Purpose and Scope

The **International Journal of Emergency Mental Health** provides a peer-reviewed forum for researchers, scholars, clinicians, and administrators to report, disseminate, and discuss information with the goal of improving practice and research in the field of emergency mental health.

The **International Journal of Emergency Mental Health** is a multidisciplinary quarterly designed to be the premier international forum and authority for the discussion of all aspects of emergency mental health.

The **Journal** publishes manuscripts (APA style) on relevant topics including psychological trauma, disaster psychology, traumatic stress, crisis intervention, emergency services, Critical Incident Stress Management, war, occupational stress and crisis, employee assistance programs, violence, terrorism, emergency medicine and surgery, emergency nursing, suicidology, burnout, and compassion fatigue. The **Journal** publishes original research, case studies, innovations in program development, scholarly reviews, theoretical discourse, and book reviews.

Additionally, the **Journal** encourages the submission of philosophical reflections, responsible speculations, and commentary. As special features, the **Journal** provides an ongoing continuing education series providing topical reviews and updates relevant to emergency mental health as well as an ongoing annotated research updates of relevant papers published elsewhere, thus making the **Journal** a unique and even more valuable reference resource.

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ORIGINAL ARTICLES

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Editorial

As well-intended as our crisis and trauma intervention efforts may be, there is also the requirement that they actually be effective. Much of the controversy that has swirled around the efficacy of CISM and other emergency psychological response protocols reflects the dearth of hard evidence that often characterizes the early stages of developing medical, psychological, and emergency response models and procedures.

The current issue of IJEMH highlights the emergency mental health field's continuing progress in becoming a scientific, empirically-informed, and evidence-based practice discipline. The articles in this issue are reviews or empirical investigations of both traditional and innovative emergency psychological response protocols applied to a diverse range of crisis scenarios around the world.

Pilots in the cockpit and surgeons in the operating room adhere to strict rules of procedure to maintain safety and assure efficiency of their actions. They know that standardizing routine procedures frees their brains to innovate and improve on novel ones. Mitchell provides a template of flowcharts and checklists to standardize and streamline emergency response activities. Edwards-Stewart and colleagues describe an integrative model for implementing embedded psychological support teams in disaster response.

How do we know our assessment and intervention strategies really work? Gunn and colleagues test a model for evaluating risk factors and warning signs of suicide, while the article by Favelle and colleagues describe a protocol of "postvention," that is, dealing constructively with the aftermath of a suicide; together, these two contributions provide a 360-degree framework for suicide crisis response.

The science of crisis intervention and trauma therapy is enhanced by two further contributions, the first by Connolly and Sakai, examining the efficacy of an innovative treatment protocol, Thought Field Therapy, with survivors of genocide in Rwanda. Growing evidence suggests that psychological trauma can adversely affect neurocognitive functioning – but does thinking improve with resolution of the traumatic stress syndrome? The study by Salazar and Motta suggests that such changes can be quantitatively measured by cognitive testing, which will no doubt prove invaluable as one tool for assessing the efficacy of a range of treatment methods.

In addition to their scientific rigor, the articles in this issue also pass the crucial "So, what?" test; that is, far from consisting of a collection of dusty abstractions, these findings have real, practical implications for the everyday practice of crisis intervention and trauma therapy with real human beings who need our aid.

Laurence Miller, PhD

October 20, 2011

Critical Decision Points in Crisis Support:
Using Checklists and Flow Charts in Psychological Crises

Jeffrey T. Mitchell

The University of Maryland at Baltimore County

"Every great mistake has a halfway moment, a split second when it can be recalled and perhaps remedied."
-Pearl S. Buck (1892 - 1973), American Writer and Novelist

Abstract: The field of crisis intervention has grown dramatically during the last hundred years. Many new procedures and techniques have been added to the crisis intervention repertoire. Periodically, providers of crisis intervention, Psychological First Aid, Critical Incident Stress Management, or Peer Support overlook important elements of crisis intervention or make inadvertent mistakes as they attempt to intervene. The use of checklists and flow charts, similar to those used in aviation and medicine, may assist crisis intervention personnel in properly assessing a traumatic event and its impact on the people involved. Simple checklists and flow charts may significantly decrease the potential for mistakes in crisis intervention. This article provides background on the development of flip charts in aviation and medicine and suggests how these tools may be utilized within the field of crisis intervention. Examples of checklists and flow charts that are relevant to crisis intervention are provided. The article also provides guidelines for developing additional checklists and flow charts for use in crisis intervention services. [International Journal of Emergency Mental Health, 2011, 13(3), pp. 137-146]..

Key words: *Crisis action plan, crisis checklists, crisis, crisis intervention, Critical Incident Stress Debriefing, Critical Incident Stress Management, decision processes, flowcharts, flowchart symbols, Peer Support Services, Psychological First Aid, strategic response to crisis, themes in crisis intervention.*

From time to time, we hear of mistakes in the crisis intervention field. Some are minor and, on occasion, may even be considered humorous. Others may be the source of considerable duress for well-meaning crisis workers who did not think clearly and failed to make critical decisions at

crucial moments in time. They may have misunderstood the nature of the crisis or the needs of the victims. In some circumstances, crisis intervention processes were misapplied to the wrong target populations or inappropriate support personnel may have been assigned to crisis intervention tasks. In worst case scenarios, mistakes in providing crisis support may have harmful effects upon the victims. Future support services may, therefore, be rendered impossible.

Psychological first aid for individuals and groups can be a complex task. People in need of assistance are in emotional and, sometimes, physical pain. Those who wish to provide

Jeffrey T. Mitchell, Ph.D. is a Clinical Professor of Emergency Health Services, University of Maryland and President Emeritus, International Critical Incident Stress Foundation. He is an adjunct faculty member, Federal Emergency Management Agency. Additionally, he is an Expert Consultant to the UN Department of Safety and Security Working Group on Stress. Correspondence regarding this article should be directed to jeffreytmitchell@hotmail.com.

assistance are anxious because they want to do their best to help, but they are contending with numerous external and internal influences. An emotional crisis is typically accompanied by many distractions including time pressures, noise, an active or changeable location, and a wide array of people trying to influence those in need of support. The very nature of a crisis is that those undergoing it are emotionally and cognitively overwhelmed. The crisis victim's feelings of being overwhelmed add to the difficulties associated with crisis management and effective crisis support. Mistakes can be compounded if crisis intervention personnel lack adequate training or if they fail to adhere to well established principles and practices of Critical Incident Stress Management (CISM).

This article provides information on the use of checklists and flow charts to aid CISM and other crisis workers in organizing and simplifying Psychological First Aid and other crisis intervention procedures. A portion of the article provides a visual guidance system to assist crisis support personnel in providing appropriate, timely, and carefully developed assistance during times of turmoil. A series of checklists and flow charts are presented that will help to guide crisis workers, such as mental health professionals and peer support personnel on Critical Incident Stress Management teams, in their crisis decision making.

Background and Rationale for Checklists

The human brain is a marvelous organ with a vast capacity to, among other things, remember information, problem solve, coordinate emotional reactions as well as physical activity, and communicate with others. Despite those incredible powers, the human brain is also fallible. It may become distracted or confused. This is especially so when a person is under duress. The human brain can forget or it may overlook certain details as it attempts to find solutions to complex and urgent problems such as those frequently associated with emotional crises.

Although most references to the history of checklists relate to the aftermath of a fatal military aircraft accident in 1935 (Schamel, 2009), it is probably safe to say that the actual history of the use of checklists is lost somewhere in antiquity. It is difficult, for example, to imagine the Roman army marching to its conquests without someone maintaining a list of all it would need in the impending battles. It is equally difficult to imagine people such as Da Vinci, Galileo, Darwin, and Einstein performing their work without lists to guide them in their experiments and in the maintenance of their records. Over the last century, however, checklists have expanded from the military, scientific, and aviation communities into numerous human endeavors such as manufacturing, sports, entertainment, emergency management, and medicine. There appears to be a pressing need for them in the field of crisis intervention.

A checklist is simply an aid to memory. It compensates for the limits of human memory and the restrictions of a person's capacity to attend to detail. Checklists reduce the potential to encounter mistakes or failures in one's performance. They help us not to forget details that may be important, especially in stressful conditions. Checklists may range from simple grocery or shopping lists or lists of equipment for a camping or a diving trip to more complex lists that are used in aviation to enhance safety or in operating rooms to avoid dangerous medical mistakes. The pilot's checklist, developed in the 1930s and the safe surgery checklist, developed in last five years, are models for many other types of checklists. Those types of lists are categorized as DO-CONFIRM lists in the field of aviation. This type of list focuses on confirming that important tasks were completed or that the proper equipment or materials has been collected and are ready for use (Gawande, 2009).

Many people, who have experience working with crises, begin to perform or arrange tasks as soon as they finish their preliminary assessment. Most of those early actions are appropriate and essential in good crisis management. It is expected that experienced people do many of these tasks automatically. The use of the DO-CONFIRM style list, however, helps to keep crisis workers from getting too far ahead of themselves and running the risk of missing something important. If something on the list was not done or is missing, that task or issue should be immediately addressed.

Another kind of general checklist tells us what steps we need to do to accomplish a specific task. In aviation, this type of list is called a READ-DO list. This type of list is typically read out loud by one member of a team and tasks are carried out by the team members, one after the other, as the list is read. The READ-DO list is a step-by-step guide through a series of important procedures (Gawande, 2009).

