's discussed above.

Behavioral Health Treatment: Patients with identified behavioral disorders receive ongoing evaluation, treatment, and follow-up to sustain them. This functional area implies a therapist-patient relationship, clinical documentation, and adherence to clinical standards of care.

Soldier Reconditioning: Reconditioning is an intensive program of work therapy, military activities, physical training, and psychotherapy. Reconditioning programs are conducted up to seven days (or more) in the corps area. Additional reconditioning may be provided in the theater outside the combat zone (CZ).

COSC and Traumatic Events

Traumatic Event Management (TEM) is the term utilized by the U.S. Army referencing interventions and support activities in response to potentially traumatizing events (PTE) that occur individually or organizationally to units and organizations. It is a flexible set of interventions specifically focused on stress management for units and individual Soldiers. TEM is one of the nine functional areas of COSC, as noted previously. However, because TEM is routinely addressed during military operations, it deserves specific emphasis in any review of Combat and Operational Stress. The goal of TEM is to enhance Posttraumatic Growth (PTG).

An event is considered a potentially traumatizing event when it causes individual Soldiers or even a whole unit to experience intense feelings of terror, horror, helplessness, and/or hopelessness. Guilt, anger, sadness, and dislocation of world view or faith are potential emotional/cognitive responses to PTEs.

For military units TEM is active in all phases of the deployment cycle and across the continuum of military operations. It is a process that can and should be utilized in garrison and deployed environments. Traumatic event management is a structured unit process designed to mitigate the impact of PTEs and to accelerate normal recovery of those personnel involved. Examples of PTEs that might result in a TEM assessment and intervention include the following:

- Heavy or continuous combat operations
- Death of unit members
- Accidents
- Serious injury
- Suicide/homicide
- Environmental devastation/human suffering
- Significant home-front issues
- Operations resulting in the death of civilians or combatants

TEM is normally conducted by a team composed of trained members, (i.e., medical officers, chaplains, behavioral health professionals, trained unit members). TEM's main value is to quickly restore unit cohesion and readiness to return to action, through clarifying what actually happened and clearing up harmful misperceptions and misunderstandings. It may also reduce the possibility of long term distress through sharing and acceptance of thoughts, feelings, and reactions related to the PTE. In the event a unit experiences a PTE, unit leadership may request a TEM assessment to assess potential impact. When requested, the identified TEM team will coordinate a TEM assessment resulting in specific recommendations to address the identified PTE as effectively and efficiently as required. It is recommended that Leadership request TEM assessments as close to the specific PTE as practically possible, but there are no time limitations to conducting assessments and implementing TEM interventions in response to current or past PTEs that have had a significant impact on the performance, morale, and cohesion of the effected unit or organization.

The TEM process incorporates multiple interventions and clinical strategies to aid the military leader in managing and mitigating the impact of PTEs that units and Soldiers may be exposed to while executing military operations. TEM is tailored to the PTE and operational needs and requirements of the effected unit or organization. TEM responses include:

- Unit Needs Assessment of the impact of the identified PTE.
- Command Consultation and Education.
- Unit and Individual Education.
- Individual supportive intervention and counseling.
- Psychological Debriefs.
- Leader-led After Action Debriefs (L-LADD)

COSC Professional Disciplines: There are five behavioral health professional disciplines and two enlisted specialties that serve in support of the COSC mission. The professional disciplines include clinical psychology, social work, psychiatry, occupational therapy (OT), and psychiatric nursing. The enlisted specialties are in behavioral health and OT. While much of the COSC knowledge base and most of the skills are shared by all the behavioral health personnel, each discipline brings its own perspective from its professional training, skills that can only partially be familiarized to the others, and in some cases unique credentials to conduct specific assessments and treatments.

Religious Support for Combat and Operational Stress Control

The U.S. Army Chaplain Corps is an invaluable asset in ongoing COSC support operations and often one of the first responders Soldiers seek out in an effort to obtain resources required to address identified Combat and Operational Stress Reactions. Soldiers' inner resources are generally rooted in their religious and spiritual values. In combat, Soldiers often show more interest in their religious beliefs. When religious and spiritual values are challenged by the chaos of combat, Soldiers may lose connection with the inner resources that have sustained them. The Unit Ministry Team (UMT) is the primary resource available to Soldiers experiencing such dilemmas and is an important resource in assisting them as they seek to refocus their spiritual values. The UMT provides preventive, immediate, and restorative spiritual and emotional support and care to Soldiers experiencing COSR.

COSC: Some Final Thoughts

COSC is as an effective combat multiplier today as in all past recorded conflicts. Successful COSC will return Soldiers to the battlespace much sooner than traditional replacement channels, with less train up requirements and logistical challenges, thus multiplying the force. Present day COSC continues to evolve, incorporating both the lessons of past history and the experiences of present day combat. Modern COSC requires close collaboration between military leaders, doctrinal COSC disciplines, chaplains, and the extended medical community. It is strength-based, utilizing objective and empirically validated current best practice to enhance and adapt the Battlemind of the Soldier to facilitate successful military operations and individual adaptive stress reactions and posttraumatic growth. True COSC is only obtained by leadership integration of COSC concepts with the supporting efforts of medical providers and religious support assets.

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Preventive psychological services in time of war: Controlled coping to foster resilience

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Abstract: *The sudden onset of war results in considerable psychological challenges as well as physical danger for populations under attack. While all civilian-directed violence carries common elements of fear and threat, unexpected consequences of war often require coping strategies to be adaptive, flexible, and effective. The Hezbollah-Israel confrontation of 2006 created such unanticipated consequences for many residents of northern Israel. Although the population was experienced in dealing with years of terror and war, extended stays in bomb shelters and the intensity of the attacks created additional stressors that were out of the ordinary for most residents of the war zone. We describe an intervention technique, "controlled coping," that is designed as a first aid mechanism for such populations in similar conditions. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 123-132].*

Key words: *war, stress, coping, resilience*

When Hezbollah launched a raid across the border between Lebanon and Israel on July 12, 2006, it was accompanied by a barrage of rockets directed at civilian population centers throughout the north of Israel. Many residents of these communities were then forced to leave their homes, but many others remained. Some lacked the resources to leave, while others were essential workers or needed to tend to businesses, especially agricultural-based industries in the area.

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The rocket attacks on these civilian targets, which caused considerable loss of life and physical damage, continued unabated until a cease-fire was agreed to several weeks later. Those citizens that remained in the war zone were directed to follow the instructions of the Israel Defense Forces (IDF) Home Front Command, requiring them, depending on their proximity to the Hezbollah launch sites, to stay either in bomb shelters or within a short distance from a protected area.

The psychological aspects of coping with this war situation in Israel were addressed by several resource centers, some of whom published short guides or articles (e.g., Mayseless, 2006). Hospitals in Israel routinely deal with the acute stress reactions that are common following a terrorist attack, but the extent of the war in the north resulted in the opening of other emergency centers as a response ("From today...", 2006). In addition, several ad hoc efforts were quickly organized to supplement the psychological services that some areas would require.

Within several days after the war's outbreak, it became apparent that extended stays in bomb shelters would be the norm, especially for communities that were in close range of Hezbollah rockets, too close for early warning systems to be very effective. For those that remained in the north and were required to spend extended periods in bomb shelters, clear psychological challenges existed. These included issues ranging from boredom and sensory deprivation to interpersonal conflict between neighbors sharing shelters. The physical difficulty of remaining in small, cramped quarters became more acute as time passed, with people sometimes failing to heed IDF instructions "to the letter" (in one such case, a man who ventured out for a brief breath of air and to make a cell phone call was killed by an incoming missile). In many cases, the sound of both incoming Hezbollah missiles and outgoing IDF artillery were both heard and felt, adding another dimension to the psychological reactions of those exposed to these stimuli.

As noted by Kearny (1987, p.22) "...an essential part of psychological preparations for surviving a modern war is a well-founded assurance that many citizens of a strong society will struggle to help each other and will work together with little regard for danger and loss." Without psychological intervention, it is reasonable to assume that the population would be further at-risk for a variety of psychological disturbances, including acute stress responses and, later on, post-traumatic reactions. Indeed, while the epidemiology is different in diverse populations, the literature on civilians in war zones has shown that exposure to war leads to psychological consequences (de Jong, et. al, 2001; Kessler, Sonnega, Bromet, & Nelson, 1995). Farhood, Dimassi, and Lehtinen (2006) found that the civilian population in southern Lebanon experienced increased psychiatric morbidity, including PTSD symptoms, following the war as well. However, which factors play a role in the development of stress symptoms is still unclear, as some studies, (e.g., Klingman, 1995) have shown that no significant stress reactions followed in Israeli civilian schoolchildren who experienced missile attacks during the 1990 Gulf War.

Providing psychological assistance, however, can be a daunting task. The sheer numbers of those affected by the crisis makes intervention difficult to provide to all those who require it. In our case intervention needed to be efficient and effective; a sort of "first aid" technique that would foster coping with an ongoing situation even without the involvement of a psychological services team. The following is a description of one such intervention that we provided to communities in northern Israel. Our intervention team was one of several, consisting of psychologists and counselors experienced in trauma interventions, organized by the Ministry of Education's Psychological Services Unit and dispatched to a variety of communities in the north. In each community, a local psychologist coordinated the team and determined the sites where intervention would take place. These procedures and this clearly preventive approach would not be the intervention of choice where either actual death or injury was experienced in the community. In those cases, a vigorous intervention consisting of more active observation and follow-up would be indicated.

Method

Our working assumption was based on an approach of on-site "intervention," not on conventional clinic or office based "treatment." As noted by Shapiro and Koocher (1996), clinicians need to be aware that most reactions to crisis situations are not pathological. When psychological (e.g., anxiety, tension) and even some physiological (e.g., enuresis, insomnia) symptoms were present, these were viewed in the context of being normal and expected reactions to the stress of war and not as an expression of clinically abnormal or pathological behavior. While some of the information we conveyed could be communicated via phone or even by written instructions, the initial "on-site" aspect of intervention was considered critical to enhancing our credibility as individuals who not only possessed professional knowledge, but also personally experienced the sights and sounds of the war that our target population was experiencing. Even when follow-up phone contact was possible, we insisted that this be conducted from within the area where missiles were landing, so that the professional liaison maintained credibility as someone who was personally experiencing the same events as the population at-large.

In general, our approach was one of fostering inoculation and resilience in psychologically intact individuals, emphasizing the difference between normal reactions to an abnormal situation and other reactions that require a more formal clinical intervention. We saw this as a preventive approach, one that anticipated problems before they reached a more clinically significant level.

Three axioms guided our intervention:

1. Meeting basic daily needs for residents in bomb shelters
2. Fostering social support networks
3. Lahad's BASIC Ph

We applied these techniques in outreach visits to a number of shelters. Following our initial visit, we instructed local welfare officials and emergency resource services that we would be available for intervention by phone for shelters that were visited. Since not all shelters had phone accessibility, we had to deal with both residents and relevant social service or civil emergency personnel assigned to that particular shelter. If clinically significant reactions that met criteria for more serious psychological disturbance requiring more extended treatment were present, we would initiate a referral for professional intervention through local resources or for follow-up through the local psychologist.

Our preventive intervention was part of a method that we called "controlled coping." No doubt, any individual, whether adult or child, who experiences the type of daily attacks and lifestyle we are describing, is at risk for developing stress-related disorders. Our approach was to foster inoculation and the development of coping mechanisms by providing an opportunity for demonstrating coping strategies in the meetings we had with those at risk, namely residents living in bomb shelters. By eliciting and modeling coping responses during the crisis period, we felt that further development and expression of these procedures would continue, even in our physical absence. The informal "role-play" that resulted allowed for individuals to verbally present the coping methods they would use, and also allowed the psychologists to reflect on, modify, and reinforce appropriate responses.

Intervention Process

Reinforcing a sense of safety

Whether or not any anxiety was visible, we sought to actively reinforce the feeling of personal safety and security in following IDF instructions, especially instructions to remain in bomb shelters (Homefront command announcement, 2006). These shelters were safe and secure, and fostering the feeling of physical safety was a critical element in ensuring that any coping techniques presented would be applied without anxiety, worry, or fear interfering with performance. Though shelters were often uncomfortable and lacking in ordinary creature comforts, they were undoubtedly the safest place to be in time of war. Hence, our task was to ensure that any psychological resistance to the temporary discomfort of a bomb shelter would be balanced by assurances that, while in a shelter, one would be safe from any physical danger. Creating this sense of security was paramount in any intervention.

Fostering social support

War and the consequences of war disrupt the daily lives and habits of civilians affected. As such, the transition between one's normal routine and adaptation to new situations requires new skills to be incorporated into one's behavioral repertoire. Silverman (1982) describes social change and transition as being facilitated by resources, information, and mutual help groups that can empower coping. Increasing coping skills fits neatly within Caplan's model of "mastery" (1981), which describes how social support fosters the ability to develop individual coping mechanisms during periods of stress. Our model used much of Caplan's thinking in developing a network of social support among those who were in close contact with each other, such as individuals sharing shelters during the shelling. Fostering social support was also a critical element in maintaining adherence to security recommendations, such as remaining in bomb shelters.

Fostering the BASIC Ph

Lahad (1993, pp. 55-70) describes a model, BASIC Ph, which refers to six major coping resources from which an individual may draw. These are: Beliefs and values, Affect, Social support, Imagination, Cognition, and Physiology. While individuals learn to rely on one or more of these different coping styles, everyone has an innate ability to utilize any of the six dimensions. Accordingly, just as traumatic stress reactions can express themselves in any of the BASIC Ph forms, so can an individual use coping techniques that foster use of a particular BASIC Ph factor; and any one of these six factors can be called upon to counter any distress that may be present. For example, physiology can be a factor in distress, and express itself in shaking, sweating, quickened breathing, etc. Physiology can also be used as a mechanism to control and manage distress, by employing relaxation tech-

niques such as controlled breathing and muscular relaxation. Similarly, one's imagination can cause considerable distress by focusing on worst case scenarios. However, imagination can also be called upon to look at the future in a more hopeful and optimistic manner, such as in focusing on a future event (trip, family affair, etc.). With children, imagination can also employ fantasy material, and help divert attention from stress and the objective but transient reality being experienced.

In the BASIC Ph model, Belief (B) refers to core values that moderate behavior. Spirituality or religion is one common example, and these values, as other specific ethical or moral value systems, can be called upon during times of stress to support coping. Affect (A) are sensations or emotions that can be expressed as anger, fear, sorrow, etc., which help express particular feelings. Social (S) factors are those aspects of a social support system that can foster coping through a formal structuring of one's role within the community, family, or group. Carrying out particular responsibilities, for example, can foster coping in this context. Imagination (I) refers to using creativity to cope with trauma. This may take the form of fantasy or other expressions that deflect trauma and channel it into a more "digestible" form. The use of "gallows humor" is cited as one example of the (I) factor. Cognitive (C) factors are logical and rational approaches to dealing with the trauma. This takes the form of dialogue, discussion, and the use of specific strategies to cope with threat or trauma. Physiological (Ph) coping methods are physical activities, such as play or exercise, that serve to both buffer or deflect coping with diversionary behavior and allow time to process trauma in a non-threatening format.

While recognizing an individual's preferred coping style is important in the BASIC Ph, any of the factors can be called upon during stress and strengthened or developed.

Procedure

Initial contact

Implementing our program involved the intervention team focusing on visiting bomb shelters, where community residents spent most if not all their time. On arriving at a shelter, we introduced ourselves, noting that we were working with the local psychological services unit of the municipality. We distributed information sheets that described common reactions in times of stress and sat down among the residents.

Unobtrusive observation

Having introduced ourselves, we mingled among the residents and spent several minutes observing those present for any signs of overt behavioral distress. In particular, we sought to identify signs of anxiety through body language or affect which suggested unease. Our observation was informal, was totally unobtrusive in style, and did not involve note taking of any kind until we physically left the premises, when we carefully detailed the cases and techniques used.

Eliciting reactions

While we were careful not to suggest that there was a need for psychological assistance, we did attempt to indirectly elicit general reactions by engaging in conversation. Since our goal was preventing the emergence of more clinically significant stress reactions, we used this observation period to assess whether or not any individuals might be candidates for more formal treatment. Our conversation usually included some general "conversation-makers" such as "How are you during these tough times?" and so forth, although we avoided banal or simple banter that may have been perceived as patronizing under the circumstances.

Parents and children

We elicited reactions from parents by offering to provide a few "pointers" on what they could normally expect from children during periods of stress. For adults that were not parents or who did not have their children with them, we provided a general overview of what can be expected in general under the circumstances. As noted earlier, we actively tried to respect the situation by avoiding trite conversation and we usually began by remarking, "This must be difficult for you under these conditions, how is it going for you?" or "How are you dealing with these difficult circumstances?" We provided some play materials for the children to use while we attempted to speak to the parents, allowing for some privacy during our discussion. Children were given crayons and drawing paper and were asked to draw pictures related to their experiences. While the children were involved in their activities, we casually approached the parents and provided our intervention, which consisted of an overview of what could reasonably be expected under the circumstances. The approach of "making the best of bad situation" was applied,

and parents were given the opportunity to ask further questions if they wanted. The use of drawings enabled us to "break the ice" in discussions with children and allowed us to engage them in conversation. We discussed the drawings with the children and went over some of the descriptions of what they presented.

Identifying issues (material and cognitive support)

Consistent with the social support aspect of our model, our first concern was basic needs and physical, material support for continued stays in the bomb shelter. These shelters had very basic toilets shared by all, no showers, no kitchenettes or food storage area, no fresh air, and often no means of communication with the outside. Cell phones did not work in the protected environment and regular landline phone coverage was not always unavailable. Meeting these basic needs was important in maintaining psychological integrity; our intervention first targeted these areas. We thus served as conduits to the local authorities to report on any specific needs such as delivery of food or the need for a television or air conditioner. These physical needs made it easier to bear the discomforts of continued stay in the shelter.

We then focused on the cognitive aspects of coping. Since parents serve as models for their children, we were concerned that they not broadcast signs of obvious anxiety. Some parents were observed to have noticeable signs of unease; this was visible in their facial expressions or other body language. Part of our intervention involved identifying these signs and bringing them to the attention of the parents in an attempt to modify the behavior and reduce the stimuli that could lead to increased stress among the children. It was critical for us to provide information within an educational framework, describing expected reactions, explaining the range of responses that are normal under the circumstances, and suggesting methods with which to manage the anxiety that was being expressed.

In working with the children, we used the information presented in the drawings to identify any anxiety that might be present. By reflecting on these issues and affirming that they were normal and expected, we were able to deal with some of the anxieties shown by the children that were not always readily expressed.

Reinforcing resilience

Since our basic assumption was that people, even those under stress, all have potential for psychological resilience, we used techniques designed to foster that resilience. Resilience is a term that has been used to describe internal vigor and fortitude as well as the ability to effectively cope in the face of psychological challenges. While each of us displays a certain degree of resilience, the integrity of this resilience is challenged as external pressures increase. In our case, these pressures included the difficulties in extended stays in bomb shelters as well as psychological pressures of a continuing war with attendant losses in life and property. All these stresses and pressure combine in time of war to upset the balance and equilibrium that people normally have. Maintaining stability in the face of these forces depends in part on reinforcing the natural resilience that people have and insuring that it functions well and aids in the maintenance of functional stability.

Case examples

Most of our intervention took place with individuals who did not present overt acute psychological distress, although the concern of being involved in a war and being shelled regularly was certainly anxiety-provoking and no doubt caused most individuals to experience a stress level that they normally did not experience during periods of calm. Unless we were specifically informed, it was not possible to assess whether or not some of the people we dealt with were, in fact, experiencing any acute distress beyond the expected levels of anxiety the situation would produce. In some cases, however, we were made aware of individuals who were either reporting acute stress symptoms or who were at particular risk for the development of more serious stress symptoms. These cases required a more direct intervention, although we utilized the same principles to address the specific concerns present in these cases that we used in dealing with the more general and assumed concerns that guided our overall approach described above.

Case # 1

In a bomb shelter in one urban area, we encountered a family that included a woman in her ninth month of preg-

nancy. We were the first contact she had with any social service or mental health resources after spending close to two weeks in the shelter. Besides being pregnant, the woman's husband was a chronic diabetic and one of her children was two months away from a significant life-cycle religious confirmation (Bar Mitzvah) celebration. A few days prior to our visit, a Katushya rocket landed only a few hundred yards away, killing a man from a nearby shelter. The combination of situational and social stressors certainly placed this family at risk.

Our initial goal with this case was to assess any acute stress symptoms that might be present. While we observed some verbal anxiety in this woman, a brief interview also revealed the presence of some cognitive anxiety and sleep difficulties. One of her children also exhibited some verbal anxiety, although physiological signs were not readily present. Our intervention took place over several days, starting with first allowing the woman an opportunity to express what she had been experiencing. Our goal was to interpret these emotions and cognitively frame the conversation in a manner allowing the situation to be seen as temporary and her current living situation, while unpleasant, to be seen as safe. We emphasized the fact that the fatality that took place nearby occurred as a result of not following security directives (the man who was killed left the shelter during the day contrary to directives). We attempted to cognitively internalize this message by having it repeated by the mother as much as possible. We also dealt with more material concerns and initiated contact with a voluntary social service organization that began to assist the family financially in preparing for the upcoming Bar Mitzvah celebration, using direct social support to reduce another stressor that was being played out. We also had several conversations with the child, allowing him to reflect on his anxieties and framing possible solutions through cognitive role playing.

Follow-up at four months showed the birth of the new child without incident and the mother reporting no significant residual effects from her stay in the shelter for herself or her family.

Case # 2

We encountered one case of a disabled adolescent with cerebral palsy in an Israeli village on the Lebanese border. This young girl experienced a seizure in the early days of the war, despite having no history of any such problems. The parents had the child evaluated in a nearby hospital, but no apparent basis for the convulsions were found. Upon returning to the village, the parents decided to remain in their home rather than stay in the shelter, determining that the anxiety and difficulty of having a disabled child in the shelter would be overwhelming and exacerbate her anxiety, possibly leading to additional seizures.

Our goal here was to insure that the family was physically in a situation that was as secure as possible and that they begin to adopt a cognitive strategy enabling them to view themselves as active participants in maintaining safety rather than helpless victims who would be vulnerable to attack by not being in a shelter. After expressing understanding for their dilemma, we surveyed the house and suggested that, while staying in a shelter might be overwhelming and possibly impractical, there were effective options they could consider while staying in their house. The most practical and feasible option was to concentrate their activities on the ground floor and to the rear (southern) end of the house. Since rocket fire was directed from the north, any impact would likely be to the front of the house rather than the rear, which would not be directly reachable.

In the absence of any medical evidence suggesting a definitive basis for the seizures experienced, we hypothesized that they might indeed have been a function of the stress of the war and the shelling that the family experienced around their village. Our approach was to support the family and the young girl in adapting constructive coping mechanisms, such as those described previously, to deal directly with the threat. While not as ideal as staying in a shelter, the local security officials felt that, considering the particular angle of the residence relative to the trajectory of the incoming rocket fire directed at the area, isolating the family in the southern portion of the house would be a viable alternative, especially considering that a handicapped individual was involved. We reinforced this opinion and fostered a discussion with all family members that focused on planning practical alternatives in the house. We also focused on cognitive strategies to deal with the disturbing sounds of outgoing "friendly" artillery, which could be distressing as well.

Follow-up at four months showed that the seizures the young girl experienced had not returned during the course of the war. She remains seizure free at this time.

Case # 3

In one example of group intervention, we encountered a local neighborhood of approximately 15-20 families in one shelter situated next to a community center that was shelled and seriously damaged. The shelling of the center took place one evening when many individuals were directly outside the shelter for a short break (since most shelling took place during the day, once evening came, many felt it was safer to venture out for short breaks). No one was injured in this attack, since one of the outside walls of the shelter behind which people were sitting absorbed the fragments of the rocket. We arrived a few days following the shelling and engaged the group in a discussion related to their experiences. While some apprehension related to war in general was present, there were some very specific concerns related to the property damage incurred and the effects this would have on the community. Since this very practical and functional aspect of their lives was touched upon, we decided to focus on dealing with the reaction to the community center's bombing. Our intervention here was twofold. First, we immediately put the group in touch with a social service organization that was involved in providing material support for communities that suffered material losses. We also aided the group in completing the applications for support and personally delivered the supporting documents. Our next step was to provide a group activity to restore a sense of control (along the lines of Caplan's "mastery" concept). Here, we suggested having the group work on a plan for restoring the community center. We recommended that they catalogue their needs in terms of equipment and materials that needed to be replaced. We then suggested that concrete plans be drawn up on what needed to be repaired, and how they planned to go about with the repairs. These specific and tangible procedures served to forge a sense of community and work towards a common goal that provided a vehicle for dealing with the crisis in a positive, constructive fashion.

Conclusion

A survey was conducted on residents of northern Israel following the war and reported in the media (Ashkenazi, 2006). The survey found relatively high levels of post-traumatic stress disorder (PTSD) symptoms to be present in both the Jewish and Arab populations. One-third of the residents of communities that had been bombarded in the second Lebanon war were found to be suffering from moderate to severe post-traumatic stress symptoms. One of the reasons given for these high levels was that local authorities were not prepared for the situation and were not operating efficiently. In our model, while local authorities aided in coordinating the services of our intervention team, it was an outside agency, namely the (federal) educational psychology services that initiated the liaison and provided the professional volunteers for the communities involved. In some cases, local mental health and counseling professionals were not available because they had either been called to serve in the military call-up or had left the area to be with their families who were evacuated.

Four months after intervention, we conducted a follow-up review of all the areas the intervention team had served during the war. Our review consisted of examining referrals presented to the local psychology services and comparing these with the population we served in the specific neighborhood shelters with which we worked. Of the approximately 50 families we served, several were known to the psychology service prior to the war and had been receiving ongoing treatment for issues unrelated to the war. Of those families that had received our "controlled coping" intervention and were not involved in any previous treatment, none turned to the psychology service for any treatment following the war or at any point during our four month follow-up. While we have no way of determining if any of these families were receiving any services from another source either before or after the war, the socioeconomic structure of the area is such that the local municipal psychology services is the first stop for all mental health and counseling-related matters. Hence, it would be unusual if there were cases that developed significant psychological symptoms following the war that the local psychology services would not be aware of.

The apparent success of the intervention method we used provides further evidence to the benefit of brief interventions, operating in a "first aid" mode for populations at risk that are not exhibiting any active symptoms. While acute symptoms may need more formal and traditional intervention, the individuals that we saw who were not symptomatic but were experiencing significant environmental stressors seemed to be inoculated against deterioration by the specific approach of fostering social support and using both educational and cognitive means to empower them in dealing with any of the precursor conditions that may have been developing related to more formal symptoms. Although Lahad's (1993)

methodology formed the basis of our approach, the intervention style is also consistent with the "stress inoculation training" approach developed by Meichenbaum (1996). Others have used similarly based brief interventions to deal with other types of traumas. Foa and colleagues (1995) have used the approach to deal with assault victims; Bryant and colleagues (1998, 1999) showed how brief cognitive intervention could serve to prevent PTSD in motor vehicle accident victims that have acute stress symptoms. Our approach also included social support as a critical element, considering that the venue of intervention was in community settings (bomb shelters), and where all present were exposed to the same, common stressors (namely, rocket shelling). Some of our intervention strategy, such as working with the group towards a common goal of rebuilding shows how, as noted by Hoff (1995), behavior in crisis situations should not automatically be viewed as pathological, but rather can be seen as opportunities for growth as well.

While our approach was applied during a war situation, the model could very well be applied to other situations where potential threat or challenge is present. The key to "controlled coping" is identifying mechanisms that can moderate adjustment and embellish positive coping. Our model assumes that individuals are basically resilient and do not necessarily and automatically develop negative reactions to trauma. Initial intervention that focuses on fostering positive growth rather than identification of pathology can be used in situations of individual trauma, such as with grief or loss as well as in the context of group or community events, such as in natural disasters or crime. The approach could also be used in situations of non-traumatic but distress-producing "positive" challenges, such as presented during job interviews, tests, speech presentation, etc.

The combination of cognitive treatment strategies and social support, such as that demonstrated in our "controlled coping" approach, could serve to provide an effective model of brief intervention in cases where preventive involvement is needed for acute situations of trauma and individual challenge.

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The Effects of Aerobic Exercise on Childhood PTSD, Anxiety, and Depression

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Abstract: *The purpose of the present study was to investigate the effects of aerobic exercise on childhood PTSD, depression, and anxiety. Fifteen participants, ages 14 to 17, who met DSM-IV Criteria for PTSD were recruited from an all female residential treatment center. Participants engaged in an aerobic exercise program for 40 minutes, three times per week, for a total of 8 weeks. Measures included were the Children's PTSD Inventory, the UCLA Post-Traumatic Stress Disorder Reaction Index for DSM-IV, Children's Depression Inventory, and the Revised Children's Manifest Anxiety Scale. Measures were administered twice at pre-intervention, again at mid-intervention, post-intervention, and at a one-month follow-up. This small* n *study utilized a staggered baseline, pre/post repeated measures design. Results of this study provided support for the positive effects of aerobic exercise on reducing PTSD, depression, and anxiety. Fewer participants met full criteria for PTSD after exercising. This research is a starting point toward satisfying the essential need to establish efficacious methods to treat PTSD and associated symptoms in child/adolescent populations. [International Journal of Emergency Mental Health, 2007, 9(2), pp. 133-158].*

Key words: *PTSD, anxiety, depression, aerobic exercise, adolescents, childhood*

Posttraumatic stress disorder is classified as an anxiety disorder in the DSM-IV and refers to the development of characteristic symptoms (e.g., reexperiencing, avoidance/numbing, increased arousal), following exposure to a particularly severe stressor [American Psychiatric Association (APA), 1994]. The range of stressors that constitute a traumatic event reported in children and adolescents with PTSD include natural or human disasters, exposure to war and violence, chronic/life threatening illness, accidents, community violence, witnessing intrafamilial and extrafamilial violence, sexual and physical abuse, and interpersonal violence (Davis & Siegel, 2000; McNally, 1993; Pynoos, 1994; Salmon & Bryant, 2002). Approximately 20% of individuals exposed to a significant traumatic event will develop PTSD (Breslau, Chilcoat, Kessler, Peterson, & Lucia, 1999; Breslau et al., 1998); children may be at higher risk (Breslau, Chilcoat, Kessler, & Davis, 1999) than adults. Community based studies indicate a lifetime prevalence for PTSD ranging from 1% to 14% in the general population (APA, 1994). To date there are no epidemiological studies that have determined the prevalence of PTSD in children and adolescents (Davis & Siegel, 2000). There is also limited research on empirically validated treatments for children and adolescents with PTSD.

A myriad of interventions for adult PTSD have been documented in the literature, including but not limited to cog-

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nitive behavioral therapy, analytic psychotherapy, psychopharmacology, exposure therapy, anxiety management training, stress management techniques, and eye movement desensitization and reprocessing (Foa & Meadows, 1997). In addition, a preliminary study conducted by Manger and Motta (2005) found that aerobic exercise reduced PTSD symptom severity, and concomitant anxiety and depression in an adult sample. The purpose of the present study was to extend this work to a younger sample by investigating the impact of exercise on PTSD in adolescents.

The psychological benefits of aerobic exercise in reducing anxiety and depression in adult samples have been well documented in a meta-analysis conducted by Stich (1999). After reviewing a number of cross sectional and longitudinal studies, Salmon (2001) also found that aerobic exercise training has antidepressant and anxiolytic effects and thereby protects against the negative consequences of stress. These findings are relevant to PTSD due to a large overlap in symptom criteria between PTSD, anxiety, and depression and, as noted above, preliminary research does in fact show that exercise has been associated with PTSD reduction in adults. Therefore based upon previous preliminary research on the effectiveness of aerobic exercise interventions in managing PTSD and related emotional states in adults, the purpose of this study was to evaluate the effectiveness of aerobic exercise as an effective treatment or treatment component for PTSD, anxiety, and depression in children and adolescents.

Childhood Reactions to Extreme Stress

Studies of children traumatized by catastrophic events and situations began to unfold coinciding with the advent of the PTSD diagnosis in the DSM-III. One of the most widely recognized studies was conducted by Terr (1979, 1983), who examined children traumatized by the kidnapping and underground burial of their school bus in Chowchilla, California. Other documented studies include descriptions of PTSD symptoms in children involved in the 1972 Buffalo Creek dam collapse (Green et al., 1991; Newman, 1976), PTSD in children exposed to a sniper attack in their school yard (Pynoos et al., 1987), and PTSD and other psychological difficulties experienced by sexually abused children (Conte & Schuerman, 1987; Dubner & Motta, 1999; Friedrich, Urquiza, & Beilke, 1986; Mannarino, Cohen, Smith, & Moore-Motily, 1989). Terr's (1979) assessment of kidnapped children influenced the inclusion of age-specific features in the DSM-III-R description of PTSD (APA, 1987). For example, children may reexperience the traumatic event through repetitive play, in which themes and aspects of the trauma are expressed, whereas adults do not. Thus, the DSM-III-R and DSM-IV have given increased attention to the specific symptoms included under the clusters (e.g., reexperiencing, avoidance/numbing, and increased arousal) with particular emphasis on how children manifest these symptoms.