In the field of crisis intervention most often we will need a CONFIRM-DO type of checklist. Occasionally we might benefit from a READ-DO kind of checklist. The CONFIRM-DO list requires us to stop periodically and go through our checklists to make sure we are not missing something. The

READ-DO type of list may be most useful in complex situations such as disasters in which the steps are uncertain because of the novel and complex nature of the disaster situation. In such cases it is beneficial to slow down and look at the READ-DO list and make sure each step in the strategic plan is carried out to assure the best possible outcome.

Checklists for use in crisis intervention will typically not require that the items are actually checked off with a written mark. The checklist is not looked at as a record-keeping procedure. Instead it is a memory stimulator (Gawande, 2009, Mind Tools, 2010). If, for some reason, there is a requirement that each item be checked off or if one wants to be extra sure that every item or step is followed, then a dot, a small check mark, or an 'x' is placed in the box to the left of the item. In certain circumstances, such as in manufacturing, the person responsible for the item on the list must sign or initial the item and provide the date and time of its completion. Again in crisis support services, the actual checking off of items on a crisis intervention checklist will be quite rare.

Flow Charts

Flow charts are a bit more sophisticated than the simple check lists. They are graphical representations of the sequence of steps in various procedures. They designate when specific operations, decisions, or inspections are to be completed. Flow charts graphically describe how functions interact within a system. They are about sequences and relationships of various tasks or procedures to one another. The most complicated flow charts are usually called "process flow charts" because they provide detailed descriptions of specific steps in an activity and they end with some final step or completion of an objective that concludes the activity (Mind Tools, 2010).

Flow charts are used to communicate, to assist in discussions, to define procedures, to analyze the effectiveness of processes, and to initiate changes to procedures. Flow charts are built to create a visual representation of a process. They allow the user to concentrate on key steps rather than to be distracted by an overwhelming larger picture with too much detail.

It is strongly recommended that symbols in crisis support flow charts be simple and consistent with the use of symbols in other forms of human endeavor. Adhering to accepted symbols reduces the potential for confusion and misunderstanding. Commonly used symbols in flow charts include ovals, squares, rectangles, triangles, arrows, and diamonds. When using symbols within a crisis support flow chart they should always mean the same thing. Ovals indicate the beginning or ending of a process. Rectangles provide specific instructions or represent steps in a procedure. A diamond indicates a spot where a decision must be made. Triangles suggest that important information should be reviewed. Squares indicate that an assessment is necessary. Arrows guide the crisis team members to one area or another of the chart to assist in further steps.

Essential Elements for Check Lists and Flow Charts in Crisis Intervention

Checklists and flow charts designed to be used in crisis situations should always be easy to read, understand, and to follow (Campbell, 2010). They should only be utilized by trained and experienced CISM team members. They should never be so long or so detailed that they become cumbersome, confusing, or too challenging to employ. The focus in the development of all checklists and flow charts should be on the most essential items. Any checklist or flow chart that is vague, overly detailed, imprecise, or impractical will not work (Gawande, 2009). Simplicity, speed of application, and an orientation toward safety should be the earmarks of crisis-focused checklists. It is important, therefore, that simple written or verbal "memory joggers" or commonly used symbols be used in checklists or flow charts in an effort to reduce the potential for confusion and misunderstanding.

Good checklists or flow charts have several important characteristics (Gawande, 2009). They are:

- Precise

- Efficient and brief (no more than 5 to 9 items) and should be completed in 30 to 60 seconds

- Focused on the most critical steps at crucial moments

- Practical

- Clear and uncluttered

- Written in simple, exact terms

- Tested in "real world" circumstances

- Improved after applications in real world experiences

Flow charts may take considerable time to develop and

they should be tested in real circumstances before they are finalized. The steps in developing a flow chart are as follows.

- Decide which issues or concerns in crisis work may be assisted by means of a flow chart.

- Write out detailed steps in the process.

- Select only the most important steps that should be included in the flow chart. Aim at 5 to 9 key steps or procedures that can be addressed in about a minute.

- Prioritize the steps in the process.

- Draft the flow chart using the appropriate symbols.

- Discuss and evaluate the draft. Remove unimportant or confusing steps. Alter the flow chart to match the decisions made by the team.

- Rewrite the flow chart in its final form using the proper symbols.

- Train all team members in the use of the flow chart.

- Institute the use of the flow chart in routine situations.

- Monitor the results and challenges of using the flow chart.

- Review and revise the flow chart.

- Inform team me bers of the alterations on the flow chart.

- Apply the improved version of the flow chart.

- Remind people that the flow chart is only a tool to guide a crisis intervention process and careful thinking and professional judgment is more important than just completing the steps or phases in the flow chart.

No checklist or flow chart, no matter how precise or

Figure 1.
Common Flow Chart Symbols

Ovals represent **beginnings** and **endings** of processes

Squares indicate that an **inspection or assessment must be performed**

Rectangles represent **instructions, steps, or actions**

Arrows indicate **movement to one portion of the chart or another**

Diamonds indicate a **decision point**

Indicates that the **chart flows to the next page** ("off page connector")

A triangle indicates the **storage of key points or important information**

carefully designed, can ever be a substitute for proper training to provide support in a crisis situation. Experience in crisis support services establishes an enormous advantage for anyone providing crisis intervention services including all aspects of psychological first aid. Likewise, common sense and logical thinking is essential for the appropriate use of checklists or flow charts for people in duress.

Sample Checklists for Crisis Support Services

The following checklists and flow charts may be used by trained CISM personnel in their current state or they may be modified to accommodate the circumstances associated with specific crisis situations. These flowcharts are simply tools to help guide experienced crisis intervention providers through a decision process. Guidelines are not rigid rules that cannot be changed when circumstances require an alternative approach.

The flowcharts and checklists recommended in this article should never be applied in a rigid manner and certainly not by people who lack knowledge and experience in crisis intervention. Great flexibility is required when attempting to use flowcharts and checklists in any crisis situation. Unusual or unique circumstances may interfere with the use of certain checklists or flowcharts. Should such a situation arise, it is essential that CISM team members and other crisis workers use good judgment and common sense to decide how best to approach a crisis situation and the reactions of the people

exposed to it. Remember, crisis intervention knowledge and skill supersedes a tool like a checklist or a flow chart. It is better to abandon a flowchart or a checklist and select an appropriate alternative crisis management pathway than to continue to attempt to apply a checklist or flowchart that is simply not working in a particular circumstance. Avoid just doing things strictly by a checklist. Thinking should precede doing.

The first Checklist in the samples above, proposed by Albert Roberts (2005), covers the seven-stage crisis intervention model. It has applicability in any crisis situation and should be committed to memory by crisis intervention personnel everywhere.

The second checklist outlines the five essential elements for the development of a strategic crisis intervention plan. Checklists 1 and 2 are most commonly used in conjunction with one another. Information established by the use of one checklist makes the other more valuable and helps in decision making and the development of a specific crisis action plan.

The third checklist is more like a READ-DO check list as described earlier in this article. This checklist helps crisis support personnel to develop an appropriate and useful crisis action plan. The list contains the primary considerations for any crisis action plan. It is written in the form of questions that are designed to encourage the crisis interveners to think clearly about the crisis action plan as it is being developed. One person reads the checklist out loud. Then the CISM team members contribute to developing an appropriate plan.

Checklist 1.
General Crisis Intervention

☐ 1. Assess lethality and safety

☐ 2. Establish rapport and engage communication

☐ 3. Identify major problems

☐ 4. Explore and deal with emotions

☐ 5. Explore alternatives and partial solutions

☐ 6. Develop a crisis action plan

☐ 7. Establish a plan to terminate crisis intervention and provide for follow-up

(Roberts, 2005)

Checklist 2.
Strategic Approach to Crisis Support

☐ 1. Assessment

        Gather Information
        Describe incident nature and magnitude and impact on personnel

☐ 2. Identify theme influences, potential problems, etc

☐ 3. Determine target populations

        Individuals, groups, large populations

☐ 4. Decide on the types of interventions

        Individual
        Large group
        Small group
        Other interventions

☐ 5. Establish appropriate timing to intervene

☐ 6. Designate team members to carry out crisis support

☐ 1. Follow-up

☐ 2. Refer if necessary

☐ 3. Conclude support services

Checklist 3.
Essential Elements of a Crisis Action Plan

☐ 1. Is plan simple, safe and practical?

☐ 2. Anyone require medical care and/or law enforcement services?

☐ 3. Can the plan be accomplished in the short term?

☐ 4. Can plan be implemented immediately?

☐ 5. Is plan well thought out, organized, and focused on current circumstances?

☐ 6. Can the victims of the crisis actually use the plan?

☐ 7. Is the plan flexible if circumstances change?

☐ 6. Does the plan require cooperation from people or organizations not involved in the crisis situation?

☐ 7. Are appropriate referral resources available if needed?

Sample Flow Charts for Crisis Support Services

Flow Chart 1, Strategic Crisis Support, demonstrates the progression of steps in strategic crisis support services. Notice that only the essential elements of the process are shown in the flow chart. This sample flow chart incorporates the basic symbols that are commonly used in flow charting. This sample should serve as a guide for those who wish to develop their own crisis flow charts. Modifications of this chart to accommodate the needs of CISM teams working in unusual circumstances are encouraged.