Childhood PTSD

Previously, "psychic trauma" had been the prevailing concept used to illustrate children's responses to adverse life events (Frust, 1967; Terr, 1984). Terr (1991) describes trauma in children as "the mental result of one sudden, external blow or a series of blows, rendering the young person temporarily helpless and breaking past ordinary coping and defensive operations" (p.11). According to Terr (1991) there are two types of childhood trauma. Type I (single-episode) results from a single traumatic event (e.g., auto accident) and is characterized by classic reexperiencing phenomena. Type II (long-standing/repeated trauma) stems from either a series of traumatic events (e.g., sexual abuse) or from exposure to a prolonged stressor and is characterized by dissociation, denial, and numbing (Terr, 1991). Various studies have documented a range of stressors in children and adolescents with PTSD, including but not limited to natural or human disasters, exposure to war and violence, chronic/life threatening illness, community violence, and sexual and physical abuse/interpersonal violence (Davis & Siegel, 2000).

While early work on PTSD in adults developed around the study of reactions to combat in men and rape in women, to date there has been no single trauma type that has served to unify the study of PTSD in children (Foy, Madvig, Pynoos, & Camilleri, 1996). Saigh (1991) demonstrated that children develop PTSD either through direct exposure (e.g., being shot), through observation (e.g., witnessing the execution of a sibling), or through verbal transmission of traumatic information (e.g., being told about the torture of a loved one). Saigh studied 231 traumatized children during the 1982 war in Lebanon and reported that 25.2% had developed PTSD though direct exposure, 55.6% had developed PTSD through observation, 5.6% had developed PTSD through verbal transmission, and 13.5% had developed PTSD though a combination of pathways.

Child and Adolescent PTSD Treatments

To date there is a paucity of research investigating the treatment of PTSD in children and adolescents (Bryant, 1999; Cohen & Mannarino, 2004; Davis & Siegel, 2000). In order to keep up with the number of "American youth that have been exposed to inordinate stress at an alarming rate" (Saigh, 1996, p. 103), there is an increasing need for more empirical-based interventions that are effective in treating childhood PTSD. Although the prospective, longitudinal studies necessary to establish the outcome of PTSD in children and adolescents have not yet been completed, short-term studies indicate that untreated PTSD symptoms persist in many traumatized children (Nader, Pynoos, Fairbanks, & Frederick, 1990; Yule, 1991). It would appear that the best available controlled treatment outcome studies provide preliminary support for trauma-focused psychotherapy containing cognitive-behavioral components. These components include exposure strategies, stress management/relaxation, and cognitive/narrative restructuring in either an individual, parent and child, or group format (Cohen, Berliner, & March, 2000; Yule, 1998; Yule & Canterbury, 1996).

Relationship of Physical Exercise and Emotional States

Although there is increasing interest in the treatment of childhood PTSD, there continues to be a need for effective, short-term, and cost-efficient methods of intervention (Cohen & Mannarino, 2004; Davis & Siegal, 2000). Aside from the cognitive-behavioral procedures mentioned above, exercise may be an alternative treatment that appears to satisfy such demands. Exercise, when combined with various forms of psychotherapy, (e.g., cognitive therapy) has been demonstrated to work with equivalent or greater efficacy with adults than psychotherapy alone, and these beneficial effects can often be seen within weeks (Fremont, 1983; Fremont & Craighead, 1987). Hinkle and Tuckman (1987) indicate that the effects of exercise have been found to cut across cultural and age differences and certain types of exercise can be performed throughout the lifespan.

A study by Manger and Motta (2005) examined the effects of aerobic exercise on reducing the symptoms of PTSD and concomitant symptoms of depression and anxiety in adults. The authors employed a pre- and post-baseline assessment consisting of a ten-week exercise intervention where participants agreed to exercise two to three times per week at a local YMCA. Both YMCA staff and study participants were provided with a manual detailing the exercise program to ensure treatment integrity. Participants were taught how to maintain exercise at a moderate intensity by monitoring heart rates, which were defined as 60-80% of maximum heart rate for 30-minutes. Participants were also instructed to warm up for 10 minutes prior to exercise, and following exercise were instructed to engage in a 10-minute cool down period.

There were four assessment points where measures were administered. These were beginning baseline, end of baseline, end of exercise intervention, and follow-up. Dependent variables (PTSD, depression, and anxiety) were measured using the Posttraumatic Diagnostic Scale (PDS; Foa, 1995), The Clinician-Administered PTSD Scale for DSM-IV: Current and Lifetime Diagnostic Version (CAPS-DX; Blake, et al., 1997), State-Trait Anxiety Inventory (STAI-Form Y; Speilberger, Gorsuch, Lushene, Vaggs, & Jacobs, 1983), and The Beck Depression Scale-Second Edition (BDI-II; Beck, Steer, & Brown, 1996). As expected, there was no symptom reduction during the pre- and post-baseline phases but significant reductions in PTSD, anxiety, and depression were found following the exercise intervention. Findings from Manger and Motta's study, while preliminary, suggest that physical exercise, in particular aerobic exercise, may be of benefit in reducing PTSD symptoms

Rationale for the Present Study

Few studies have evaluated the effects of exercise on affective disorders, such as anxiety and depression in children, and those that have been done have produced varying results (Hodge, 2003). There is a considerable amount of research found within adult populations, demonstrating that physical exercise can reduce anxiety and depression (Salmon, 2001; Stich, 1999). A preliminary study by Manger and Motta (2005) found supportive evidence in an adult population for using an aerobic exercise program in reduction of PTSD, anxiety, and depression. Given that PTSD is an anxiety disorder often comorbid with depression, and given the utility of exercise in reducing both anxiety and depression in adults, the efficacy of exercise as an intervention for childhood PTSD and related symptoms deserves study. Therefore, the purpose of the present study was to extend the research on the relation between exercise and PTSD symptom reduction to a child/adolescent PTSD population.

It was hypothesized that adolescent participants with PTSD would exhibit significantly reduced levels of PTSD following an exercise intervention. It was also expected that the exercise intervention would result in lowered levels of depression and anxiety. Finally, it was expected that these reductions in PTSD, anxiety, and depression would become evident at a mid-point in the intervention.

METHOD

Participants & Setting

Fifteen participants were recruited from a residential treatment center that consists of an all female adolescent population, ages 12-18. Of these, 15 met the inclusion criteria. All participants had experienced a traumatic event that would qualify as a potential precipitant of PTSD. Eleven participants completed all of the study requirements and represented the final sample on which hypothesis testing was based.

This treatment center houses youth from Nassau and Suffolk County, New York, who have significant problems living at home and/or attending school. The program provides a stable, structured therapeutic milieu of group living that involves coordinated and integrated group life, social service, clinical/mental health, and academic components. The present study was conducted in an indoor gymnasium at the residential treatment center during normal daytime hours and early evening during participants' recreation time.

Demographic Data

Although a large number of individuals consented to participate in the study, only 15 met all inclusion criteria and study requirements (please see Procedure: Participant Selection & Requirements). The beginning sample of 15 ranged in age from 13-17 (see Table 1). Independent sample *t*-tests indicated that the 11 participants who were fully compliant completers and who ranged in age from 14 to 17 did not significantly differ from the four who were non-completers, in age, grade, weight, and baseline scores on all dependent measures.

The Mental Health History Questionnaire (MHHQ; Hodge, 2003) was used to determine the general mental health characteristics of the study sample and whether or not any of these characteristics changed during the course of the study. Six out of the 11 participants were taking medication during the study while every participant received some type of therapy (e.g., individual, group). Two out of the six participants taking medication in the study underwent medication changes during the study, as recorded on the MHHQ, based on residential treatment center records. One of these participants experienced more than one medication change during the 16-week study. Two participants underwent therapy changes during the study. One participant began receiving an additional individual therapy session per week while another began participation in group therapy one time per week. It is important to note that none of the participants in the final sample had changes in their diagnoses or had to be hospitalized for psychiatric reasons during the course of the study.

Four (36%) participants reported sexual abuse and two (18%) reported physical abuse. The remainder of events included: hit by a motor vehicle while crossing a street (accident), witnessing the physical assault of a family member (other), emergency surgery (other), witnessing a friend get shot and die (death), and hearing about the violent death of a loved one (death). The average length of time reported by participants since the traumatic event had occurred was three years.

Eight participants were noted to have Chronic PTSD on the Children's Posttraumatic Stress Disorder Inventory (CPTSDI; Saigh, 2004), suggesting that they had been experiencing PTSD symptoms for more than three months. Three participants reported that their PTSD symptoms began at least six months after the traumatic event occurred, which is defined as Delayed Onset PTSD. All participants reported experiencing more than one type of traumatic event on Part 1 of the UCLA PTSD Reaction Index for DSM-IV (PTSD-RI; Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998). Only those traumatic experiences causing the participant distress for the past month at initial assessment were included in the aforementioned descriptions of participant trauma.

Independent Variable

The independent variable in this study had two levels: presence or absence of exercise. There were five observation periods that included: beginning baseline, ending baseline, mid-treatment, post-treatment, and follow-up. Aerobic exercise consisted of moderate intensity structured group activities that sustained 60%-80% of heart rate maximum for 20 minutes, which is known to condition cardiovascular and pulmonary systems and uses oxygen to fuel the exercise

Table 1
Summary of General Description of Participants ($N = 11$)

Pp	Age	Grade	Ethnicity	Time at RTC	Current MH Tx at RTC	Diagnoses	Medications
1	17	12	Latino	16 mos	IT (1/w) FT (b/w)	Bipolar II D/O (Hypomanic)	antidepressent antipsychotic
2	17	11	African-American	12 mos	IT (2/w) GT (1/w)	CD	None
3	16	10	African-American	14 mos	IT (1/w) GT (2/w)	Dysthymic D/O PTSD	None
4	16	11	Caucasian	19 mos	IT (1/w) GT (2/w)	Dysthymic D/O CD, Bipolar D/O	None
5	14	9	African-American	17 mos	IT (1/w) FT (2/w) GT (2/w)	ADHD, Depressive D/O (nos)	antidepressent
6	17	11	Latino	17 mos	IT (1/w) FT (2/w) GT (2/w)	CD, Mood D/O (nos)	antidepressent
7	16	10	Caucasian	19 mos	IT (2/w) FT (2/w) GT (1/w)	ODD, Mood D/O (nos), Bipolar D/O	antidepressent antianxiety
8	16	10	Caucasian	18 mos	IT (2/w) GT (2/w)	Depressive D/O (nos),	antidepressant antipsychotic
9	14	8	Caucasian	18 mos	IT (1/w) FT (2/w) GT (1/w)	ADHD, CD, PTSD	None
10	15	9	African-American	12 mos	IT (2/w) GT (2/w)	Depressive D/O (nos), ODD, ADHD	antidepressant
11	15	9	African-American	14 mos	IT (1/w) FT (2/m) GT (1/w)	ODD, Impulse Control D/O (nos)	None

Note. Summary data represents each participant's status during baseline phase. Data obtained from the Mental Health History Questionnaire (MHHQ). Pp = Participant; RTC = Residential Treatment Center; MH = Mental Health; Tx = Treatment; IT = Individual Therapy; FT = Family Therapy; GT = Group Therapy; 2/w = Two times per week; 1/w = One time per week; 2/m = Two times per month; D/O = Disorder; CD = Conduct Disorder; PTSD = Posttraumatic Stress Disorder; ADHD = Attention Deficit Hyperactivity Disorder; ODD = Oppositional Defiant Disorder (nos) = not otherwise specified.

(ACSM, 1992; Manger & Motta, 2005). Participants were taught how to maintain exercise at a moderate intensity by monitoring their heart rates manually.

Apparatus

Apparatus utilized in this study consisted of basic exercise equipment such as floor mats and jump ropes that already existed at the residential treatment center. Water was made available before, during, and after each exercise session. A TV and DVD/VCR player were utilized to play the various aerobic exercise portions during each exercise session. A CD player was used to play music when warming up and cooling down. A stopwatch and standard heart rate chart were used to assist participants in monitoring their heart rate ranges during the exercise sessions. Each participant's heart rate was recorded on an index card. Index cards were also used to record participants' attendance during each exercise session. Lastly, a poster board was used as a reinforcement chart to place stickers for those participants who engaged in and were present for each exercise session.

Dependent Variables

Children's PTSD Inventory (CPTSDI; Saigh, 2004). The CPTSDI is a structured clinical interview of PTSD symptoms and diagnosis in children and adolescents (ages 6 to 18), including qualifying event, symptoms, and current functioning. The CPTSDI corresponds to DSM-IV-TR diagnostic criteria for all PTSD types (e.g., acute, chronic, or delayed-onset PTSD) and consists of five subtests (e.g., exposure/reactivity, reexperiencing, avoidance & numbing, hyperarousal, and degree of distress). Saigh and colleagues (2000) reported internal consistency for the CPTSDI of .95 (Cronbach's alpha) for the overall diagnosis. Cronbach alpha coefficients for each subtest were reported as follows: situational reactivity (.58), reexperiencing (.88), avoidance and numbing (.89), increased arousal (.80), and significant distress. In terms of inter-rater reliability, 97.6% agreement was obtained for the overall PTSD diagnosis. In terms of criterion validity, Yasik and colleagues (2001) reported that the CPTSDI was highly correlated with the number of symptoms that were derived through Diagnostic Interview for Children and Adolescents-Revised (DICA-R; Reich, Leacock, & Shanfeld, 1994), $r\,(56) = .92, p < .001$, and Structured Clinical Interview for the DSM-IV (SCID; First, Gibbon, Williams, & Spitzer, 1996), $r\,(62) = .91, p < .001$, PTSD module administrations.

UCLA Post-traumatic Stress Disorder Reaction Index for DSM-IV, Revision 1: Adolescent Version (PTSD-RI; Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998). The PTSD-RI for DSM-IV is a revised version of the Child Post-Traumatic Stress Reaction Index (Frederick, Pynoos, & Nader, 1992) patterned after the DSM-III-R, which has been one of the most widely used clinical and research tools for the assessment of traumatized children. The current DSM-IV version is a self-report paper and pencil-screening instrument for the assessment of trauma exposure and the frequency of post-traumatic stress symptoms among children and adolescents (ages 7 to 18 years). The PTSD-RI is comprised of two sections. The first questions, 1-14, assess trauma exposure; the remaining 14 items call for descriptions of the traumatic events and reactions to them.

Cronbach's alphas of .92 (Kutlac et al., 2000) and .88 (Roussos et al., 2005) have been reported. Rodrigquez, Steinberg, Saltzman, & Pynoos (2001), report that the PTSD-RI DSM-IV version has good convergent validity ($r = .70$) in comparison with the PTSD Module of the Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic Version (SADS-LA; Manznuzza, Fyer, Klein, & Endicott, 1986). Rodriguez and colleagues also noted convergent validity for the PTSD-RI of .82 in comparison with the Child and Adolescent Version of the Clinician-administered PTSD Scale (CAPS-C; Nader et al., 1996), with a cut-off of 38, having a sensitivity of .93 and specificity of .87 in detecting PTSD. In addition, Layne et al. (2001) have identified a total PTSD Severity Score of 35 or above as falling within the clinically distressed range.

Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a widely used self-report inventory designed to assess symptoms of depression in children and adolescents (ages 7-17). The CDI consists of 27 depression-related items, wherein the child is instructed to pick one sentence from each item that best describes him/her over the past two weeks.

Internal consistencies through various investigations have been well documented (e.g., Kazdin, French, & Unis, 1983, Kovacs, 1983; Ollendick & Yule, 1990; Saylor, Finch, Spirito, & Bennett, 1984; Weiss & Weisz, 1988). For example, Kovacs (1983) reported a good internal consistency, with an alpha coefficient of .86, in a diverse psychiatric population of children and adolescents. Saylor et al. (1984) found high internal consistency in a population of grade school children (.94) and children with various psychiatric diagnoses (.80).

In terms of test-retest reliability, the CDI has shown correlation coefficients in several studies where re-test intervals shorter than one month ranged from a moderate level of .74 to a high level of .87 (e.g., Finch, Saylor, Edwards, & McIntosh, 1987; Saylor et al., 1984; Smucker, Craighead, Craighead, & Green, 1986).

The CDI has been found to have moderate concurrent validity when compared to another depression self-rating instrument, the Center for Epidemiological Studies – Depression Scale (e.g., $r = .58$; Faulstich, Carey, Ruggiero, Enyart, & Gresham, 1986). In addition, it was also found to be moderately correlated ($r = .48$) with the Depression Adjective Checklist (DACL; Lubin et al., 1994), another depression measure. The CDI shows good convergent validity when compared to other measures that assess constructs related to depression.

Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978; 1985). The RCMAS is a 37-item questionnaire (28 anxiety items, 9 social desirability items) in which children (ages 6-18 years) are asked to decide if each item is true or not true of them.

Reliability of the RCMAS in the form of internal consistency was reported by Reynolds and Richmond (1978) with an alpha coefficient of .82 for the Total Anxiety scale. The total test-retest anxiety correlation was .98. In terms of validity, the RCMAS has been well established using a number of different techniques. For example, Reynolds and Richmond (1978) reported that the RCMAS Total scale significantly correlated ($r = .85$, $p < .001$) with the State-Trait Anxiety Inventory for Children (STAIC; Speilberger, 1973), Trait scale, thus demonstrating evidence of convergent validity and support for the RCMAS as a measure of chronic anxiety disposition.

Consumer Satisfaction Survey (CSS; Bray & Kehle, 1996). A consumer satisfaction survey originally developed by Bray and Kehle (1996) to assess students' perceptions and acceptability of an intervention to ameliorate stuttering was modified by the present researcher to correspond to the population and type of intervention being employed in the present study. The survey was administered to all participants after the last completion of measures at follow-up to determine consumer satisfaction with the treatment. The scale, which consists of five items rated on a 5-point Likert-type scale with 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agreed, measured how much the participants liked the intervention. For example, "Did you like the types of exercises you participated in?" Total scores can range from 5 to 25, with 25 having the highest rating and a score of 5 having the lowest rating. A Total score based upon each participant's responses was calculated and placed into the following ranges for comparison purposes: 20-25 = Well Liked, 15-19 = Liked, 10-14 = Okay, < 10 = Disliked. As per email correspondence with Dr. Bray on May 23, 2005, there is no psychometric data available.

Mental Health History Questionnaire (MHHQ; Hodge, 2003). The MHHQ is a questionnaire that was originally developed by Hodge in a study that examined the effects of exercise on depressed mood in prepubertal children. For the purposes of this study, the MHHQ was modified by the present researcher to include information regarding past and present treatments and diagnoses for comparison purposes as well as exclusionary criteria (e.g., schizophrenia, suicidal ideation, etc.). For example, "Is this child currently taking any psychotropic medication(s)?" and "Is this child currently diagnosed with an emotional/mental disorder(s)?" This information was filled out by the participant's therapist at the treatment center at the beginning of the study, mid-treatment, and again at the end of the follow-up phase. A letter to the therapist described the present study and the purpose for filling out the MHHQ. Reliability and validity data are unavailable.

Medical History Questionnaire (MHQ; Hodge, 2003). The MHQ was originally designed by Hodge to obtain information regarding participants' medical history information. For the purposes of this study, a modified version of the MHQ developed by the present researcher was given to the physician at the treatment facility at the beginning of the study in order to determine whether a potential participant was eligible to engage in the this study based on their past and present medical or health status. A letter to the physician described the present study and the purpose for filling out the MHQ. Reliability and validity data are unavailable.

Exercise Habits Questionnaire (EHQ; Hodge, 2003). This questionnaire was originally designed by Hodge to collect information about participants' past and current exercise habits, in particular, information regarding the type, amount, and intensity of regular physical exercise. A modified version of the EHQ was designed by the present researcher and administered to each participant at the beginning of the study as well as mid-treatment, post-treatment, and again during follow-up. For example, "On average, how many days per

week do you participate in a sport or physical activity, if any?" The information obtained from this questionnaire was used for comparison purposes in order to ensure participants did not engage in additional moderate-high intensity exercise during baseline and follow-up periods as well as during treatment (with the exception of their current physical regimen). Reliability and validity data are unavailable. In addition, demographic information (e.g., age and ethnicity) was also collected on this questionnaire as a means of establishing the characteristics of the present sample population.

Behavioral Data. Behavioral data that is normally obtained by the staff at the treatment center (e.g., discipline records) was assessed. Several examples of desirable behavior demonstrated by participants in this study included: volunteering to help kitchen staff prepare and set up for meals, putting away chairs after an assembly, helping a classmate with a homework assignment, and cleaning up their room when asked by a staff member. Several examples of undesirable behavior demonstrated by participants in this study included: leaving their housing unit after curfew, using the payphone without permission, using foul language when speaking to staff, walking out of class, and destruction of property.

Procedure

Participant Selection and Requirements.

Participants were recruited during a group presentation, where the present investigator explained the procedures and general purpose of the study. Participants were told that the present investigator was interested in studying how exercise might affect children's and adolescent's emotional reactions to stressful events in their lives. Participants were also told that they would be asked to participate in an eight-week group aerobics program and would be asked to fill out questionnaires on multiple occasions that would ask them about their mood and feelings. Next, the child assent form was read aloud to make sure everyone understood what was being asked of them as well as what their rights were as a participant. For example, participants were told that their participation was voluntary and that they could change their mind at any time and stop participating as well as refuse to answer any question and to not participate in follow-up activities. Afterward, questions or concerns were addressed.

Once the participant signed the child assent form, she also consented to providing contact information (name, address, telephone number, etc.) for her parent/legal guardian for the purpose of getting written parental/legal guardian consent for the youth's participation in this research project. To be included in the final study sample, potential participants were first screened, using the UCLA PTSD Reaction Index DSM-IV (PTSD-RI; Pynoos et al., 1998), which was administered by a trained research assistant.

Next, a second screening stage that consisted of administering the second section of the PTSD-RI (Pynoos et al., 1998) to confirmed cases of the participants who met DSM-IV Criterion A (having experienced a traumatic stressor) requirement were. This section of the PTSD-RI measured the frequency of PTSD symptoms based upon Criteria B, C, and D of the DSM-IV diagnosis of Posttraumatic Stress Disorder. Originally, those who obtained an overall PTSD severity score of 35 or higher (Layne et al., 2001) on the PTSD-RI were to be qualified to participate in the third screening stage of the study. However, due to the lack of participants with a score of 35 or higher on the PTSD-RI, participants scoring at least 25 and above were eligible to be included in the third screening stage. It should be noted that two participants scored above 35 on the PTSD-RI. According to Cohen and Mannarino (2004) children and adolescents with PTSD symptoms who do not meet full criteria for PTSD on standardized measures have similar functional impairment and therefore should receive similar treatments regardless of diagnostic status.

During the third screening stage of the study, the participants were administered the CPTSDI (Saigh, 2004) individually by the research assistant in a private room. In order to obtain a diagnosis of PTSD, all criteria (A through D) on the CPTSDI must be met. Those who obtained a diagnosis of PTSD on the CPTSDI had met the requirement for the third screening stage.

Lastly, those who met the requirements in all three screening stages were then required to (a) be in good current medical/health status, as measured by a physician on the MHQ, (b) not be actively suicidal or exhibit psychosis or gross psychopathology, such as schizophrenia, as indicated on the MHHQ, (c) not be an active substance user, as indicated on the MHHQ and (d) agree to not participate in any additional form of exercise (other than their current physical program/regimen) during treatment (as indicated on the EHQ), so results would not be confounded. In keeping with the NYS education requirements, the participants' current physical education program was not removed during the course of the study. Therefore, the aerobic exercise intervention was

implemented in addition to their current physical education program.

At the end of each screening stage and throughout the remainder of the study, participants were allotted time to discuss any distress that the aforementioned procedures may have caused, such as suicidal ideation. All information reported to the research assistant during the study was kept confidential. Previous studies have noted that interview procedures as used in this study have not produced any emotional difficulties in children and adolescents (e.g., Dubner & Motta, 1999). During the present study, none of the participants reported or appeared to experience any emotional discomfort and/or difficulties during and after administration of the assessment procedures. Had they reported discomfort, treatment center guidelines, such as mandated counseling, were in place to manage their difficulties.

Study Phases

Phase I: Baseline (beginning & ending)

The total duration of the study was 16 weeks for those assigned to four-week baseline and 14 weeks for those assigned to two-week baseline. During baseline, participants were advised to refrain from engaging in additional exercise (with the exception of their current physical program/regimen), which was monitored through the Exercise History Questionnaire (EHQ; Hodge, 2003).

Participants were given all dependent measures again prior to the start of the intervention (ending baseline) to establish data/performance stability. The measures were given in the following order: CPTSDI, PTSD-RI, CDI, and RCMAS. The approximate time of completing the measures was 60 minutes. If no significant changes on the measures occurred over the assigned baseline periods, participants would then begin treatment, which would last for eight weeks. Participants were informed about reinforcement stickers that they could earn and subsequently trade in for prizes if they completed their group assignments. This served as a measure to decrease attrition and increase compliance since dropout and noncompliance are common to both exercise and PTSD studies (e.g., Calfas & Taylor, 1994; Manger & Motta, 2005). Participants were rewarded halfway through this study with a pizza party and upon completion of the study were allowed to participate in a field trip to a local nail salon and receive a manicure.

Phase II: Treatment

Next, participants filled out measures once during the intervention phase, mid-intervention (after four weeks) and again post-intervention (after eight weeks). In addition, measures of depression (CDI) and anxiety (RCMAS) were administered to the participants every two weeks during the intervention phase (four times). It was anticipated that some participants would be receiving psychopharmacology therapy and/or psychotherapy. These other forms of therapy were closely monitored throughout the duration of the study in order to control for current treatment (aerobic exercise) effectiveness by using the Mental Health History Questionnaire (MHHQ; Hodge, 2003). The MHHQ was administered to each participant's therapist, pre-intervention, mid-intervention, and again during follow-up.

The duration of treatment lasted for eight weeks, broken down into three 40-minute group exercise sessions per week, led by the present investigator. Overall, the program consisted of a total of 16 hours, which breaks down into participants engaging in aerobic exercise for two hours each week. The aerobic exercise program was derived from guidelines denoted by the American College of Sports and Medicine (1992; 1995), as well as from previous studies (e.g., Basile, Motta, & Allison, 1995, Calfas & Taylor, 1994; Green & Adeyanju, 1991; Hodge, 2003; Manger & Motta, 2005). Prior studies (e.g., Altchiler & Motta, 1994; Lancer, Motta, & Lancer, in press; Mulcahy, 1998) have demonstrated six weeks of exercise to be effective in reducing depression and anxiety among adults. In addition, psychological benefits of exercise have been observed in as little as five weeks (Doyne et al., 1987), four and a half weeks (Brown, Welsh, Labre, Vitulli, & Kulkarni, 1992) and three weeks (Taxe, 1985). Therefore, based upon previous research and guidelines, participants were assigned to an eight-week aerobic exercise program, which equaled a total of 24 exercise sessions. The eight-week aerobic exercise program was manualized to ensure treatment integrity of the exercises.

Participants were required to exercise a minimum of 12 sessions over eight weeks to be considered compliant. This minimum of 12 sessions over eight weeks was selected to ensure the treatment integrity of the exercise program. All participants in the final sample used in data analyses completed more than the minimum 12 exercise session requirements over the course of the eight-week intervention. The mean for the number of exercise sessions was 22, the median was 23, and the mode was 24 sessions over the course of eight weeks.

Each session began with five minutes of warm up activity, consisting of various stretches (e.g. hamstrings, arms, etc.), followed by another five minutes of low impact warm up exercises (jumping jacks, running in place, etc.). The next 20 minutes consisted of structured group aerobic exercises (e.g. dance, Tae Bo, walk/jog, etc.) that sustained an elevated heart rate between 60-80% of each participant's maximum heart rate which had already been determined.

Prior to the exercise program (during orientation), participants were taught how to monitor their own heart rates as well as what their target heart rate range and resting heart rate is in beats per 10 seconds. Heart rates were individually monitored by each participant and recorded twice by the researcher throughout the aerobic exercise phase (after 10 minutes and at the end of the 20 minutes) on an index card to ensure aerobic fitness levels were met. Target heart rates (between 60-80%) for each of the 11 participants were achieved during each aerobic exercise session. The last ten minutes was used as a cool down period and consisted again of five minutes of low impact exercises (e.g., jumping rope, grapevine, etc.), followed by five minutes of stretching, of the same format as the warm up. Again, heart rates were monitored at the end of each exercise session to ensure participants had reached their normal resting heart rate.

Participants were encouraged to not engage in any additional forms of exercise during the treatment phase (with the exception of their current physical regimen). Their physical activity level during the treatment phase was tracked using the Exercise Habits Questionnaire (EHQ; Hodge, 2003).

As per the ACSM (1992), aerobic exercise of moderate intensity that is performed in gradual progressions and consists of warm-up/cool-down exercises as well as stretches (used in present study) helps to reduce the risk of physical discomfort and injuries. Thus, an individual can engage in exercises more safely. During this study no physical injuries/discomfort were reported to the present investigator and/or any of the residential treatment center staff.

Phase III: Follow up

Participants filled out dependent measures one last time during the follow-up phase (four weeks post-treatment). Participants were advised to refrain from any additional exercising during the follow-up phase (with the exception of their regular physical program/regimen), which again was monitored through the Exercise History Questionnaire (EHQ; Hodge, 2003). Once the final administration of dependent measures was given at the one-month follow-up, participants completed the consumer satisfaction survey. The MHHQ was also filled out again by each participant's therapist during the follow-up phase.

Design and Data Analysis

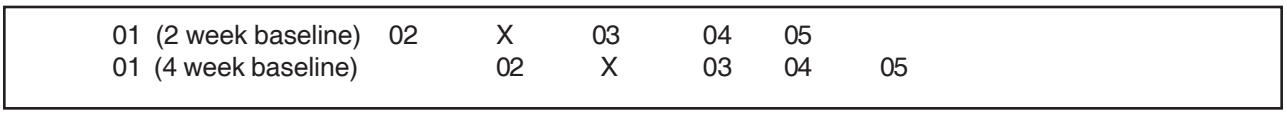
This small *N* study utilized a staggered baseline, pre/post repeated measures design with one-month follow up, for a total of five observation periods (see Figure 1). In addition, measures of depression, anxiety, and behavior were collected every two weeks. The design allowed for participants to serve as their own controls, once a baseline period was completed, without withholding treatment from any participants. Moreover, this type of design demonstrates "the effect of an intervention by showing that behavior change accompanies introduction of the intervention at different points in time" (Kazdin, 2003, p. 283). Hypotheses were tested through both visual analyses of individual data and statistical analyses of group data. Multiple paired *t*-test comparisons and effect sizes were used to compare scores for all dependent measures between all five assessment periods. These assessment periods included beginning baseline, ending baseline, mid-treatment, post-intervention, and follow-up. In addition, data collected on each of the dependent measures was analyzed individually for each participant (within subject) via graphical display and for the total group of participants in order to establish treatment effectiveness.

RESULTS

The primary study data were based on the 11 fully compliant participants who exercised at least 20 times over the course of eight weeks, completed assessments at beginning and ending baselines, mid-intervention, post-intervention, at one-month follow-up, and every two weeks for selected measures of anxiety and depression, and did not engage in additional forms of exercise (with the exception of participants' current physical program/regimen) throughout the duration of the study.

The present study utilized a staggered baseline design and thus analyses between two- and four-week baselines of dependent variables were conducted. Of note, analyses were conducted to see if there were any differences on any of the dependent measures at beginning and ending baseline for

Figure 1. Staggered baseline, Pre, Post Design with Follow-up



Note. 01 = beginning baseline; 02 = ending baseline; X = 8-week treatment; 03 = mid-treatment (4-weeks); 04 = post-treatment; 05 = one month follow-up.

the two initial baseline groups. No significant differences were found on any of the dependent variables and, therefore, the two- and four-week baselines were combined and analyzed for the final sample of 11 participants. Differences across baseline scores for each of the 11 participants were examined and since no significant differences occurred, the average of beginning and ending baseline scores on all dependent measures were calculated and used for analyses. These data are subsequently referred to as baseline scores.

Effect sizes were calculated using Busk and Serlin's (1992) approach one-no assumptions method for effect size for small *N* designs. This was accomplished by subtracting the mean of the treatment data for all 11 participants from the mean of the baseline data, and dividing the result by the standard deviation of the baseline data. Effect sizes were calculated for the group of 11 participants' scores on each dependent measure across study phases in order to determine the degree of magnitude aerobic exercise impacted PTSD, depression, and anxiety. Magnitude of effect sizes were determined by Cohen's (1988) guidelines: d = .20 - .49 is a small effect size, d = .50 - .79 is a medium effect size, and d = .80 and greater is a large effect size.

It was predicted that participants with PTSD would exhibit significantly reduced levels of PTSD following an exercise intervention on the Children's Posttraumatic Stress Disorder Inventory (CPTSDI) and on the Posttraumatic Stress Disorder- Reaction Index (PTSD-RI). Table 2 shows the mean, standard deviations, effect sizes, and data from the paired sample t-tests. As hypothesized, paired sample t-tests for

Table 2
Paired Sample Comparisons and Effect Sizes of Baseline and Post-intervention for PTSD on the Children's PTSD Inventory (CPTSDI) and Posttraumatic Stress Disorder-Reaction Index (PTSD-RI; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		CPTSDI			
Beginning baseline vs. Ending baseline	18.91 (7.55)	19.09 (6.31)	-.363	.724	-0.02
Baseline vs. Post-intervention	19.00 (6.91)	5.90 (1.30)	6.39	<.001	1.89
		PTSD-RI			
Beginning baseline vs. Ending baseline	31.36 (4.24)	31.27 (2.64)	.153	.882	0.02
Baseline vs. Post-intervention	31.31 (3.40)	10.27 (1.67)	23.56	<.001	6.20

Note. Beginning baseline = first testing at either two or four weeks before the start of Exercise; Ending baseline = testing at the start of exercise; Baseline = average score of beginning and ending baseline scores at testing either two or four weeks before the start of exercise; Post-intervention = testing at the end of exercise. Degrees of freedom = 10; decision level = $\leq$.05. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: d = .20 - .49 is a small effect size, d = .50 - .79 is a medium effect size, and d = .80 and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

the CPTSDI revealed no significant differences in posttraumatic stress disorder, comparing beginning and ending baseline scores: $t(10) = -.36, p = .724$. A significant difference was revealed between baseline scores and post-intervention scores, indicating a reduction in posttraumatic stress disorder using the CPTSDI: $t(10) = 6.3, p = <.001$. Paired sample t-tests were also conducted using the PTSD-RI and are detailed in Table 2. No significant differences in PTSD severity on the PTSD-RI when comparing beginning baseline scores and ending baseline scores were found: $t(10) = .15, p = .882$. A significant difference was revealed when comparing baseline scores with post-intervention scores which indicates a reduction in PTSD severity using the PTSD-RI: $t(10) = 23.56, p = <.001$. The effect size for the CPTSDI was 1.89 and the effect size for the PTSD-RI was 6.20.