Flow chart 2 demonstrates the process used when deciding whether or not the Critical Incident Stress Debriefing (CISD) is appropriate in the aftermath of a critical incident. Remember, the diamond shaped figures in a flow chart indicate important decisions points. The triangles contain essential information to aid in the decision making process. Squares always indicate a need to evaluate or assess. Having additional assessment points in CISM services is encouraged. Additional assessments help to reduce the potential for errors. Please note that follow-up services, referrals to those who need them, and Post Action Staff Support for team members are all essential elements of a CISD.

There are situations in which neither a checklist nor a flow chart will be helpful, but a simple diagram may be all that is necessary to express a concept. An illustration of the use of a simple diagram to express the influence of themes on the strategic planning process is contained in Diagram 1. Theme, of course is a term that covers many issues. It includes the nature, magnitude, and threats of the traumatic event as well as a wide array of circumstances, issues, concerns, questions, and considerations that are important to the planning process. Examples of issues important to the planning process are the number of victims, the relationship of helpers to victims, types of emergency service response personnel, scheduling concerns, resistance on the part of leadership, and conflicts within or between organizations. There are certainly many other issues.

In this diagram, unusual symbols, different than those typically used in flow charts were selected to avoid confusion with flow charts. Themes are shown to directly influence the Targets (populations) that may be selected to receive assistance. Likewise, the Types of interventions chosen and the Timing of those interventions are impacted by the themes. Finally, the choice of Team members to conduct various CISM services may depend heavily on the themes surrounding the traumatic event.

Conclusion

Diagrams representing various concepts in the field of crisis intervention have been used for decades. Checklists and flow charts, however, have generally been used only in a limited fashion. Their importance, however, is increasing because the field of crisis intervention has grown in its complexity. In response to emergencies and crisis situations, support personnel must be insightful, decisive, careful, and thorough. Mistakes and missed opportunities can have serious consequences.

Checklists, flow charts, and diagrams are simple aids to memory that have a definite place in the planning and delivery of crisis support services. Several exmples are presented in this article. Others should be developed and utilized to assure that the services rendered to assist people are as comprehensive, integrated, systematic and multifocused as possible. Flow charts and checklists, however, have significant limitations in crisis work and those should be recognized by CISM team members. Those who use checklists and flow charts must use caution. Never allow one's best judgment to be impaired by an over-reliance on flow charts and checklists. Professional judgement, experience, training, and practical skills are essential in the field of CISM. The resilience and recovery of distressed human beings depends on the very best CISM services that can be delivered. Flow charts and check lists should be viewed only as an aid to achieving exemplary support services, not as a substitute for appropriate professionalism, training and experience.

Flow Chart 1.
Strategic Crisis Intervention

Critical Influence

↓

Establish Rapport

↓

Assessment

Themes
Target
Types
Timing
Team

↓

Develop Crisis
Action plan

↓

Use themes to
Identify Targets — uncertain?

↓

Decide on
Interventions

↓

Plan Timing of
Interventions — uncertain?

↓

Reassess

↓

Select Team Members
to Respond

↓

Decide on
Response
Team

↓

Conduct support
services

↓

**Conclude support
services**
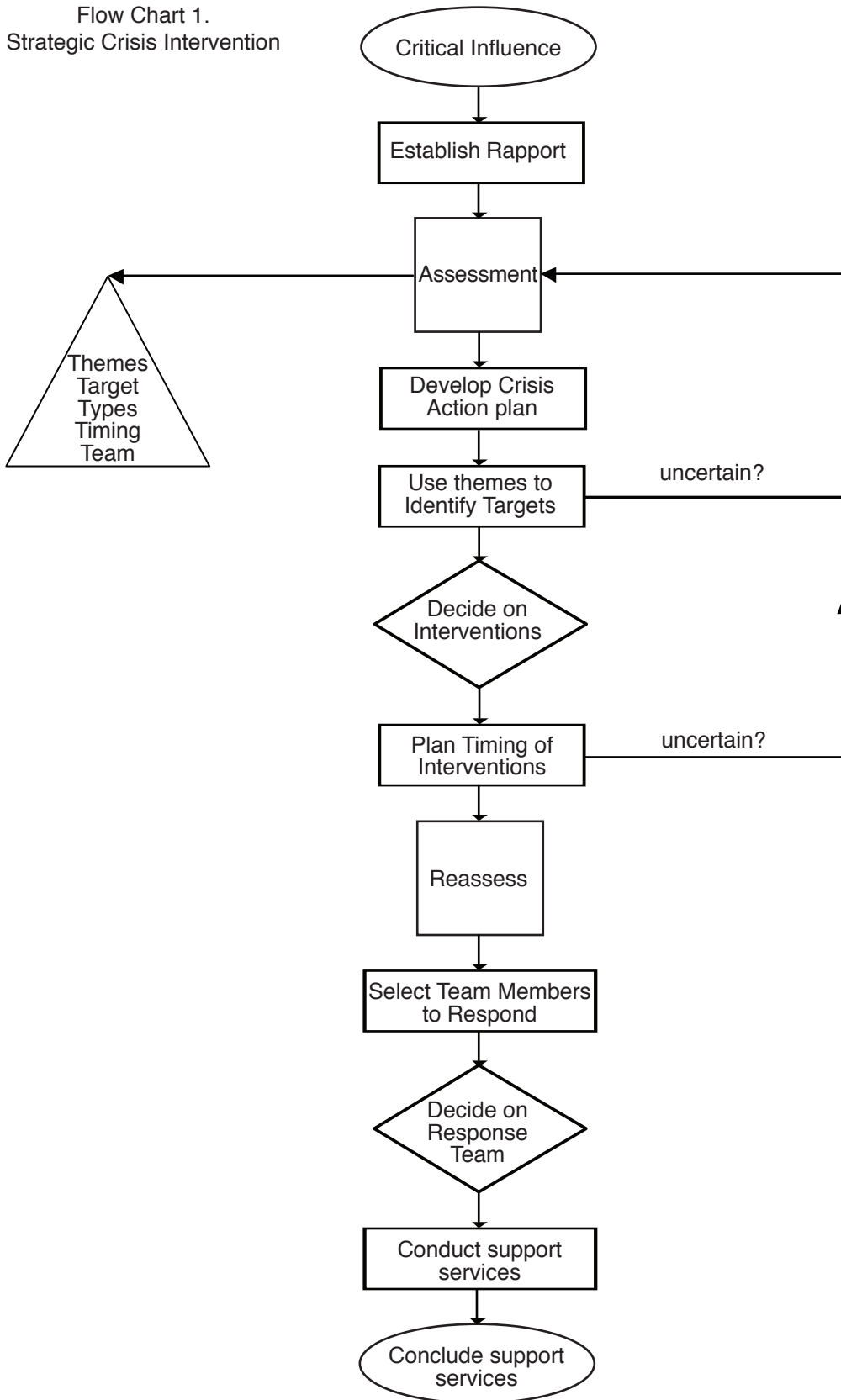
Flow Chart 2.
Decision process on the use of the CISD

```
                          ┌─────────────────────┐
                          │   Critical Incident  │
                          └──────────┬──────────┘
                                     │
                          ┌──────────▼──────────┐
                          │     Assessment       │
                          └──────────┬──────────┘
                                     │
                              ╱──────▼──────╲         NO
                             ╱  All primary   ╲──────────────┐
                             ╲   criteria for  ╱              │
                              ╲  CISD met?    ╱               ▼
                               ╲──────┬──────╱    ┌──────────────────────────────┐
                                      │           │ Use CMB for large            │
                                  YES │           │ heterogeneous groups         │
                                      │           │ One-on-one for individual    │
                                      │           │ support                      │
                                      │           │ Other support CISM services  │
                                      │           │ as necessary                 │
                                      │           └──────────────────────────────┘
                          ┌──────────▼──────────┐
                          │    Prepare for       │
                          │       CISD           │
                          └──────────┬──────────┘
```

Gather information
Select and brief team
members
Provide other CISM services
as required

(All primary criteria above required)