The present study's sample means for the total PTSD severity score on the PTSD-RI at beginning baseline (31.36) and at ending baseline (31.27) were lower than the study sample mean of traumatized postwar Bosnian adolescents (ages 15-20) at pretest (38.34) before a trauma/grief-focused psychotherapy group was employed (Layne et al., 2001). In addition, the present study's sample means for the total PTSD severity score on the PTSD-RI at mid-intervention (22.27) and post-intervention (10.27) were lower than the study sample of traumatized postwar Bosnian adolescents at posttest (26.00) after their participation in a trauma/grief-focused psychotherapy group (Layne et al.). Thus, participants in the present study appeared to experience a greater decrease in total PTSD severity after exercising compared to the traumatized postwar Bosnian adolescents after their participation in a trauma/grief-focused psychotherapy group.

It had also been predicted that participants with PTSD would show significant decreases in depression on the Children's Depression Inventory (CDI) at post-intervention. Table 3 shows the means, standard deviations, and the data from the paired sample t-tests, comparing scores at the beginning and ending of baseline and between baseline and post-intervention. No significant differences were found between beginning and ending baseline scores as hypothesized: $t(10) = 1.75, p = .111$. Baseline scores were significantly different than post-intervention scores indicating a reduction in depression: $t(10) = 14.89, p = <.001$. The effect size for the CDI was 6.15.

Table 3
Paired Sample Comparisons and Effect Sizes of Baseline and Post-intervention for Depression on the Children's Depression Inventory (CDI; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		CDI			
Beginning baseline vs. Ending baseline	19.00 (2.00)	18.36 (1.20)	1.75	.111	0.32
Baseline vs. Post-intervention	18.68 (1.53)	9.27 (1.10)	14.89	<.001	6.15

Note. Baseline = average score of beginning and ending baseline scores at testing either two or four weeks before the start of exercise. Post-intervention = testing at the end of exercise. Degrees of freedom = 10; decision level = ≤.05. Total raw scores shown for the CDI. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: $d = .20 - .49$ is a small effect size, $d = .50 - .79$ is a medium effect size, and $d = .80$ and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

The present study's sample means for total CDI scores at beginning (19.00) and ending (18.36) baseline were higher than the mean total CDI scores for girls ages 13-17 in the normative sample (9.74) and were also higher than the mean total CDI scores (11.18) for a clinic-referred sample (Kovacs, 1992). Additionally, the present study's sample mean for the total CDI scores at post-intervention (9.27) was lower than the mean total CDI score for girls ages 13-17 in the normative

sample (9.74) and was also lower than the mean total CDI score for a clinic-referred sample (11.18; Kovacs).

In the third hypothesis, it was predicted that participants with PTSD would show significant decreases in anxiety using the Revised Children's Manifest Anxiety Scale (RCMAS) at post-intervention, following aerobic exercise. Table 4 shows means, standard deviations, and the data for the paired sample *t*-tests taken at beginning and ending of baseline and between baseline and post-intervention. As hypothesized, paired sample *t*-tests revealed no significant differences in anxiety comparing beginning and ending baseline scores: $t\,(10) = -1.39$, $p = .192$. A significant difference was found when comparing baseline scores with post-intervention scores, indicating a reduction in anxiety: $t\,(10) = 26.78$, $p = <.001$. The effect size for the RCMAS was 1.11.

In terms of clinical relevance, the present study's sample means for total anxiety scores on the RCMAS at beginning (17.09) and ending (17.63) baseline were higher than the standardization sample mean for female (14.97) total anxiety scores on the RCMAS. However, the present study's sample mean for total anxiety scores on the RCMAS was lower at mid-intervention (13.27), post-intervention (9.81), and at one month follow-up (11.09) than the standardization sample mean for female (14.97) total anxiety scores on the RCAMS. These findings suggest that the present study sample had higher levels of anxiety before the introduction of exercise.

It was also hypothesized that participants with PTSD, depression, and anxiety would show significant decreases in PTSD, depression, and anxiety using the Children's PTSD Inventory (CPTSDI), PTSD Reaction Index (PTSD-RI), Children's Depression Inventory (CDI), and Revised Children's Manifest Anxiety Scale (RCMAS) by mid-intervention (after the 4th week) compared to baseline pretests following aerobic exercise. Data for means, standard deviations, effect sizes, and from paired sample *t*-tests are presented in Table 5. As hypothesized, paired sample *t*-tests revealed significant differences in posttraumatic stress disorder, PTSD severity, depression, and anxiety comparing baseline and mid-intervention scores: $t\,(10) = 3.81$, $p = .003$, $t\,(10) = 16.33$, $p = <.001$, $t\,(10) = 9.78$, $p = <.001$, and $t\,(10) = 13.63$, $p = <.001$, respectively. The effect size for the CPTSDI was 1.02, and 2.66 for the PTSD-RI. The effect size for the CDI was 3.64, and 2.57 for the RCMAS.

Table 4
Paired Sample Comparisons and Effect Sizes of Baseline and Post-intervention for Anxiety on the Revised Children's Manifest Anxiety Scale (RCMAS; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		RCMAS			
Beginning baseline vs. Ending baseline	17.09 (1.51)	17.63 (1.91)	-1.39	.192	-0.35
Baseline vs. Post-intervention	17.36 (1.59)	9.81 (1.07)	26.78	<.001	1.11

Note. Degrees of freedom = 10, decision level = .05, Beginning baseline = testing at either two or four weeks before the start of exercise, Ending baseline = testing at the start of exercise Baseline = average score of beginning and ending baseline scores at testing either two or four weeks before the start of exercise, Post-intervention = testing at the end of exercise. Total raw scores shown for the RCMAS. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: $d = .20$ - .49 is a small effect size, $d = .50$ - .79 is a medium effect size, and $d = .80$ and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

Table 5
Paired Sample Comparisons and Effect Sizes of Baseline and Mid-intervention for the Children's PTSD Inventory (CPTSDI) and Posttraumatic Stress Disorder-Reaction Index (PTSD-RI), Children's Depression Inventory (CDI), and Revised Children's Manifest Anxiety Scale (RCMAS; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		CPTSDI			
Baseline vs. Mid-intervention	19.00 (6.91)	11.90 (3.44)	3.81	<.003	1.02
		PTSD-RI			
Baseline vs. Mid-intervention	31.31 (3.40)	22.27 (2.41)	16.33	<.001	2.66
		CDI			
Baseline vs. Mid-intervention	18.68 (1.53)	13.09 (1.37)	9.78	<.001	3.65
		RCMAS			
Baseline vs. Mid-intervention	17.36 (1.59)	13.27 (1.55)	13.63	<.001	2.57

Note. Degrees of freedom = 10, decision level, =.05, *M* = mean, *SD* = standard deviation, *t* = score from t-test, Baseline = average score of beginning and ending baseline scores at testing either two or four weeks before the start of exercise; Mid-intervention = testing at mid-point (week 4) of exercise. Total raw scores shown for the CDI and RCMAS. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: *d* = .20 - .49 is a small effect size, *d* = .50 - .79 is a medium effect size, and *d* = .80 and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

Further Analyses

Additional analyses were conducted to see if the number and percentages of participants meeting full criteria for PTSD using the Children's Posttraumatic Stress Disorder Inventory (CPTSDI) decreased after exercising. At both baselines and at mid-intervention all 11 (100%) participants met full criteria for PTSD. At post-intervention 10 participants (91%) no longer met full criteria while one (9%) participant still did. However, at follow-up two (18%) participants met full criteria for PTSD and nine (81%) did not. In summary fewer participants met full criteria after exercising. Refer to Table 6 for the aforementioned data.

The attempt to determine the point at which exercise significantly impacted PTSD was made by comparisons between weeks 4 (mid-intervention) and 8 (post-intervention) during the intervention phase on the degree of change in PTSD using the Children's PTSD Inventory (CPTSDI) and PTSD Reaction Index (PTSD-RI). Table 7 shows the data from the paired sample *t*-tests comparing scores taken at mid-intervention and post-intervention. Results from the paired sample t-tests revealed significant differences indicating a reduction in PTSD when comparing mid-intervention and post-intervention scores on the CPTSDI and PTSD-RI: $t(10) = 7.31, p = < .001$ and $t(10) = 19.42, p = < .001$. These results suggest that PTSD was significantly further reduced at post-intervention (after 8 weeks of exercise) compared to mid-intervention (4 weeks of exercise).

In addition, the attempt, by one-month follow-up assessment on all dependent measures, to determine how long the effects of exercise would be maintained was conducted. Table 8 shows the data for paired sample *t*-tests, means, and standard deviations. Results from the paired sample *t*-tests revealed significant differences when comparing post-inter-

Table 6
Frequency and Percentages of Participants meeting DSM-IV, Full Criteria for PTSD Using the Children's PTSD Inventory (*N*=11)

Full criteria for PTSD	Frequency	Percent
	Beginning baseline	
Yes	11	100%
No	0	0%
	Ending baseline	
Yes	11	100%
No	0	0%
	Mid-intervention	
Yes	11	100%
No	0	0%
	Post-intervention	
Yes	1	9%
No	10	91%
	Follow-up	
Yes	2	18%
No	9	81%

Note. Beginning baseline = testing at either two or four weeks before the start of Exercise; Ending baseline = testing at the start of exercise; Mid-intervention = testing at mid-point (week 4) of exercise; Post-intervention = testing at the end of exercise; Follow-up = testing one month after exercise.

vention scores with follow-up scores using the CPTSDI and PTSD-RI, indicating an increase in PTSD at follow-up: $t(10) = -6.50$, $p = < .001$, and $t(10) = -8.33$ and $p = < .001$, respectively. Significant differences were observed comparing post-intervention scores with follow-up scores using the CDI and RCMAS, indicating an increase in depression and anxiety at follow-up: $t(10) = -5.88$, $p = < .001$, and $t(10) = -4.66$, $p = .001$, respectively. Therefore, results show reductions at post-intervention were greater than at one-month follow-up, which suggest that PTSD, depression, and anxiety reductions at one-month follow-up were not maintained but did not revert back to baseline levels.

Trends in change of depression, anxiety, and behavior were monitored throughout the study every two weeks using the Children's Depression Inventory (CDI), Revised Children's Manifest Anxiety Scale (RCMAS), and "Information/Behavioral" reports. Please refer to figures 2, 3, and 4 for the mean total depression and anxiety scores and behavioral data collected every two weeks. These data are presented as a multiple baseline according to participants' assigned baseline group (two- and four-week baseline) in order to better view each two-week observation point in relation to study phase (e.g., mid-intervention, post-intervention) and the impact of exercise on symptoms. In the present study, participants number one through six were randomly assigned to the two-week baseline group and are subsequently referred to as Group One ($n = 6$). Participants number seven through 11 were randomly assigned to the four-week baseline group and are subsequently referred to as Group Two ($n = 5$).

Visual analyses of the data on all three dependent measures indicated a downward trend in scores when compar-

Table 7
Paired Sample Comparisons and Effect Sizes of Mid-intervention and Post-intervention for PTSD on the Children's PTSD Inventory (CPTSDI) and Posttraumatic Stress Disorder-Reaction Index (PTSD-RI; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		CPTSDI			
Mid-intervention vs. Post-intervention	11.90 (3.44)	5.90 (1.30)	7.31	<.001	1.74
		PTSD-RI			
Mid-intervention vs. Post-intervention	22.27 (2.41)	10.27 (1.67)	19.42	<.001	4.97

Note. Degrees of freedom = 10, decision level = .05, *M* = mean, *SD* = standard deviation, *t* = *t*-test score, Mid-intervention = testing at mid-point (week 4) of exercise, Post-intervention = testing at the end of exercise. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: *d* = .20 - .49 is a small effect size, *d* = .50 - .79 is a medium effect size, and *d* = .80 and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

Table 8
Paired Sample Comparisons and Effect Sizes of Post-intervention and Follow-up for the Children's PTSD Inventory (CPTSDI) and Posttraumatic Stress Disorder-Reaction Index (PTSD-RI), Children's Depression Inventory (CDI), and Revised Children's Manifest Anxiety Scale (RCMAS; *N*=11)

Comparison	*M* (*SD*)	*M* (*SD*)	*t*	*p*-value	Effect Size *d*
		CPTSDI			
Post-intervention vs. Follow-up	5.90 (1.30)	8.27 (1.55)	-6.50	<.001	1.55
		PTSD-RI			
Post-intervention vs. Follow-up	10.27 (1.67)	12.54 (2.16)	-8.33	<.001	5.53
		CDI			
Post-intervention vs. Follow-up	9.27 (1.10)	10.72 (1.34)	-5.88	<.001	5.20
		RCMAS			
Post-intervention vs. Follow-up	9.81 (1.07)	11.09 (1.44)	-4.66	<.001	3.94

Note. Degrees of freedom = 10, decision level = .05, Post-intervention = testing at the end of exercise, Follow-up = testing one month after exercise. Total raw scores shown for the CDI and RCMAS. Effect size calculated using Busk and Serlin's approach one, no assumptions (1992). Magnitude of effect sizes were determined by Cohen's (1988) guidelines: *d* = .20 - .49 is a small effect size, *d* = .50 - .79 is a medium effect size, and *d* = .80 and greater is a large effect size. *M* = mean; *SD* = standard deviation; *d* = effect size.

Figure 2. Multiple baseline of mean total depression raw scores for participants assigned to group one ($n = 6$), two-week baseline and group two ($n = 5$), four-week baseline as measured by the Children's Depression Inventory (CDI) every two weeks across study phases. The higher the score is, the greater the depression experienced.

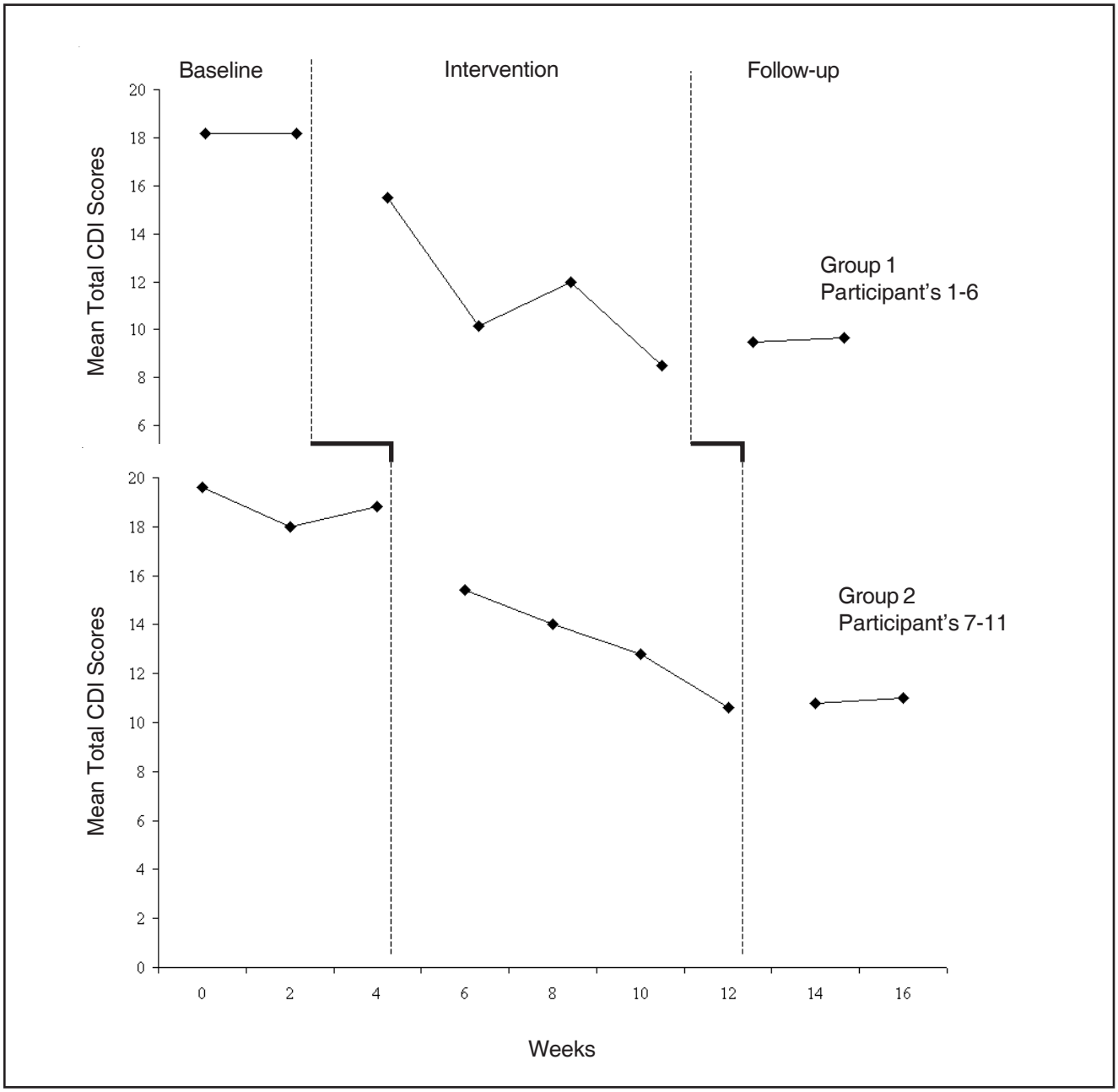


Figure 3. Multiple baseline of mean total anxiety raw scores for participants assigned to group one ($n = 6$), two-week baseline and group two ($n = 5$), four-week baseline as measured by the Revised Children's Manifest Anxiety Scale (RCMAS) every two weeks across study phases. The higher the score is, the greater the anxiety experienced.