Inform/encourage
participation

Conduct CISD

Provide follow-up

Refer as
necessary

Post action staff
support for team

Conclude CISM
operations

Diagram 1.
The Influence of Themes on CISM Strategic Planning

TARGETS

TYPES ← THEMES → TIMING

TEAM
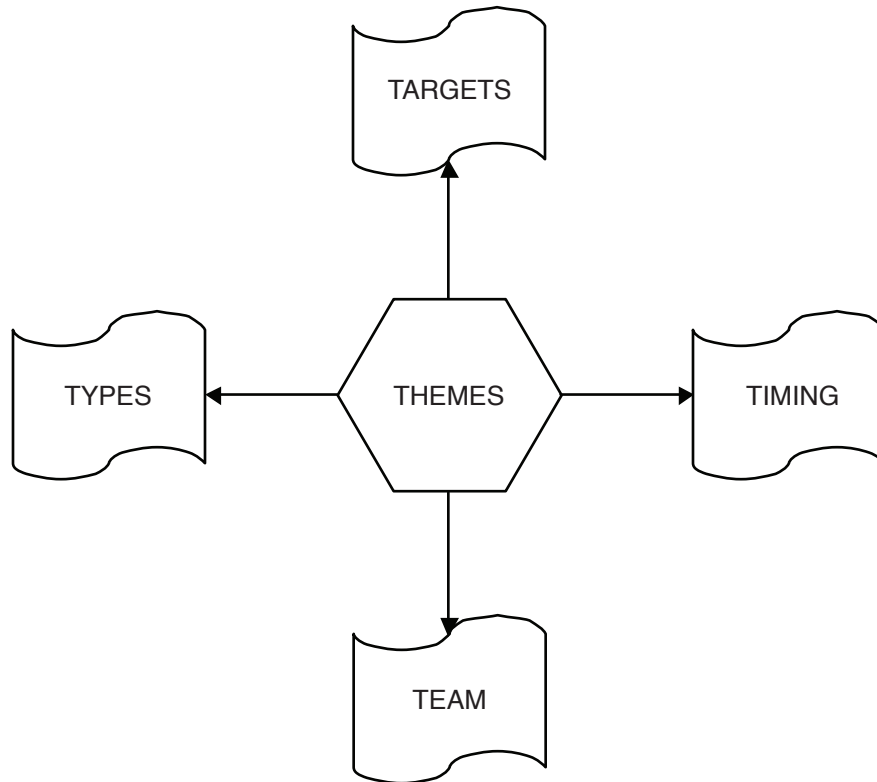
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Testing the Warning Signs of Suicidal Behavior Among Suicide Ideators Using the 2009 National Survey on Drug Abuse and Health

John F. Gunn III
Rutgers, The State University
of New Jersey

David Lester
The Richard Stockton College
of New Jersey

Stephanie McSwain
The Richard Stockton College
of New Jersey

Abstract: In order to help crisis counselors assess clients for their suicidal risk, in 2003 the American Association of Suicidology proposed ten warning signs, memorized through the acronym IS PATH WARM. However, little research has been done investigating their effectiveness for predicting suicidal behavior. The present study compared (1) suicide ideators with non-suicide ideator controls and (2) suicide ideators with suicide attempters on six of the IS PATH WARM warning signs, along with depression in the past year, marital status, and gender. With regards to the comparison between suicide ideators and non-ideators, all variables but gender, abuse of alcohol in the past year, and anxiety in the past year, were predictive of suicide ideation. However, when comparing suicide ideators who had not made a suicide attempt with those who had, only anger/aggression, depression in the past year, and marital status were predictive of a suicide attempt. [International Journal of Emergency Mental Health, 2011, 13(3), pp. 147-154]..

Key words: *suicide, warning signs, suicidal ideation, attempted suicide, prediction*

In the United States, suicide claims almost 35,000 lives every year making it the 11th leading cause of death (McIntosh, 2010). In addition to those who lose their lives to suicide, estimates of the number of suicide attempts in the United States range from 800,000 to 1,000,000 each year. For this reason, any research that can shed light on predictors of suicidal behavior could potentially save lives. The aim of the present study was to test some of the IS PATH WARM warning signs developed by the American Association of Suicidology to determine which variables differentiate between

suicide ideators and non-ideators and between suicide ideators who had not made an attempt in the past year and those who had made a suicide attempt. In addition to the IS PATH WARM warning signs, this study also examined the role of marital status, gender, and depression in suicidal behavior.

The mnemonic IS PATH WARM was developed by the American Association of Suicidology in 2003 as a clinical tool for assessing immediate suicide risk (Juhnke, Granello, & Lebron-Striker, 2007). IS PATH WARM stands for: Suicide Ideation, Substance Abuse, Purposelessness, Anger, Trapped, Hopelessness, Withdrawal, Anxiety, Recklessness, and Mood Change. Most of these risk factors are represented in the National Survey on Drug Use and Health (www.icpsr.umich. edu/icpsrweb/SAMHDA/studies/29621) with the exception of purposelessness, trapped, and mood change, which will, therefore, not be evaluated in this study.

Lester, McSwain, and Gunn (2011) examined the IS PATH WARM warning signs, comparing two collections of suicide notes (genuine versus simulated notes and notes from attempted suicides versus completed suicides). The warning signs did not differentiate between the simulated and genuine suicide notes, nor between notes written by attempted and completed suicides. The researchers concluded that the warning signs needed to be further evaluated for their effectiveness as risk assessment tools. However, their study was limited by the fact that the IS PATH WARM warning signs are a clinical assessment tool and meant to be used with acutely suicidal patients. They were not meant to evaluate suicide notes for research purposes. By comparing the presence of the warning signs in a sample of suicide ideators and suicide attempters, the present study expands on the study by Lester and colleagues. Although some of the warning signs have been empirically tested individually (e.g., hopelessness), no empirical research has evaluated their use as a checklist for suicidal risk.

Substance abuse's role in suicidal behavior has been examined at the theoretical and empirical level. Menninger (1938) felt that alcoholism was a form of suicidal behavior, a type of "chronic suicide." Lester (1997) reported that substance abusers attempt and complete suicide at a greater rate than non-abusers, perhaps because substance abuse has a negative effect on social relationships and leads to social decline (both of which are indicative of the withdrawal warning sign), and increases in impulsivity and depression. As Lester (1997) puts it "[b]ecause the use of alcohol and drugs is often associated with attempts to change unhappy moods, it is not surprising that they would be involved in suicidal behavior" (p. 139).

Suicide was viewed by the earliest suicide theorists as resulting from anger and aggression turned inward against the self. Menninger (1938) felt that suicide occurred as a result of three motivations: the need to kill, the need to be killed, and the need to die. The need to kill emphasizes the role of anger and aggression in suicidal behavior. Horesh and colleagues (1997) found that suicidal individuals differed from nonsuicidal individuals in having higher scores on measures of impulsivity and anger. Kotler and colleagues (1993) compared suicidal psychiatric inpatients with nonsuicidal psychiatric inpatients on several variables, including impulsivity, violence risk, and feelings of anger, and found that impulsivity and feelings of anger, along with violence risk, differentiated the nonsuicidal from the suicidal groups.

However, Kienhorst, De Wilde, Diekstra and Wolters (1995) interviewed suicidal adolescents who had attempted suicide and found that anger, rage, and aggression were present in only some of the suicide attempters.

The role of hopelessness in suicidal behavior was first emphasized by Beck who developed the Beck Hopelessness Scale. Using this scale, Beck, Steer, Kovacs and Garrison (1985) examined 207 patients with suicidal ideation, of whom 14 later died from suicide. Only hopelessness predicted subsequent completed suicide. Beck, Brown, Berchick, Stewart and Steer (1990) examined 1,958 outpatients of whom 17 went on to complete suicide. Once again, Beck Hopelessness Scale scores were highly predictive of completed suicide, accurately predicting 16 (94.2%) of the 17 eventual suicides. Both of these studies lend strong support for the role of hopelessness in suicidal behavior.

The role of social withdrawal in suicidal behavior has a long history in the study of suicidal behavior. Durkheim (1897) examined suicidal behavior from a sociological perspective, applying two basic concepts - social integration and social regulation. A society that is socially integrated possesses members that have durable and stable social relationships. Suicide occurs at the two extremes of social integration. Societies with members who possess social bonds that are too strong would have high rates of altruistic suicide, while societies with members who possess weak social bonds would have high rates of egoistic suicide. Societies with moderate levels would have lower suicide rates. More recently, Joiner (2005) proposed an Interpersonal Theory of Suicide (ITS) which hypothesized that suicide occurs because of a sense of thwarted belonging and a sense of perceived burdensomeness and because of an acquired capacity to enact lethal self-harm. Of relevance to the present study is the concept of thwarted belonging which is similar to Durkheim's concept of social integration. The role of social bonds was supported by Kposowa (2000) who found that marital status was related to suicidal behavior, with divorced individuals at higher risk of suicidal behavior.

The evidence for the role of anxiety in suicidal behavior is not as robust as the other warning signs. Sareen, Houlahan, Cox, and Asmundson (2005) utilized the National Comorbidity Survey to investigate the incidence of suicidal ideation and suicidal behavior in patients with anxiety disorders - social phobia, panic disorder, agoraphobia, generalized anxiety disorder, simple phobia, and posttraumatic stress disorder (PTSD). Of these anxiety disorders, only PTSD was signifi-

cantly associated with suicidal ideation and suicide attempts. Sareen, Cox, Afifi, and colleagues (2005) found that anxiety disorders were significantly associated with suicidal ideation and suicide attempts and that, when coupled with a mood disorder, the likelihood of suicide attempts was even greater.

The role of recklessness in suicidal behavior is also less robust than other IS PATH WARM warning signs. As with substance abuse, Menninger's (1938) notion of chronic suicide provides a theoretical basis for the role of recklessness in suicidal behavior. Garrison, McKeown, Valois, and Vincent (1993) investigated suicidal behavior in 3,764 high school students, and found no support for the role of recklessness in suicidal behavior. Stanton, Spirito, Donaldson, and Boergers (2003) examined risk-taking behavior in a sample of 109 adolescents (aged 13-18) compared to a control sample of 218 from the same community. They found no differences between those who had attempted suicide and a nonsuicidal control group on measures of risk-taking. These findings do not support the presence of recklessness in the above warning signs. However, King and colleagues (2001) investigated the role of risk-taking behaviors in a sample of 1,285 children aged 9-17 and found that risk-taking behavior (such as smoking, physical fighting, alcohol intoxication, and sexual activity) was significantly associated with suicidal ideation and suicide attempts. These contradictory findings support the need to test this warning sign for suicide more thoroughly.