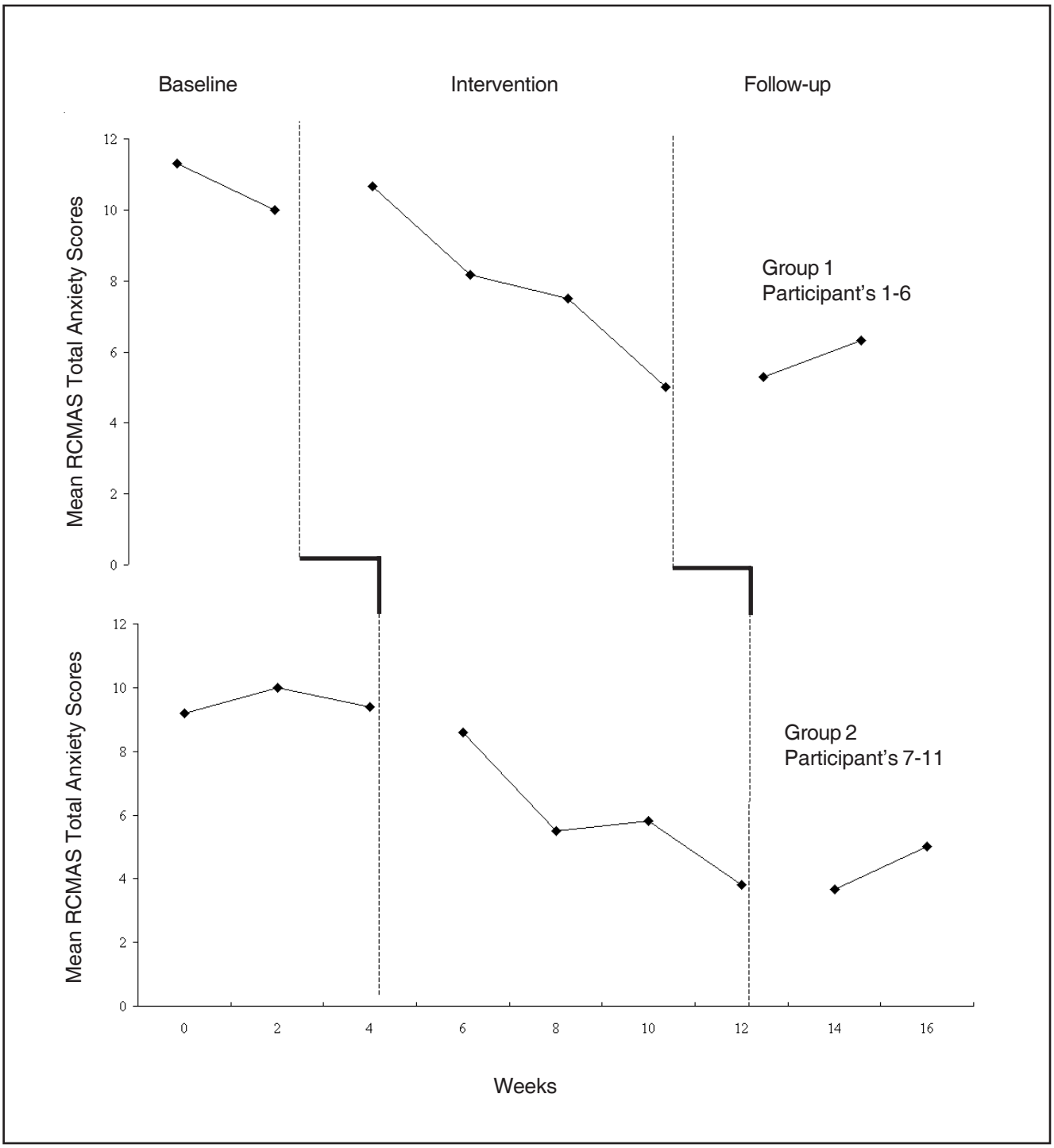
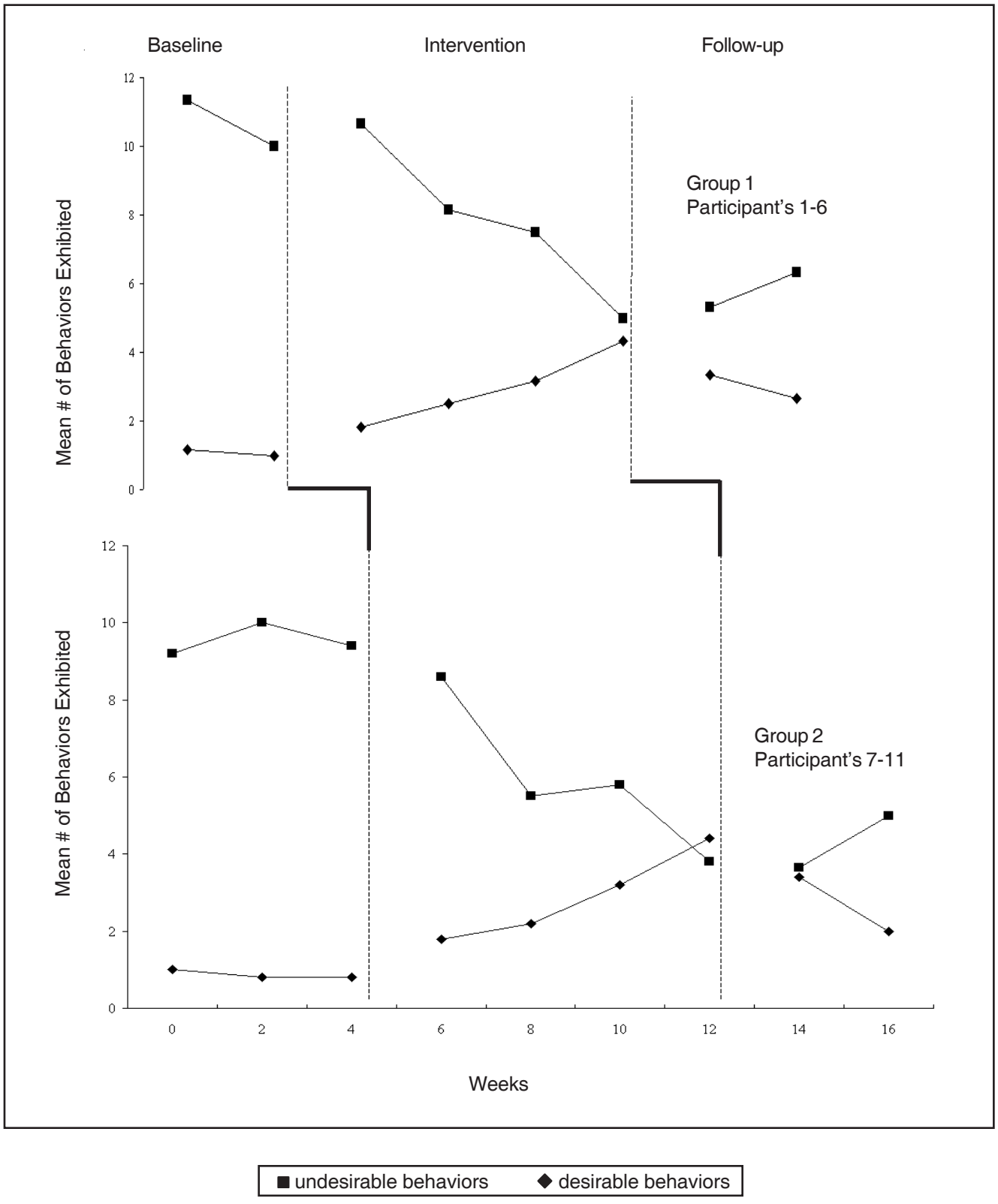


Figure 4. Multiple baseline for mean total undesirable and desirable behavior scores for participants assigned to group one ($n = 6$), two-week baseline and group two ($n = 5$), four-week baseline as measured by "Information/ Behavioral" reports collected every two weeks across study phases. The higher the score is, the greater the number of undesirable and desirable behaviors exhibited.



ing the baseline phase to the intervention phase. Baseline scores for both groups on each of the dependent measures appeared to remain fairly stable during the baseline phase. Thus, participants appeared to greatly reduce levels of depression, anxiety, and undesirable behaviors while increasing desirable behaviors compared to those before the introduction of exercise. It appears that during the follow-up phase for both groups across all three dependent measures, participants began to re-experience their symptoms as noted by a gradual upward trend in scores.

Lastly, analyses on the Consumer Satisfaction Survey (CSS) indicated that the mean (20.54) for the total score on the CSS fell within the Well-Liked range. In particular, eight (72%) of the 11 participants had total scores that fell within the Well-Liked range while the remaining three (27%) participants' total scores on the CSS fell within the Liked range. These findings suggest that overall the participants had a high level of acceptance and satisfaction with the aerobic exercise intervention they participated in.

DISCUSSION

The purpose of the present study was to investigate the effects of aerobic exercise on childhood PTSD and related symptoms of depression and anxiety. All four hypotheses were supported through statistical and visual analyses. Overall, aerobic exercise was demonstrated to significantly reduce symptoms of PTSD, depression, and anxiety. In addition, the number of undesirable and desirable behaviors exhibited by participants also improved. Based upon the results, it appears that the largest symptom reductions occurred at post-intervention even though reductions were also noted at mid-intervention. Furthermore, it appears that the absence of exercise during the one-month follow-up seemed to contribute to the gradual return of participants' symptoms but the participants did not revert back to scores obtained during baseline.

Practical Implications

Exercise appears to create an alternative to traditional therapy and/or medication, which opens the doorway for many young individuals suffering from the above-mentioned symptoms. Exercise as an adjunct therapy used in this study provided participants and the practitioners working with them a practical and cost-effective treatment in order to alleviate their symptoms. Although the participants in this study were already receiving other forms of therapy before the introduction of exercise, it appears that the aerobic exercise intervention was the catalyst to maximizing their symptom reduction. Thus, the traditional therapies should be open to welcoming exercise as a compliment to the therapy that the individual is already participating in. If exercise is used as an adjunct treatment to other therapies, it is important to closely track and monitor these other forms of therapy while exercising as was done in the present study using the Mental Health History Questionnaire (MHHQ; Hodge, 2003). The importance of tracking these other forms of therapy is suggested in order to better determine the impact of exercise on symptom reduction.

Furthermore, given that the adolescent population used in this study had emotional and behavioral difficulties and given that adolescents are sometimes resistant to change, the positive results that stem from this study are worthy of note and further highlight the dramatic improvements following aerobic exercise. Thus, it is speculated by the present investigator that using exercise as a vehicle of reaching adolescents with PTSD appears to be a powerful tool.

In comparing the present aerobic exercise intervention with other forms of childhood PTSD treatment, such as a 20-session trauma/grief-focused psychotherapy group (Layne et al., 2001) for a group of traumatized postwar Bosnian adolescents, the PTSD adolescent population in the present study appeared to experience a greater decrease in total PTSD severity on the PTSD-RI (Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1999) after eights weeks of exercising. In keeping with the above, March, Amaya-Jackson, Murray, and Schulte (1998) tested the efficacy of an 18-week, group-administered Cognitive Behavioral Treatment (CBT) package for PTSD in 14 older children and adolescents who had suffered a single incident trauma. March and colleagues noted that eight of the 14 subjects were free from PTSD at the end of treatment compared to 10 of the 11 participants in the present study who no longer met full criteria for PTSD at the end of an eight week aerobic exercise intervention. The above-mentioned findings are worthy of note as the current intervention employed in this study dramatically alleviated participants' symptoms of PTSD perhaps at a quicker rate than studies that have utilized longer, more traditional (e.g., CBT) types of PTSD treatment.

The co-existence of PTSD with anxiety and depressive disorders is well documented. In addition, the co-existence of PTSD and behavior disorders has been noted to a lesser degree. Thus, it is speculated by the present investigator that those working with child/adolescent PTSD populations should also identify these co-existing symptoms (e.g., depression) when assessing PTSD as done in the present study.

Limitations

There are a number of limitations in this study. One inherent limitation is the design of the study itself, which limits the generalizability and external validity of results found in single subject (small *N*) research. Thus, one should use caution when generalizing these results to the population of those suffering from PTSD, depression, and anxiety, and therefore results are considered preliminary. In addition, Cohen's (1988) guidelines for interpreting effect size indicates that an effect size of .20 - .49 as a small effect, .50 - .79 as a medium effect, and .80 or greater to be a large effect. This method has been adapted from meta-analytic research which traditionally accepts .5 as a significant effect size (medium effect) and is usually drawn from studies with sample sizes that are larger compared to the present study. However, many researchers suggest .5 is an acceptable effect size for single subject designs as well. According to Lipsey (1998), an effect size of .20 "is a reasonable minimal effect size level to ask [intervention] research to detect change" (p. 45). Research on what a significant effect size is for single subject design studies remains controversial. Thus, the large effect sizes found in the present study should be interpreted with caution.

Although single subject research typically analyzes data separately for each individual participant, the comparison of aggregated means and standard deviations across study phases has been used in prior small *N* studies to evaluate exercise interventions for a group of participants as a method of determining overall treatment effectiveness (Lancer, Motta, & Lancer, in press; Manger & Motta, 2005, Morrand, 2004). Since the present study was preliminary, the purpose of aggregating the data for the group of participants through comparison of means was undertaken to establish whether or not aerobic exercise significantly impacted PTSD, depression, and anxiety for the group of adolescents with PTSD living in a residential treatment center. Lastly, no outliers across participant's scores appeared evident, which further demonstrates that aggregation of the data in this study did not appear to skew the results.

It is also important to discuss possible underlying mechanisms of change associated with exercise, such as self-concept, mastery, distraction, and endorphin that may further serve as a limitation to the present study. It is speculated that these theories may explain the improvements found with exercise, such as providing individuals with increased energy, increased reinforcement, decreased levels of arousal, and enhanced self-efficacy. Currently, there is no generally accepted explanation as to why exercise has beneficial psychological effects. A study by Basile and Motta (1995) concluded that students assigned to a mastery group (e.g., shooting basketball hoops) did not significantly improve their behavior compared to those students in an antecedent aerobic exercise group. This suggests that enhanced perceptions of competence or efficacy do not explain the beneficial impact of exercise.

Pert (1997) refers to the body and mind as one entity, called "bodymind," such that the physical self and mental self are an integrated system that are inseparable and thus either get better or worse together. This may suggest that, as a result of physiological improvements (e.g., tension reduction, thermogenic effects, cardiovascular and pulmonary changes) through aerobic exercise, the mental self will also improve (e.g., decrease in depressive and anxious symptoms, sense of accomplishment). Rowland (1990) discusses biochemical changes as a potential mediating factor for the effect of physical activity on mental health, in which physical activity causes chemical changes known to improve mood. Furthermore, Petruzzello and colleagues (1991) discuss distraction as a psychological explanation for the value of exercise such that engaging in intense physical activity may shift a person away from a more exclusive focus on negative thoughts and feelings. These previously mentioned potential mediating factors might help explain the gradual return of symptoms for participants in the present study during the one-month follow-up phase in which physical activity was absent.