The aim of the present study was to evaluate each of the aforementioned warning signs for their power in predicting suicidal behavior. It was hypothesized that each of the warning signs (substance abuse, anger/aggression, hopelessness, social withdrawal, anxiety, and recklessness) would predict suicide ideation and suicidal behavior. Furthermore, following Kposowa (2000), it was hypothesized that marital status would also be related to suicidal behavior.

METHOD

Participants and Procedure

The participants for this study were gathered from the 2009 National Survey on Drug Use and Health (NSDUH; www.icpsr.umich.edu/icpsrweb/SAMHDA/studies/29621). The NSDUH dataset is collected with the primary purpose of investigating the prevalence and correlates of drug use in the United States. Qualified participants for the 2009 NSDUH had to be noninstitutionalized civilians, aged 12 years of age

or older. The present study included only those 18 years or older as only those participants in the survey were asked about suicidal behavior. The sample consisted of 37,933 participants. Of these, 2,025 reported experiencing suicidal ideation in the past year, of whom 310 reported a suicide attempt in the previous year. A random sample of 2025 was drawn from the much larger (i.e. 35,912) non-ideator population, making the total sample analyzed 4,050 subjects. The final sample consisted of 1,813 (44.8%) males and 2,237 (55.2%) females, of whom 63.6% (2,574) were classified as non-Hispanic White, 11.6% (470) were classified as non-Hispanic Black, 1.7% (68) were classified as non-Hispanic Native American, .5% (22) were classified as non-Hispanic Native Hawaiian/Other Pacific Islanders, 3.5% (140) were classified as non-Hispanic Asian, 3.8% (155) were classified as non-Hispanic other race, and 15.3% (621) were classified as Hispanic.

In order to test the effectiveness of the IS PATH WARM warning signs of suicidal behavior, subjects who had reported having suicide ideation in the past year were compared to subjects who had reported not having suicide ideation in the past year. In addition, subjects who had suicidal ideation were compared to subjects who had attempted suicide within the past year. Of the IS PATH WARM warning signs for suicidal behavior, substance abuse, anger, hopelessness, withdrawal, recklessness, and anxiety were present in the NSDUH dataset, leaving purposelessness, trapped and mood change left out of this study.

Variables

Suicidal ideation and behavior. Participants were asked: (1) "During the past 12 months, did you try to kill yourself?" and (2) "At any time in the past 12 months, did you seriously think about trying to kill yourself?" The answers to these variables were coded as yes versus no.

Substance abuse. Alcohol and drug abuse were diagnosed as present versus absent according to DSM-IV-R by the staff conducting the survey.

Aggression. Participants were asked, "During the past 12 months, how many times have you attacked someone with the intent to seriously hurt them?" Participants who reported not having attacked someone in the past year were coded as having no aggression present and those who reported having attacked someone in the past year, regardless of how many times, were coded as having aggression present.

Hopelessness. Participants were asked, "During the past 30 days, how often did you feel hopeless?" (This item, rather than the one covering the past 12 months was used since almost a third of the sample did not answer the 12-month item.) Participants who responded that they had felt hopelessness "none of the time" were coded as having no hopelessness present, while subjects who responded they felt hopelessness "a little of the time," "some of the time," "most of the time," or "all of the time" were coded as having hopelessness present.

Withdrawal. Participants were asked, "During that one month when your emotions, nerves, or mental health interfered most with your daily activities, how much difficulty did you have in participating in social activities, like visiting friends or going to parties?" This was recoded from a 10-category variable to a dichotomous variable. Subjects who responded "no difficulty," "mild difficulty," "moderate difficulty," or "severe difficulty" were coded as having no withdrawal present, as these subjects participated, even with difficulty. Subjects reporting that they had not participated in social events at all were coded as having withdrawal present.

Anxiety and Depression. Participants were asked whether a doctor or other medical professional had told them in the past 12 months that they had an anxiety disorder or depression.

Recklessness. Recklessness was assessed by the question, "How often do you like to test yourself by doing something a little risky?" Subjects who responded "never" were coded as not having recklessness present, whereas subjects who responded "seldom", "sometimes", or "always" were coded as having recklessness present.

Demographic variables. The sex, race, and marital status of the participants were noted. Marital status was coded as married versus all other marital states (e.g. divorced, separated, widowed, single).

Data Analysis

The data were examined using SPSS Statistics version 19, GradPack edition. Basic cross-tabs were run to compare the subjects on each variable. A logistical regression model was developed to determine the power of aggression, anxiety, hopelessness, depression, social withdrawal, recklessness, substance abuse (both alcohol and illicit drugs), gender, and marital status to differentiate between the suicidal ideators

and non-ideators, and suicide ideators and suicide attempters. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated.

RESULTS

The scores for the three groups are shown in Table 1 where it can be seen that the non-suicidal subjects differed significantly on all variables from those with past suicidality.

Suicide Ideators vs Non-Ideators

A logistical regression was performed to predict those who had reported suicide ideation in the past year. The model contained 10 independent variables (aggression, hopelessness, social withdrawal, marital status, gender, alcohol abuse, illicit drug abuse, recklessness, anxiety, and depression). The model with all predictors was statistically significant (X^2 = 1139.27, df = 10, p < .001), indicating that this model was able to distinguish between those who had reported suicide ideation and those who had not reported suicide ideation. The model as a whole explained between 27.2% (Cox and Snell R^2) and 36.4% (Nagelkerke R^2) of the variance in suicide ideation status and correctly classified 74.2% of the cases.

As shown in Table 2, all but three of the independent variables made a unique statistically significant contribution to the model. The strongest predictor of reporting suicide ideation in the past year was hopelessness, recording an odds ratio of 6.19 (95% CI = 5.22-7.35). This indicates that subjects who had reported hopelessness in the past year were more than six times more likely to have thought about suicide in the past year than those who had not reported feelings of hopelessness, after controlling for all other factors in the model. Depression in the past year had an odds ratio of 3.67 (95% CI = 2.86-4.70), indicating that subjects who had reported depression in the past year were over three times more likely to report attempting suicide in the past year, controlling for other factors in the model. Anger/Aggression had an odds ratio of 2.89 (95% CI = 1.98-4.20) indicating that those reporting aggression in the past year were over two times more likely to report suicide ideation. Social withdrawal in the past year had an odds ratio of 2.46 (95% CI = 1.76-3.44) indicating that those reporting social withdrawal were over two times as likely to report suicide ideation. Recklessness in the past year had an odds ratio of 1.53 (95% CI = 1.29-1.82) indicating that those reporting recklessness were over 1.8 times as likely to report suicide ideation. Alcohol abuse in

Table 1.
Presence of the Warnings Sign in Suicidal and Nonsuicidal Participants

	Non-Suicidal (n = 2025) n (%)	Suicide Ideators (n = 1715) n (%)	Suicide Attempters (n = 310) n (%)	X^2	p
TSI Pretest					
Agression	48 (2.4)	154 (9.0)	59 (19.2)	156.86	<.001
Hopelessness	686 (33.9)	1466 (85.7)	267 (86.7)	1136.48	<.001
Social Withdrawal	58 (3.5)	193 (11.4)	50 (16.4)	97.11	<.001
Marital Status	716 (35.3)	382 (22.3)	49 (15.8)	102.72	<.001
Alcohol abuse in past year	130 (6.4)	190 (11.1)	37 (11.9)	29.55	<.001
Substance abuse in past year	37 (1.8)	67 (3.9)	18 (5.8)	22.87	<.001
Recklessness	1158 (57.1)	1271 (74.4)	241 (77.7)	143.48	<.001
Anxiety in the past year	115 (5.7)	326 (19.3)	93 (30.8)	231.98	<.001
Depression in the past year	131 (6.5)	531 (31.5)	142 (47.2)	503.68	<.001
Gender: Female	1053 (51.9)	992 (58.0)	192 (61.9)	19.97	<.001
Male	976 (48.1)	719 (42.0)	118 (38.1)		

the past year had an odds ratio of 1.53 (95% CI = 1.05-1.83) indicating that those who reported alcohol abuse in the past year were over 1.5 times as likely to report suicide ideation. Finally, marital status had an odds ratio of .72 (95% CI = .60-.86). This odds ratio is below 1, indicating that subjects who reported being married were .72 times less likely to report having suicide ideation in the past year.

Suicide Ideators vs Suicide Attempters

A logistical regression was performed to predict those who had reported a suicide attempt in the past year. The model contained the same 10 independent variables used in the comparison of suicide ideators and non-ideators. The model with all predictors was statistically significant ($x^2 = 70.83$, $df = 10$, p <.001), indicating that this model was able to distinguish between those who had attempted suicide and those who had not attempted suicide. The model as a whole explained between 3.5% (Cox & Snell) and 6.2% (Nagelkerke R²) of

the variance in suicide attempt status and correctly classified 84.8% of the cases. As shown in Table 3, only three of the independent variables made a unique statistically significant contribution to the model (aggression in the past year, marital status, and depression in the past year).