Future research may attempt to overcome the limitations inherent to the present study such as the lack of a true experimental control group, the lack of between-group comparisons, and the resulting small sample size. For example, a randomized control group comparing exercise with other forms of PTSD treatment could help determine the most efficacious method in treating childhood PTSD and reduce possible placebo effects. The lack of a longer follow-up period does not allow for examining whether or not participants' symptoms

would have leveled off to somewhat maintain gains or perhaps their symptoms would have continued to decline back to levels obtained during baseline. Examining other types of exercise (other than the ones used in the present study) and looking at different levels of exercise duration, intensity, and frequency would also be important to address in future studies. The present study chose aerobic exercises compared to anaerobic exercises (e.g., weightlifting) because monitoring and detecting aerobic levels is measurable (e.g., 60-80% of maximum heart rate). Other studies should consider ways to better measure and detect other forms of exercise (e.g., yoga).

In addition, future research using adolescent PTSD populations should examine whether or not the results found in this study would be replicated using male adolescents, as the present study consisted of an all female population. Also, looking at other ethnic groups who present with PTSD should be explored, as the majority of the present study sample consisted of an African American population. This would help to increase the generalizability of exercise as a treatment for child/adolescent PTSD.

Conclusion

The goal of this study was to extend the research on the relation between exercise and PTSD symptom reduction to a child/adolescent PTSD population. Thus, the present investigation suggests that aerobic exercise may be an effective intervention for childhood PTSD and is a promising area for future research with this disorder. Like any intervention, exercise has inherent limitations. On the other hand, the availability and cost-effectiveness of exercise as a tool for managing PTSD and related symptoms, in addition to the associated physical health benefits, are powerful reasons for its continued use. In conclusion, this research is a starting point toward satisfying the essential need to establish efficacious methods to treat PTSD and associated symptoms in child/adolescent populations.

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Selected Annotated Journal Resources

Karina E. Chapman, M.S. and Miriam R.K. Gerber, M.A.

Gahm, G. A., Lucenko, B. A., Retzlaff, P., & Fukuda, S. (2007). Relative Impact of Adverse Events and Screened Symptoms of Posttraumatic Stress Disorder and Depression Among Active Duty Soldiers Seeking Mental Health Care. *Journal of Clinical Psychology, 63,* 199-211.

TYPE OF ARTICLE

- Original Empirical Investigation

OBJECTIVE/PURPOSE OF THE ARTICLE

- To identify the relative contributions of demographics and reported childhood and adulthood trauma on PTSD symptoms and depression symptoms for soldiers in a military outpatient mental health setting.

METHODS

Participants

- Participants were active duty military personnel who presented to an outpatient mental health clinic via multiple referral sources.
- The mean age of the sample was 29.8 years (*SD* = 8.2), 80% of the patients were men, 60.9% were White, 13.2% were African-American, 12.8% were Hispanic, and 13.1% were of other ethnic background.
- Predominant Branch of Service was Army (97.8%). Military status included Active (67.9%), Active Guard (11.6%), Guard (8.0%), Active Reserve (6.8%), and Reserve (5.7%). Average duration in present military unit was 19.9 months (*SD* = 17.8), and average lifetime months deployed was 9.5 (*SD* = 11.9), with an average of 7.8 (*SD* = 7.3) years in the military.

Materials

- Participants completed a standardized mental health screen during their first visit to the clinic. The screen included demographics and military information, psychosocial history, current symptoms and behavior, prior stressors (e.g., childhood abuse), and resilience factors (e.g., family and social support)
- Trauma history and other adverse experiences were assessed with the Adverse Childhood Events (ACE; Felitti et al., 1998), a measure of adverse childhood events. The current study selected items from the ACE which described experiences with psychological abuse, physical abuse, sexual abuse, and interpersonal violence between parents. Responses to abuse questions were rated on a 0-4 scale (0 = never, 4 = very often); endorsement of any item was counted as a yes response, and yes responses were summed for the ACE scale score. Additional questions were derived from the Deployment Risk and Resilience Inventory (DRRI; King, King, & Vogt, 2003), which was developed to evaluate factors related to long-term health in veterans (á = .75), and was adopted for the current population.
- Patients were screened for posttraumatic stress disorder with the Primary Care PTSD screen (PC-PTSD). The screening instrument is a brief four-item self-report screening instrument for PTSD validated with a Veterans Affairs (VA) patient sample using a cutoff score of 3.
- Participants were screened for depression with the Patient Health Questionnaire (PHQ-9), a brief self-report version of the PRIME-MD depression module which includes 9 items that are based on the *DSM*-IV diagnostic criteria for depression (á = .91).

Procedure

- All new patients seen in a military outpatient mental health clinic between June 2003 and October 2004 were considered for analysis.
- 1,626 patient files (out of 1, 714) had data available for the majority of variables for analyses.
- Measures were administered upon first visit to the clinic as part of a standard clinical screening process; screening is routinely followed by an assessment with a credentialed behavioral health provider.

RESULTS

- Soldiers frequently reported childhood experiences of physical abuse (60.8%) and witnessing violence between parents (45.2%), and 11.6% reported childhood sexual abuse. The mean ACE score was 1.41 (*SD* = 1.55). The majority of the soldiers (52.5% had experienced combat or war zone, 38.7% reported being threatened with a weapon, and 39.6% reported witnessing someone being assaulted or killed.
- Mean scores for clinical scales were 1.68 for PTSD (*SD* = 1.62) and 10.89 for depression (*SD* = 7.51). Although the sample was primarily active duty Army, soldiers reporting military status of Guard or Active Guard demonstrated a disproportionately elevated risk of meeting cutoff criteria for PTSD.
- More than half of the sample met cutoff criteria for depression (58.8%), with active and Active Guard soldiers at highest risk. Junior enlisted soldiers, rank/pay grade E1-E4, had increased likelihood of meeting criteria for both PTSD and depression, compared to both other enlisted categories and officers.
- Univariate analysis indicated that proportionally more women (44.3%) than men (34.6%) met cutoff criteria for both PTSD and depression (72% of women, 55.7% of men). Men were significantly more likely to have experienced a war or combat zone, witnessed an assault or kill, and to have been robbed. Women were more likely to have experienced childhood sexual abuse (26.1%) than were men (8.1%).
- Logistic regression analysis indicated that experiences of combat, witnessing someone being assaulted or killed, and number of adverse childhood events were significant risk factors for PTSD, while witnessing someone being assaulted or killed and number of adverse childhood events significantly predicted depression. Exposure to combat did not predict depression status.

CONCLUSIONS/SUMMARY

- Adverse childhood experiences predicted the presence of screened PTSD and depression among active duty soldiers seeking mental health services above and beyond gender and other relevant demographic variables.
- The experience of combat was linked to screened PTSD, but not to depression.
- Number of potentially traumatic events experienced predicted PTSD severity.
- Women were more likely than men to meet criteria for PTSD and depression, as is the case in the general population. Gender differences may be related to psychosocial histories and adverse experiences.
- Guard and Active Guard soldiers had higher probability of meeting screening criteria for PTSD, and had a likelihood second to Active Duty Army soldiers for meeting depression criteria.
- More than half of the participants met criteria for depression (58.8%) and over a third met criteria for PTSD (36.4%), suggesting that this population of soldiers seeking mental health treatment is unique.
- Limitations of the study include the lack of validation for the screening tools, as the PC-PTSD and the PHQ-9 were standardize with a primary care population and have not been validated in an active duty military population. Additionally, these are not definitive diagnostic measures, but rather, are screening tools.
- This study only addresses screening scores for a clinical sample of soldiers, thus such a sample is not representative of the overall Army or military.
- Soldiers presented for outpatient care for a number of reasons, and screened symptoms may be present regardless of combat or military experiences. These findings suggest the necessity of assessing for prior experiences that may contribute to or exacerbate symptoms for active duty soldiers seeking clinical care.

CONTRIBUTIONS/IMPLICATIONS

- Very few studies in the literature have assessed psychological symptoms presented among active duty soldiers, much less the risk factors for such symptoms.
- An understanding of the relative risks for mental health

symptoms for soldiers seeking clinical care may help guide treatment planning and determination of impairment.

- Future studies utilizing a prospective approach to the development of PTSD and depression among active duty soldiers would allow for the effects of combat to be controlled for in the analysis of etiology.

Temple, J. R., Weston, R., Rodriguez, B. F., & Marshall, L. L. Differing Effects of Partner and Nonpartner Sexual Assault on Women's Mental Health. (2007). ***Violence Against Women, 13,*** **285-297.**

TYPE OF ARTICLE

- Original Empirical Investigation

OBJECTIVE/PURPOSE OF THE ARTICLE

- To compare the effects of sexual assault by current partners, past partners, and nonpartners on women's mental health, including symptoms of PTSD, dissociation, and stress.
- Identifying any effects of ethnicity on sexual assault.

METHODS

Participants

- Participants were 835 women between the ages of 20 and 49 years, involved in a heterosexual relationship for at least one year, and having a household income that was less than twice the poverty level or recipient of public aid.
- On average, participants were 33.2 years old, had been with their partners for 7.71 years. Most were legally married (41.4%), others self-identified as dating (24.1%) or cohabitating (34.5%). Participants were African American (36.2%), Euro-American (32.7%), or Mexican American (31.1%).

Materials

- Frequency of sexual aggression committed by participants' current partners (e.g., demanded sex whether you wanted it or not, physically forced you to have sex) was assessed with six items from the Severity of Violence Against Women Scales (SVAWS; Marshall, 1992). Women reported how often their partner had inflicted each of the acts during the entire relationship on a 6-point scale ranging from never (0) to a great many times (5). The same scale was used to report how often past partners had forced them to have sex against their will. Reliability was higher for African American and Euro-American women (á = .86 and .85, respectively) than for Mexican American women (á = .77).
- Nonpartner sexual assault was assessed by asking women whether they had unpleasant sexual experienced with "someone other than their partner." Four items assessed different degrees of force ranging from undesired sexual touching/fondling to use of a weapon to force intercourse or engagement in a sexual act.
- Current life stress was assessed with the Perceived Stress Scale (Cohen, Kamarack, & Mermelstein, 1983). The 14 items are rated on a 7-point scale, yielding a global score of stress. Reliability ranged from .85 for Euro-Americans to .77 and .75 for African Americans and Mexican Americans, respectively.
- PTSD symptom frequency was assessed with the Crime-related Post-Traumatic Stress Disorder Scale (CR-PTSD; Saunders, Arata, & Kilpatrick, 1990), which consists of 28 items. Dissociation was measured with Briere and Runtz's (1990) 13-item measure of dissociative symptoms. For both measures, women rated how bothered they were by the various symptoms on a 5-point scale. Reliability for the CR-PTSD and dissociation scales was high for African Americans (á = .95 and .93, respectively) and Mexican Americans (á = .95 and .92, respectively), but slightly lower for Euro-Americans (á = .94 and .88, respectively).

Procedure

- Participants were recruited from a low-income area of the Dallas metroplex with flyers distributed in apartment complexes, houses of worship, health clinics, laundromats, libraries, and businesses, as well as through letters sent via mass mailings. Participants were also recruited by graduate students who were involved at community events and were also referred by other participants.
- The study used structured interviews conducted by trained female undergraduate and graduate students. Training emphasized standardization, confidentiality, and other relevant issues (e.g., response bias).

- Participants were compensated with $15, a tote bag and T-shirt with the project logo, and a bus pass.

RESULTS

- African American women reported experiencing sexual assault significantly more than Mexican American women, with Euro-Americans not differing from either group. Euro-American women reported the greatest stress, with a significantly higher average than African American women. Mexican American women did not differ from either group.
- Correlations between PTSD and dissociation were quite large for African Americans, Euro-Americans, and Mexican Americans (r = .91, .90, and .86, respectively.)
- Regression analyses were conducted separately for African Americans, Euro-Americans, and Mexican Americans. For African American women, sexual assault by current partners and nonpartners positively predicted PTSD symptoms and accounted for 16% of the variance in PTSD symptoms. Only current partners' sexual assault predicted symptoms of stress and dissociation.
- For Euro-American women, sexual assault by current partners was a significant predictor of women's PTSD, stress, and dissociation. Past partner assault was also a significant, albeit, weaker predictor of PTSD, stress, and dissociation. Current and past partners' sexual assault accounted for 18% of the variance in PTSD, 12% of the variance in stress, and 16% of the variance in dissociation. Nonpartner sexual assault was not significantly associated with any of the mental health variables.
- Neither sexual assault by current partners, past partners, nor nonpartners was a significant predictor of women's stress. Sexual assault by a current partner only weakly predicted Mexican Americans' PTSD and dissociative symptoms.

CONCLUSIONS/SUMMARY

- Sustaining any form of sexual assault was associated with women's reports of increased psychological distress. Current partners' sexual assault was generally more important than past partners' sexual assault as a predictor of women's PTSD, stress, and dissociative symptoms, although both were often significant.
- Sexual victimization by someone other than a partner was only a predictor of PTSD symptoms.
- Models for Mexican American women were quite different from those for African American and Euro-American women. These differences may be accounted for by mediating variables not measured in the current study, or alternatively, that the factors were inadequately measured for Mexican Americans.
- Results for African American and Euro-American women also differed. Past partners' sexual assault may have more long-term effects on Euro-American women than on African American women.

CONTRIBUTIONS/IMPLICATIONS

- A majority of the literature and community education on sexual assault focuses on date rape and stranger rape. The findings of the current study provide evidence that partner sexual assault is more harmful to women's mental health than nonpartner sexual assault. Thus, additional clinical attention should be given to intimate partner sexual assault and other forms of partners' sexually aggressive behaviors. For example, shelters for battered women should consider the psychological effects of sexual abuse on battered women in addition to the impact of physical abuse.
- Very few studies have considered the role of ethnicity in partner sexual assault. Results highlight the importance of including ethnicity when conducting partner violence research. Additionally, the finding that African American women differed significantly from Mexican American women emphasized the need to consider these groups as distinct, as opposed to grouping them into a "not White" category.
- A limitation of the study is the lack of information regarding the time since the last sexual assault for women victimized by a past partner or nonpartner. It is possible that the time since the last assault was long enough as to not have as consequential effects on women's current mental health. Additionally, women with health problems may have been attracted to the study by the title of the project (Health Outcomes of Women), biasing the sample toward women with more psychological and physical distress.

Haden, S. C., Scarpa, A., Jones, R. T., & Ollendick, T. H. (2007). Posttraumatic Stress Disorder Symptoms and Injury: The Moderating Role of Perceived Social Support and Coping for Young Adults. *Personality and Individual Differences, 42*, 1187-1198.

TYPE OF ARTICLE

- Original Empirical Investigation

OBJECTIVE/PURPOSE OF THE ARTICLE

- To assess whether perceived social support and coping behavior moderate the relationship between perceived injury severity and subsequent PTSD reactions in young adults.

METHODS

Participants

- 150 undergraduate students (50 male, 100 female) who reported experiencing different types of trauma. Mean age of participants was 19.33 years (*SD* = 1.31). Participants were primarily Caucasian (81%), followed by Asian (7.5%), African American (5.5%), Hispanic (2.5%) and other ethnicities.
- Participants reported experiencing a range of traumas including accidents, natural disasters, violent crimes, unwanted adult sexual experiences, childhood abuse, and abusive relationships. The number of years since participants experienced the reported trauma ranged from a few months to 18 years, with an average time of 5 years and 6 months (*SD* = 4 years, 5 months).

Materials

- Trauma exposure and experiences with stressful events were evaluated with the Events Scale (ES; Vrana & Lauterbach, 1994). Participants also reported the different aspects of the trauma, including when it occurred, how traumatic it had been for them, and how much injury they sustained.
- PTSD-related symptoms were measured by participants' responses on the Purdue Post Traumatic Stress Disorder-Revised questionnaire (PTSD-R; Lauterbach & Vrana, 1996). The measure consists of 17 items comprising three scales: reexperiencing the trauma, avoidance, and arousal based on DSM-IV symptomatology for PTSD, to which participants rated their response on a 5-point Likert scale ranging from "not at all" to "often" regarding the frequency of each symptom during the previous month (á = .91).
- Coping responses were assessed with the COPE Inventory (Carver et al., 1989), which consists of 60 items (15 scales) answered on a 4-point Likert type scale ranging from "I usually don't do this at all" to "I usually do this a lot". The original 15 scales were factor analyzed and the three emerging factors were included: disengagement, interpersonal, and problem-focused (á = .69, .82, and .80, respectively).
- Perceived social support was assessed with the Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988). Participants rated their agreement with four statements pertaining to the perceived support they received from family and friends on a 7-point Likert scale ranging from "very strongly disagree" to "very strongly agree (á = .92).

Procedure

- Individuals were asked to complete various self-report measures assessing the trauma's characteristics, perceived social support, coping behavior, and PTSD symptoms.

RESULTS

- Zero-order correlations revealed that women tended to report more PTSD symptoms than men and that years since the traumatic event was negatively correlated with PTSD severity.
- There were significant main effects for gender, years since trauma, and perceived injury in predicting PTSD symptoms.
- After controlling for sex, years since trauma, and perceived injury severity, there were significant main effects for family support and disengagement coping behavior in predicting PTSD, such that greater support predicted fewer PTSD symptoms while the reverse was true for disengagement.
- Controlling for the main effects, two significant interaction effects were found for social support by injury and interpersonal coping behavior by injury. The relationship between perceived injury severity and PTSD severity is stronger for individuals with generally low interpersonal coping styles than those with high inter-

personal coping styles. The relationship between perceived injury and PTSD severity is stronger for those individuals who perceive lower, rather than higher, support from their friends.