The strongest predictor of reporting a suicide attempt among suicide ideators was aggression, recording an odds ratio of 2.45 (95% CI = 1.74-3.46). This indicates that subjects who reported aggression in the past year were over two times as likely to report a suicide attempt in the past year. Depression in the past year had an odds ratio of 1.69 (95% CI = 1.25-2.29) indicating that those who reported depression the last year were more than 1.6 times as likely to report a suicide attempt. Finally, marital status had an odds ratio of .671 (95% CI = .477-.944), indicating that those who were married were more than .67 times less likely to report a suicide attempt in the past year. In addition to these, social withdrawal and anxiety in the past year were trending towards statistical significance, (p <.10).

Table 2.

Logistical Regression Predicting Likelihood of Reporting Suicide Ideation in the Past Year

	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Agression	1.061	.191	30.749	1	.000**	2.890	1.986	4.205
Hopelessness	1.824	.087	437.784	1	.000**	6.198	5.225	7.353
Social Withdrawal	.904	.170	28.162	1	.000**	2.469	1.768	3.448
Marital Status	-.327	.092	12.683	1	.000**	.721	.602	.863
Gender	.072	.775	.775	1	.379	1.075	.916	1.261
Alcohol Abuse	.329	.143	5.337	1	.021*	1.390	1.051	1.838
Illicit Drug Abuse	.243	.237	1.058	1	.304	1.275	.802	2.028
Recklessness	.430	.089	23.594	1	.000**	1.537	1.292	1.828
Anxiety (last year)	.119	.142	.708	1	.400	1.127	.853	1.489
Depression (last year)	1.300	.127	105.614	1	.000**	3.670	2.864	4.703
Constant	-1.687	.113	224.048	1	.000**	.185		

**$p<.001$
* $p<.05$

DISCUSSION

This study tested the predictive power of the IS PATH WARM warning signs of suicidal behavior. As the IS PATH WARM warning signs are a clinical tool to assess immediate suicide risk, any information gathered on their effectiveness would benefit clinical assessment of suicidal patients. It was hypothesized that substance abuse, hopelessness, social withdrawal, recklessness, anxiety, and anger/aggression would be predictive of suicidal behavior. All of the signs studied distinguished nonsuicidal participants from suicidal participants. In the logistic regression comparing non-ideators with ideators, only gender, illicit drug abuse in the past year, and anxiety in the past year were not significant predictors of suicide ideation. This finding would suggest that, as a tool for assessing those at risk for thoughts of suicide, the IS PATH WARM warning signs are in fact effective. In the logistical regression comparing suicide ideators with suicide attempters, however, only one of the IS PATH WARM warn-ing signs (aggression) distinguished the ideators from the attempters. These findings lend little support for the notion that the IS PATH WARM warning signs are an effective tool for distinguishing those who will exhibit suicidal behavior, but they are effective at distinguishing those who are suffering from suicide ideation from those who are not. Perhaps the IS PATH WARM warning signs are a useful tool for monitoring patients for suicide ideation, but not for predicting suicidal behavior. However, further research is needed to test this.

As previously mentioned, Menninger (1938) felt that suicide occurred because of three motivations: the need to kill (anger directed outwardly), the need to be killed (anger directly inwardly) and the need to die (the desire to escape). The need to kill highlights the role of aggression in suicidal behavior. Since psychoanalytic theory first hypothesized the role of anger in suicidal behavior, many researchers have turned away from this view, and others have openly denied the role of anger and aggression in suicidal behavior. Recently, Joiner (2010) stated that "[t]here are a lot of angry

Table 3.
Logistical Regression Predicting Likelihood of Reporting a Suicide Attempt in Past Year

	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Agression	.899	.175	26.396	1	.000**	2.456	1.743	3.460
Hopelessness	-.087	.203	.184	1	.668	.917	.616	1.365
Social Withdrawal	.346	.180	3.679	1	.055	1.413	.992	2.011
Marital Status	-.399	.174	5.243	1	.022*	.671	.477	.944
Gender	.119	.136	.764	1	.382	1.127	.862	1.472
Alcohol Abuse	.070	.200	.120	1	.729	1.072	.724	1.588
Illicit Drug Abuse	.388	.284	1.863	1	.172	1.474	.844	2.574
Recklessness	.171	.159	1.159	1	.282	1.186	.869	1.619
Anxiety (last year)	.289	.167	3.003	1	.083	1.335	.963	1.850
Depression (last year)	.530	.154	11.849	1	.001**	1.698	1.256	2.296
Constant	-2.261	.241	88.085	1	.000**	.104		

**p<.001
* p<.05

people, and very few of them die by suicide; and, of all the people who die by suicide, the majority are not angry" (pg. 32). Instead of aggression, Joiner's Interpersonal Theory of Suicide, emphasizes the role of thwarted belonging, perceived burdensomeness, and the acquired capacity for self-injury. However, in the present study, social withdrawal, the warning sign most associated with thwarted belonging, was not a significant predictor of a suicide attempt. The results of the present study support the role of aggression in suicidal behavior, as participants exhibiting aggression in the past year were over two times more likely to have also attempted suicide in the past year.

A strength of the present study is the large sample size. However, the present sample was limited by the fact that it was a non-clinical sample, and participants answered a self-report survey about their suicidal ideation and suicidal behavior. As the IS PATH WARM warning signs are meant to evaluate acute suicide risk, future research should focus on testing their effectiveness in a clinical sample. Although

the use of a national dataset allowed for a larger sample, this study was also limited in terms of which variables could be used to represent the warning signs, and some warning signs (purposelessness, trapped, and mood change) could not be examined. In addition to this limitation, some of the variables used to represent the warning signs may not be effective measures. Two in particular that are worthy of mention are recklessness and marital status. Recklessness was measured by asking subjects if, in the past year, they tested themselves by "doing something a little risky." This may not be a strong enough wording to capture the type of recklessness the IS PATH WARM warning signs have in mind. Marital status was limited by its dichotomous nature. Subjects were coded as either being married or not married. Previous research (Kposowa, 2000) has found that divorce and separation were associated with suicidal behavior. However these variables were part of the larger "not married" response and therefore were not examined separately. Additionally the use of only one variable per warning sign may leave some doubt as to

how representative of each of the warning signs the variables are. Future research could examine these warning signs with more variables representing them.

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Trauma Postvention Response in Manitoba: Coping with Trauma and Disasters

Gordon K. Favelle

Manitoba Office of the Fire Commissioner

Manitoba Emergency Services College

Abstract: Manitoba utilises three different trauma "postvention" services and approaches to assist responders (including emergency services, government and non-governmental organisations) and communities affected by trauma and disaster. A coordinated response is required to assist those affected utilising: Community Trauma Postvention and Critical Incident Stress Management services and a multifaceted psychosocial support approach. It is important to recognise the role and place of each service and approach to ensure all those affected have an opportunity to have their needs met in a comprehensive and efficient manner. This paper briefly describes the concept of "postvention" and the situations in which these "postvention" services and approaches were developed and/or utilised in Manitoba and internationally. [International Journal of Emergency Mental Health, 2011, 13(3), pp. 155-160].

Key words: *trauma, disaster, postvention, psychological support, CISM*

Manitoba has developed multiple approaches to deal with trauma and disaster in the Province. These approaches developed out of significant incidents which happened in the Province in 1989 and 1997 and have evolved into services (Community Trauma Postvention, Critical Incident Stress Management) as well as strategies (multifaceted psychosocial support) which are currently provided or used to guide Province wide responses to trauma. In addition, as a result of our programmes and experiences, we have provided training and responded to incidents in Canada, Mexico, Albania, Kosovo,

Gordon Favelle, M.Ed. Psych, is retired. Formerly he worked as Manager/Clinical Director of the Manitoba Critical Incident Stress (CISM) Network and Youth Fire Stop programs for the Office of the Fire Commissioner and as a paid call firefighter with Springfield Fire Rescue Services. He was a co-developer of the Manitoba Critical Incident Stress Management Network and Community Trauma Postvention (CTP) services. Correspondence regarding this article should be directed to him at critican@mts.net.

Bosnia, Croatia, Czech Republic, and China.

In Manitoba we have applied the concept of "postvention" to our responses to trauma. The term "postvention" originated in the field of suicide response, specifically as a process to help communities and schools cope with the impact of death by suicide as well as to reduce the potential contagion effect (Shneidman, 1973). In a paper "Postvention: The Care of the Bereaved" (1981), Shneidman discusses what one does after a suicide. Shneidman took Caplan's (1964) concept of tertiary intervention and coined the term "postvention" as what is done with people after the dire event of suicide. "Postvention" is considered as an approach that is provided after a suicide as opposed to before (prevention) or during (intervention). Leenaars and Wenckstern (1998) took Shneidman's concept of "postvention" and broadened it to apply to trauma in general and defined it as "those things done to address and alleviate possible after effects of trauma (e.g., suicide, homicide, terrorist attack). It addresses any highly

pain-inflicting unusual event." (p. 357). In this article Leenars and Wenckstern also go on to elaborate eight principles of postvention. The term "postvention" has been used in the context of suicide (Canadian and American Associations of Suicide, 2010), health education (Leviton & Edwards, 1993), school critical incident plans (Scoil Diarmada, 2006), student wellbeing (Catholic Education Office Melbourne, 2006, and trauma (Favelle & Boyd, 1993, Leenaars & Wenckstern, 1998, Forde & Devaney, 2006,). It is within this context that the term "postvention" will be used to describe the responses to trauma in Manitoba.