CONCLUSIONS/SUMMARY

- More severe perceived injury predicted PTSD severity while high support from family contributed to less severe PTSD symptoms. Family support did not predict perceived injury severity; support had direct independent effects in predicting PTSD severity.
- Avoidant forms of coping, specifically disengagement coping behavior, contributed significantly to the severity of PTSD, while no significant main effects for active coping behaviors were found. It cannot be inferred that active coping styles protect against development of PTSD following exposure to a trauma, as the current study did not find a direct effect between active interpersonal and problem-focused coping strategies.
- Individuals who perceived more severe injury during their trauma reported fewer PTSD symptoms when they used interpersonal coping behavior as a coping mechanism. Thus, positive active coping behavior in the form of interpersonal coping can help ameliorate PTSD severity; however, this association depends on the level of perceived injury sustained by the trauma.
- Although perceived social support did not directly predict PTSD severity, it was a protective factor for individuals severely injured by a trauma.

CONTRIBUTIONS/IMPLICATIONS

- The present research identified an alternative explanation for the apparent gender differences in PTSD symptoms and established sexual victimization history as a significant risk factor for a specific victim population.
- One weakness of the study is the coping and social support measures pertained to general lifestyle coping styles and perceived support and were not specific to the trauma. Therefore, it is possible that individuals applied other coping strategies prior to or during the trauma. The study is also limited by variability in years since the trauma and greater bias in reports of individuals for whom more time has passed since the trauma.
- The concept of support, perceiving it or seeking it, may be considered one of the most powerful variables essential for minimizing the severity of PTSD in young adults, and it may also be one of the easiest tools to provide a trauma survivor.
- Future research may examine the types of support perceived by trauma survivors that help predict PTSD severity and assist with informing intervention strategies.

Lutz, W.J., Hock, E., & Kang, M.J. (2007). Children's Communication about Distressing Events: The Role of Emotional Openness and Psychological Attributes of Family Members. ***American Journal of Orthopsychiatry, 77,*** **86-94.**

TYPE OF ARTICLE

- Original empirical investigation: Longitudinal, passive observational design.

OBJECTIVE/PURPOSE OF THE ARTICLE

- This article examined the relationship between parental psychological characteristics and children's communication about distressing events.

METHODS

Participants

- Participants were 11-year-old children (23 boys and 25 girls) and their parents who were involved in a longitudinal study on parental emotional well-being, parental behaviors, and socio-emotional development of children.
- Adults were recruited if they were 19 years of age or older, married or in a committed relationship, and expecting their first child.
- The mean years of education for parents in the sample was 15.7 years ($SD = 2$) and family income ranged from \$22,500 to \$165,000 (M = \$81,885; SD = \$33,078).

Measures

- Interviews were conducted to appraise early maternal openness prenatally and again at 9 and 24 months. Mothers were rated on a 3-point scale. Given the relationship across time, scores were summed to form one variable, labeled "early maternal openness," for use in subsequent analyses.

- Maternal openness when children were 11 years old was evaluated using The Maternal Reaction to Crisis Interview. These interviews were conducted within two months of the 9/11 terrorist attacks. Again, mothers were rated on a 3-point scale and interrater reliability was satisfactory ($K = .88$).
- The Adult Attachment Scale was used to assess mothers' and fathers' current relationships with other adults. Each item was answered on a 5-point scale (1 = not at all characteristic of me to 5 = very characteristic of me). The anxiety subscale was used in this study, as it is the closest conceptual fit with the idea of support in marital relationships during stressful times.
- The Center for Epidemiological Studies-Depression Scale was used to assess current symptoms of depression. The possible scores range from 0 to 60, with higher scores reflecting more depressive symptomatology.
- Maternal emotional status was assessed using a 7-point scale that asked about their level of distress. Mothers were asked to rate their distress at two points in time, one immediately after hearing of the 9/11 attacks and "today." Change scores were created by subtracting ratings at the second point in time from the ratings at the first point in time. This "emotional status change score" was used as an indicator of the mother's perception of change in the intensity of her feelings. Scores ranged from 0 to 5.
- Child openness was assessed using The Child's Reaction to Crisis Interview. Ratings were made of the child on a 3-point scale with satisfactory interrater reliability ($K = .85$).

RESULTS

- Maternal openness was highly consistent over many years and early maternal openness was significantly related to maternal openness at appraisal when the child was 11 years of age.
- Maternal openness was significantly related to scores on emotional change, such that mothers who were rated as openly expressing emotions were more likely to perceive and report larger differences in their emotions immediately following the attacks as compared to 4 to 10 weeks after the attacks.
- Maternal scores on anxiety in close relationships were significantly related to maternal depressive symptoms, as mothers with higher levels of anxiety in relationships reported more depressive symptoms.
- Maternal scores of openness were significantly related to fathers' reports of depressive symptoms, such that mothers who had openly expressed their emotions following the attacks had spouses with fewer depressive symptoms. Interestingly, mothers who reported little change in the intensity of their emotions over time had spouses with higher levels of depressive symptoms.
- Through hierarchical regression analyses, the authors examined the relative contributions of early maternal openness and parental depressive symptoms to the variance in maternal openness assessed when the children were the age of 11 years. Early maternal openness did not make a significant contribution but father depressive symptoms significantly explained 20% of the variance, and together, these variables explained 47% of the variance in maternal openness.
- Children who openly discussed their emotions following the 9/11 attacks had parents who reported fewer depressive symptoms. A significant relationship was found between child openness and maternal openness assessed when children were 11 years old in that mothers who openly expressed their emotions following the attacks had children who also openly engaged in expressing their emotions.
- Through hierarchical regression analyses, the authors examined the contribution of maternal openness in explaining the variance in child openness. Maternal depressive symptom scores accounted for 7% of the variance, while fathers' depressive symptom scores contributed an additional 17%. Maternal openness significantly contributed an additional 11% to the variance, and these variables together accounted for 35% of the variance in scores for child openness.

CONCLUSIONS/SUMMARY

- Emotional openness was found to be stable over time, with maternal openness being significantly related to children's openness in expressing emotions and mothers' change in emotional intensity over the weeks following the terrorist attacks. These results are consistent with literature regarding the importance of emotional openness in healthy adaptation to distressing events.
- Fathers' depressive symptoms were associated with cur-

rent levels of maternal openness and a statistical trend emerged suggesting that mothers with higher emotional openness scores have spouses with lower levels of anxiety about close relationships. The authors suggest that partners of depressed persons may inhibit expression of emotions, though with the limitation of having no father interviews, no report can be offered on the family interactions from the fathers' point of view.

- Maternal openness was the only variable that produced a significant beta weight in a statistical regression model, highlighting the importance of this variable upon children's open discussion of emotions.
- Limits of this study include the sample being comprised of a nonclinical, community population which was predominantly Caucasian, married and middle class. Future studies should incorporate low-income families, people from non-White racial/ethnic populations, and single-parent families.

CONTRIBUTIONS/IMPLICATIONS

- Parental disclosure of emotion following a traumatic or distressing event is important in promoting healing and open discourse among all family members.
- Practitioners who work with families should consider parental psychological attributes when attempting to facilitate conversation and understanding in their clients. Through accounting for factors such as depressive symptoms, anxiety in close relationships and emotional openness, practitioners can tailor their suggestions to parents to reflect the family's beliefs, values and types of communication around emotions.
- Emotional openness provided to children over time allows and encourages children to express their emotions and discover healthy strategies for coping with distressing events.

Stallard, P., & Smith, E. (2007). Appraisals and cognitive coping styles associated with chronic post-traumatic symptoms in child road traffic accident survivors. *Journal of Child Psychology and Psychiatry, 48,* 194-201.

TYPE OF ARTICLE

- Original empirical investigation

OBJECTIVE/PURPOSE OF THE ARTICLE

- To investigate the factors of cognitive appraisals and coping styles associated with chronic post-traumatic reactions in child road traffic accident survivors.

METHODS

Participants

- Participants were 75 children, 7-18 years of age, who were brought to the Accident and Emergency Department at Frenchay Hospital, Bristol or Royal United Hospital, Bath approximately 8 months prior to the study. Children who were very severely injured in the accident and received a triage score of 1 were excluded from the study.
- The mean age of the sample was 14.01 years ($SD = 3.36$), with 37 boys and 38 girls participating. Of the sample, 11 (14.7%) were pedestrians knocked over by vehicles, 48 (64.0%) were in vehicles that crashed, and 16 (21.3%) wee knocked off a cycle/motorcycle.
- The mean triage rating was 3.47 ($SD = .75$) and 8 (10.67%) children were admitted to the hospital.
- Of the sample, 21 (28.0%) of the children had been involved in a previous road traffic accident (RTA) and 44 (58.7%) had suffered a previous non RTA accident.

Measures

- The Clinician Administered PTSD Scale for Children (CAPS-C) was administered to assess the diagnostic criteria for posttraumatic stress disorder. The scale assesses the frequency and intensity of the diagnostic criteria as detailed by the DSM-IV, and these two variables are summed to provide a total trauma reaction score.
- The Children's Revised Impact of Event Scale (CRIES-8) was used to assess the degree of subjective distress arising from the specific traumatic event of the RTA. It is a self-report checklist that assesses intrusive re-experiencing and avoidance of trauma-related stimuli.
- Demographic and accident variables, such as gender, age, type of accident and outcome of treatment were measured by a general questionnaire, while injury severity was assessed by the 5-point Manchester Triage Scale (1 = Immediate Treatment Required, 5 = non-urgent, treatment within 240 minutes).
- Cognitive variables of trauma memory, trauma appraisals (stressor severity, alienation from other people, nega-

tive interpretation of symptoms, injustice, permanent change, heightened future danger) and cognitive coping (rumination, thought suppression, distraction) were assessed through items from scales used in previous child studies. All items within each category showed satisfactory Cronbach alpha levels, ranging from .70 to .89.

RESULTS

- Gender was the only demographic and accident variable significantly associated with severity of posttraumatic reactions, with girls showing more severe reactions than boys.
- In contrast, all of the appraisal and coping measures were significantly associated with posttraumatic reactions, with large correlations.
- Due to high correlations between the three cognitive coping styles of rumination, thought suppression and distraction, as well as significant correlations between cognitive appraisals of trauma severity and injustice, negative interpretation of symptoms, permanent change and heightened awareness of future danger, these items were combined to form two factors that were used for a hierarchical regression analysis.
- In the final model, gender accounted for 5% of the variance in PTSD symptom severity, and the introduction of the cognitive variables of combined trauma appraisals and combined cognitive coping resulted in the predictive power of the model increasing to explain 61% of the variance.

CONCLUSIONS/SUMMARY

- Cognitive variables highly impacted the severity of PTSD symptomatology, with gender as the only demographic variable of importance (still only accounting for 5% of the variance in the model).
- In the long term, it appears that cognitive strategies such as negative subjective appraisals and dysfunctional cognitive coping processes are more important in the continuation of PTSD.
- Negative appraisals may challenge previously held beliefs about personal safety, well-being and justice, which leads to a heightened awareness of future danger, uncertainty and apprehension. These factors contribute to increased arousal. Attempts made to control distress by using rumination, suppression and distraction bring short-term relief but serve to produce persistent rehearsal of the traumatic experience and prevention of the development of a more cohesive and functional autobiographical memory.
- Limits to this study include the limited age range of children (only 12.3% of the children in the sample were under 10 years of age). This study's findings cannot be assumed to apply to younger children, as their cognitive, language and memory capacities differ greatly from older children. In addition, the recruitment process resulted in a narrow selection of participants who may differ from the wider cohort from which they were drawn. Finally, the study assessed children at one point in time and specific cognitions at onset of PTSD symptoms could not be assessed.

CONTRIBUTIONS/IMPLICATIONS

- This study is the first of its kind in examining cognitive appraisal and coping styles of child road traffic accident survivors.
- This study contributes to the body of literature the notion that child survivors of road traffic accidents can have persistent and significant posttraumatic reactions for several months after the accident. Knowledge that cognitive factors play a large role in these persistent symptoms may help guide clinicians in the application of cognitive techniques in treatment of child RTA survivors.

I Love a Cop: What Police Families Need to Know

Revised Edition

By Ellen Kirschman, Ph.D.

Guilford Press, 2006, Softcover, $16.95

I Love a Fire Fighter: What the Family Needs to Know

By Ellen Kirschman, Ph.D.

Guilford Press, 2004, Softcover, $14.95

Dr. Ellen Kirschman first published "I Love a Cop" in 1997, following up with "I Love a Fire Fighter" in 2004 (see below). In our altered operating environment following 9/11 and Hurricane Katrina, she revises "I Love a Cop" with practical suggestions for handling the "new normal" stresses of a law enforcement career, for both officers and their family members.

This edition assists readers in differentiating what they can change and what they cannot. She challenges long-standing myths such as 'police marriages are doomed to fail because of the job.' The truth is that reliable statistics on many aspects concerning the interaction of police work and our personal lives, such as divorce and suicide rates, are notoriously difficult to obtain.

Powerful elements of this book include multiple text boxes of pithy tips ranging from dealing with organizational stress to dealing with cops in crisis. Many of the suggestions pertain to the officer, their spouses/significant others, and to their children. Examples include, "Be proud of police work but don't over identify," "Try to separate what you can control from what you can't," and "Explore rather than ignore what your child is feeling by listening carefully."

A second decisive element is the liberal use of personal stories gleaned from her two decades of working within the police culture with officers and their families. These stories breathe life into her chapters. Fritz's reaction to his near shooting incident, Kent's issues with his department after he was shot on duty, Jorge's struggle to integrate his Hispanic heritage with the demands of his Field Training Officer, and Lulu's efforts to balance her femininity within the masculine dominated police field all illustrate the insights Dr. Kirschman is offering.

Dr. Kirschman traces the career paths most officers follow, offers insights on the sometimes overwhelming impact of organizational stress, and explains the spillover from job to home which impacts many families. For example, officers are trained to be emotionally controlled, hypervigilant, and compliance oriented on the job. However, these same traits of effective officers on the job often negatively impact the officers' lives off the job.

In light of the "new normal" of post-9/11, post-Katrina policing, Dr. Kirschman significantly updated her chapters on trauma and resilience, domestic abuse, alcohol abuse, and treatment options. She updated and expanded the 30 pages of resources, including many international resources, from helpful websites to hotline numbers to recommended readings.

"I Love a Fire Fighter" is written in a similar vein. It is not, by any measure, a clone of "I Love a Cop." Although fire fighting and law enforcement share many similarities, they are very different professions. She addresses the differences between paid fire fighters and volunteers (volunteers comprise 73% of the US fire service), and details the impact of the inclusion of emergency medical response into the fire service, adding that 60-80% of all fire department calls are medical.

The winning formula and strengths discussed above in "I Love a Cop" are also present in "I Love a Fire Fighter."

Once again, I think a true strength of her work is the use of personal stories to illustrate her material. Jack and four of his groomsmen were an hour late to Jack's wedding to Jenny because they responded to a structure fire. We follow Tommy through the application and Academy processes, watch Jenna fight her first fire, and observe Barney struggle with alcoholism that almost ended his career.

Dr. Kirschman outlines the career steps of a fire fighter from the struggle to even join the service (there are 500-1000 applications for every open paid position!) through retirement. She offers insights into firehouse etiquette, and the role humor plays in the daily life of a firehouse.

In the chapter, "Beepers in your bedroom," she describes the two families to which fire fighters belong, their firehouse family and their home family. In contrast to law enforcement, who typically work alone or in pairs, "working fire fighters never go anywhere alone; when one goes, they all go (p. 7)." A challenge for some families is learning to share their fire fighter with the firehouse family, occasionally wondering which family is more important to the fire fighter.

Dr. Kirschman explores how fire fighters struggle with how much to tell their families about their work. A common family complaint is lack of communication; however, from the fire fighter perspective, he/she is attempting to spare their spouse/significant other the auditory, visual, and olfactory traumas they experience on the job but to the family it feels as if they are being excluded. Once again, Dr. Kirschman offers cogent tips for dealing with the spillover between work and home.

She devotes chapters to organizational stress, diversity, on-the-job injuries, and alcoholism, divorce, and infidelity. She also has very thorough chapters on trauma and stress, treating traumatic stress, and getting help. She closes with 25 pages of resources, including helpful websites, organization contact information, hotline numbers, and recommended readings.

I highly recommend both books to mental health professionals, faith based helpers, peer supporters, and family members. Both books offer invaluable insights and constructive suggestions pertinent to these two honorable professions.

Dr. Kirschman, a clinical psychologist and consultant, has worked with public safety personnel, their agencies, and their families for over 20 years. She has written extensively about the public safety culture, and has been an invited speaker at the FBI Academy. She is the co-founder of the website, www.policefamilies.org, dedicated to providing essential psychological information and improved access to family support services.