Community Trauma Postvention Model

June 12, 1989 – The phone rings at the Manitoba Health, Mental Health Division office; it's the Winnipeg Police Victims Services Unit. A man has murdered his youngest son and wife on the front lawn of his home in the middle of the day on a weekend. It is believed that he has been holding his older son as a hostage inside the house. The neighbourhood has been evacuated for close to 48 hours. Police are about to tear gas and storm the house. There has been no noise from the house for several hours. Police assume the father has killed his older son and himself. The community is in shock. This was a good neighbourhood. Then the reason for the phone call, "please do something to help the community".

As a result of this incident, a process was developed to help the community (neighbours, friends, schools, etc.) cope with the impact of this event. This "process" was the foundation from which the Community Trauma Postvention model was derived.

Many communities in Manitoba, as in other parts of North America, have experienced major traumatic events, caused by natural or human factors (e.g., suicides, murders, plane crashes, etc.). These events, which are usually outside the range of usual human experience, can change the basic assumptions most people hold about the world (it is a safe world, things that happen make sense, and we have control over what happens to us) are shattered (Janoff-Bulman, 1992). A traumatic event has a profound effect upon these fundamental assumptions – destroying our sense of safety and confronting us with the terror of our own vulnerability. When these events occur they can severely tax the community's ability to recover or return to some level of homeostasis.

Community Trauma: "A blow to the basic tissues of social life that damages the bonds linking people together

and impairs the prevailing sense of community…. a gradual realization that the community no longer exists as an effective source and that an important part of the self has disappeared" Kai Erikson (1976, p. 154).

Many healthy communities struggle with overcoming these events and do so with various levels of success. However, in many of these situations the community's natural helping systems may either be non-existent (as in transient or unstable communities) or severely disrupted due to the nature of the event. In these cases, there is potential for communities and individuals to experience long lasting difficulties in social and family functioning. At the individual level, these events can potentially lead to acute stress disorder, post traumatic stress disorder, addictions, domestic problems, and problems in living.

Since 1997 in Manitoba, Community Trauma Postvention (CTP) teams, based on the model developed by Favelle & Boyd (1993) are a required core service "to which all Manitobans must have access" (Core Services in Manitoba, 1997) to assist communities in coping with the impact of traumatic events. These Community Trauma Teams work with the following purpose, goals and activities:

Purpose

To provide early intervention to communities affected by critical incidents/traumatic events, crisis, or disasters in order to promote a quick return to pre-disaster/crisis levels of functioning to minimise negative long-term effects.

Goals

In the event of a critical incident/traumatic event a trained multidisciplinary team will:

1. Provide a psychoeducational process to mitigate the impact of the event on those people who have been identified as needing assistance.

2. Facilitate the normal recovery of people who have been affected by the event.

3. Restore a sense of safety, security, confidence, competence, control, empowerment and mastery to those who have been affected by the event.

4. Provide the appropriate input to those who have been affected by the event to return to normal life as quickly as possible.

5. Provide early identification, assessment and treatment of those individuals who develop mental health problems as a result of exposure to the event.

Activities

In the situation where an event outside of the usual range of human experience occurs in a community determine the need for a postvention.

1. Evaluate the need for a trauma postvention.

2. Evaluate the natural helping system's ability to provide support to the community members affected by the traumatic event.

3. Determine the characteristics of the community that has been affected by the event.

4. Collaborate with the community to determine the best strategies to meet the needs of all those who have been affected (e.g., natural helping/support systems, public education, critical incident stress debriefing, community trauma postvention, individual counselling, etc.).

5. Determine what other resources exist (e.g., Governmental, non-governmental organisations, etc.) that may also have responsibility for providing services.

6. Mobilise required resources and staffing to implement strategies developed.

7. Apply appropriate model(s) to meet identified needs of the affected community.

8. Facilitate follow-up services where indicated for those who have been affected.

9. Evaluate the effectiveness of the postvention responses to improve future actions and responses.

10. Encourage ongoing education to maintain a trained and effective trauma response team.

During the period from 1989 to 1997 these teams were available on an ad hoc basis and responded upon request to various incidents within the Province such as murders, suicides, industrial accidents, industry closures, etc. After 1997, each Regional Health Authority in the Province developed in-house teams based on the Community Trauma Postvention model to meet the needs of their communities' members as required.

Critical Incident Stress Management

The wildfires in Manitoba in 1989 resulted in approximately 3.5 million hectares (approximately 13,500 square miles) of lands and forest being burned and an estimated 23,000 people evacuated from 23 communities. The estimated cost in terms of fire suppression, evacuation, damage reparation, etc. was in excess of CAD $80 million (Manitoba Government, 1990). Hundreds of firefighters and staff were required for suppression, evacuation of communities and maintenance of congregate living accommodations. The cost, in terms of physical effort, anxiety and general distress on the part of the people of the various communities and government staff was considerable. This author (employed with Manitoba Health at that time) was tasked with providing a response to help those concerned to cope with the impact of the fires. The Manitoba Office of the Fire Commissioner (OFC) and critical incident stress management (CISM) teams from Alberta, Canada provided teams to assist the firefighters, government staff and residents in coping. Other resources were developed and used with the residents that were affected by the fires and evacuation (e.g. Fire! Fire! activity book and classroom resources for children, etc.). After1990, this author was seconded on a part-time basis to assist the Manitoba OFC in developing Provincial CISM resources to assist emergency services workers to deal with the impact of their jobs. In 1991 the OFC created the Manitoba CISM Network as a joint initiative with Manitoba Health and the first teams were put in place.

Currently, teams cover the entire province of Manitoba, either through the Office of the Fire Commissioner (7 rural/northern teams), the City of Winnipeg (Winnipeg Fire Paramedic Services and Winnipeg Hospitals) or other Government and non-governmental organisations (e.g., Regional Health Authorities, Manitoba Justice, Winnipeg Transit, etc.).

The majority of the OFC teams are made up of CISM trained volunteers from emergency services and hospitals, as well as local community mental health workers and other clinically trained people. The Manitoba OFC supports the operation of these teams (operational costs) as well as provides staff time and resources to maintain the network. The network is also supported by Manitoba Health and the Regional Health Authorities.

In 2002, The Manitoba Legislature amended The Fires Prevention and Emergency Response Act. One of the amendments was to Section 35(3), (the Fire Commission-

ers responsibilities) to add subsection (k) "provide train-ing in critical incident stress management, and coordinate emergency response personnel in the provision of critical incident stress management." This CISM programme is one such vehicle to meet these obligations. The Manitoba CISM Network follows the training guidelines of the International Critical Incident Stress Network (Mitchell & Everly, 1993).

Goals of Manitoba CISM Network

1. The Critical Incident Stress Management (CISM) Network provides timely, effective assistance to individuals involved in critical incidents, thereby minimizing symptoms of Critical Incident Stress and possibly mitigating the development of Post Traumatic Stress Disorder.

2. This service is provided on a "no charge" basis to those receiving assistance through the Network via trained volunteers.

3. The target groups include fire, ambulance, nursing, physicians, dispatch and law enforcement personnel.

OBJECTIVES

In order to achieve the above goals, a number of pro-cesses and functions must be provided by the Network and the OFC:

- Provision of CISM training and skill development to create a qualified and effective CISM response.

- Provision of a range of CISM responses which include (but are not limited to):
  □ Pre-incident education
  □ On-scene support services
  □ Defusings
  □ Demobilisations
  □ Debriefings
  □ Individual Consultations
  □ Follow-up
  □ Speciality Debriefings
  □ Significant Others Support
  □ Professional Referral Service

- Support to CISM Network teams in order to be able to carry out these functions

The Manitoba CISM Network has responded to hun-dreds of situations within the Province since 1991 as well as has provided responses or consultation to numerous other situations in Canada (e.g., Swiss Air 111 crash, 1998, North America Ice Storm, 1998, etc.).

Multifaceted Psychosocial Support

In 1997, Minnesota, North Dakota and Manitoba experi-enced one of the biggest floods of the Red River since 1826 and 1852. In Grand Forks, ND, over 50,000 people were evacuated, in Manitoba, 18,000 people were evacuated and total damage in the US and Manitoba was over USD $3.5 Billion (Shelby, 2004). At the peak of the flood, over 1900 square kilometres of the Red River Valley were under water (Ernst & Young, 1998). Manitoba was faced with the psy-chosocial impacts of the losses, destruction and displacement.

Initially the anxiety of the flood waters rising and the flood preparations consumed most of the people in the Red River Valley. This was the point at which plans were devel-oped to assist the communities to cope with the impact of the flood. Initially, psychoeducational materials were developed that were targeted to the general population, children and adolescents, couples and families, and seniors. There is a broad cultural base in the Red River Valley which included First Nations communities, Francophone communities as well as other ethnic groups, so the materials were adjusted accordingly.

As the call for evacuation went out, staff were sent to the reception centres so people would be able to talk about their (or their families) concerns while in the process of evacuating. As time went on and people were evacuated, the congregate living accommodations (where people were billeted if they had no family or friends they could stay with) were visited. Trauma response teams were developed and trained to be deployed into the flooded areas as the waters began to recede. Three teams were created, with multi-disciplinary backgrounds which included: mental health clinicians (child & adolescent, adult and senior specialists), public health nurses, and social workers. At the height of the recovery phase there were 11 people trained and deployed. These teams were deployed into three main "one-stop" shops where people could apply for funding, get information on how to deal with wells, mould, electrical hook ups, etc. when

moving back into their homes. Community development approaches were also developed to help the communities come together to support each other and to re-establish the natural helping systems in the community (this included outings for seniors, day camps for the children, community informational sessions, etc.).

A wide array of resources, including activity books for the children and youth and resources designed for schools (e.g., Flood of the Century Activity books), video tape materials for people (for personal or public access TV viewing), art shows with children's drawings and flood psychosocial crisis lines were developed to assist the different developmental and at risk groups. All of these resources were developed to help the affected populations cope with the different psychosocial reactions, informational and physical/living needs. Resources were developed in French as there is a significant Francophone population in this area. Staff were in place for nearly two years after the flood waters receded and the resources "received high praise from the municipalities" (Ernst & Young, 1998, p. 54).

The response to the flood in 1997 became the basis for psychosocial responses to other disasters in Manitoba. This approach, although similar in some ways to CTP, combines elements of critical incident stress management, community trauma postvention as well as community development and community resiliency, psychosocial education, advocacy and social support over an extended time to mitigate the impact of a disaster. Following this multifaceted psychosocial support approach many materials and resources have been developed in Manitoba to assist in potential future disasters. For example, materials are available to assist children and communities with resiliency and coping (Delisle, 2010) and pandemics (H1N1 resources/strategies for schools, the general population and health and emergency services workers such as "Building Workforce Resiliency in Workplaces", 2010) to name a few.

This approach has been subsequently used to deal with forest fires, other floods and tornados and is supported by Manitoba's Emergency Management Organisation, Manitoba Regional Health Authorities, Emergency Social Services as well as the Manitoba OFC.

International Training/Responses

This author has been involved in providing training or direct response to other incidents internationally utilising a

combination of all three trauma postvention approaches including: the eruption of Mount Popocatépetl, Mexico 1995; the wars in the Balkans, 1999-2000 (e.g., psychological first aid resources were developed to assist the children and youth in refugee camps cope with the impact of the wars, Favelle et al., 2000 and Cole et al. 2000); flooding of the Elbe River, Czech Republic 2002; and the Sichuan earthquake in China 2008. When an incident with the magnitude of the above incidents occurs, it has an impact upon responders (emergency services, government and non-governmental organisations) and the communities are affected. A coordinated comprehensive response to assist all those affected is required utilising these approaches and other models (e.g., psychological first aid, etc.).

CONCLUSIONS

Disasters and trauma are inevitable. Coordinated and comprehensive strategies must be developed to meet the needs of all affected. Manitoba has attempted to ensure that these needs are being met through the utilisation of three services and approaches; Community Trauma Postvention, Critical Incident Stress Management and multifaceted psychosocial support. These services and approaches recognise the unique needs of all of the people who have been affected and provide a structured approach to meet these needs and reduce the psychosocial impact of these incidents in all of our communities.

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Brief Trauma Intervention with Rwandan Genocide-Survivors Using Thought Field Therapy

Suzanne Connolly
Sedona, Arizona

Caroline Sakai
Honolulu, Hawaii

Abstract: This randomized waitlist control study examined the efficacy of Thought Field Therapy (TFT) in reducing Posttraumatic Stress Disorder symptoms in survivors of the 1994 genocide in Rwanda. Participants included 145 adult genocide survivors randomly assigned to an immediate TFT treatment group or a waitlist control group. Group differences adjusted for pretest scores and repeated measures anovas were statistically significant at p < .001 for 9 of 10 TSI trauma subscales and for both severity and frequency on the MPSS, with moderate to large effect sizes. Reduced trauma symptoms for the group receiving TFT were found for all scales. Reductions in trauma symptoms were sustained at a 2-year follow-up assessment. Limitations, clinical implications, and future research are discussed. [International Journal of Emergency Mental Health, 2011, 13(3), pp. 161-172]..

Key words: *trauma treatment, Thought Field Therapy, Rwanda, brief treatment*

Posttraumatic Stress (PTSD) in the general world population constitutes a significant public health problem. At the global level, it is estimated that treatment for PTSD accounts for 4% of the global burden of disease, and that at any one point in time, 10.4% of women and 5% of men worldwide suffer from PTSD (Kastrup & Ramos, 2007).

Civil war often results in atrocities, forced migration,

violence, and mass fatalities. Exposure to these events has the potential to lead to extreme psychological strain and mental health pathology, including acute stress reactions and PTSD (Ahmed, 2007).

In countries that are recovering from war or genocide, opportunities for ongoing interventions such as individual counseling, group counseling, and support groups are often severely limited due to fractured governmental and community infrastructure and limited mental health resources; thus, many war-related trauma survivors endure trauma symptoms for extended periods of time.

According to the World Health Organization (WHO), mental illness is predicted to be the second largest cause of death and disability in populations around the world by 2020 (McLeigh & Sianko, 2011). Traumatic events contribute significantly to this unfortunate statistic and, at the same time, traumatic events can challenge the resources of even the most developed countries. There is a need for finding effective and

practical ways to deliver services when large populations are affected by traumatic events. In their review of the research on mental health and refugee children, Ehntholt and Yule (2006) found that many war-surviving refugees experience mental health problems such as depression, anxiety, grief, and PTSD. They found promising treatments for these problems to include Cognitive Behavior Therapy (CBT), Testimonial Psychotherapy, Narrative Exposure Therapy (NET), and Eye Movement Desensitization and Reprocessing (EMDR) for war refugees out of their country (Ehntholt & Yule (2006)). Little, however, has been explored concerning effective trauma interventions following large-scale trauma within country.

ʃalcıoğlu and Baʃoğlu (2008) reported on the success of treating child survivors of the 1999 earthquakes in Turkey with only one to four sessions of control-focused behavioral treatment (CFBT). They described CFBT as largely a self-help intervention. In their study, they reported finding improvements in 80% of survivors after only a single session of CFTB.

This study examines the use of another self-help method, Thought Field Therapy (TFT) which, like CFTB, can be disseminated through development of community-based partnerships of trained mental health practitioners and trained community members. This study was conducted during the authors' third invited volunteer trauma relief mission. Practical constraints dictated utilizing a single treatment session, with TFT being administered by local community members who received a two-day intensive training prior to the intervention and supervision during the intervention.

The primary aims of this study were (1) to determine if the TFT immediate treatment group participants would show greater trauma symptom reduction than the wait-list control group participants on measures of PTSD symptoms, and their severity and frequency seven days post-treatment, (2) to determine if the wait- list control group would show changes after subsequent treatment, and (3) to determine if the effects of TFT were sustained over a two-year period..

Rwanda and the Genocide of 1994

In Rwanda, during a 100-day period, from April 6 to July 16, 1994, an estimated 800,000 members of the minority ethnic population and many moderates belonging to the majority ethnic population were massacred by a group of radicals of the majority population (Alexander, 2010).

Pham, Weinstein, and Longman (2004) assessed the level of posttraumatic stress symptoms in 2091 adults from four communes in Rwanda in 2002. They found that 24.8% (n = 518) met the symptom criteria for PTSD, with over 70% reporting that they had been forced to flee their homes, had a close family member killed, and/or that they had property destroyed or lost. Hagengimana, Hinton, Bird, Pollack, and Pitman (2003) studied 100 Rwandan widows in 2001. They found that 40 participants reported that they had suffered from panic attacks in the past four weeks. Thirty-five reported having a panic disorder, and 46 met the diagnostic criteria for PTSD.

Schaal and Elbert (2006) interviewed 68 Rwandan orphans ten years post-1994 genocide and found that 41% had witnessed the murder of at least one of their parents, and 44% suffered from PTSD. These authors found that, as with post-disaster studies conducted with children in industrialized societies, child and adolescent survivors of the 1994 genocide in Rwanda reported experiencing intrusive, thoughts and images of what they had seen, avoidance, emotional numbing, and arousal. According to Wood (2007), in effect, everyone in Rwanda is suffering from some aspect of traumatic stress.

Thought Field Therapy Literature Review

In a non-peer reviewed special edition of the Journal of Clinical Psychology with invited critiques, Johnson, Shala, Sejdijaj, Odell, and Dabishevci (2001) studied TFT and feelings of subjective distress. Self-reported distress was rated with Wolpe's (1958) Subjective Units of Distress (SUD) of 105 Kosovo war-related trauma survivors ranging in age from 4 to 78. Total relief of subjective distress was reported by 103 participants. In the same edition of the Journal of Clinical Psychology, Sakai and colleagues (2001) summarized clinical applications of TFT at Kaiser Permanente Hospital, Honolulu, Hawaii, with 714 patients. Their findings included statistically significant within-session reductions in self-reported distress with TFT applications for conditions that included anxiety, depression, anger, bereavement, chronic pain, panic disorder, and trauma.

Sakai, Connolly, and Oas (2010) used TFT in 2006 with 50 adolescents who were orphaned by the Rwandan genocide and were experiencing PTSD symptoms as measured by the Child Report of Post-Traumatic Stress (CROPS), and the companion testing instrument, Parent (guardian) Report of Post-Traumatic Stress (PROPS) (Greenwald & Rubin,

1999). The CROPS was completed by the adolescents, and the PROPS was completed by the caregivers. After one TFT session, participants and caregivers reported significant decreases in PTSD symptoms, including nightmares, flashbacks, bedwetting, depression, feelings of isolation, jumpiness, and difficulty concentrating, using CROPS and PROPS self-report instruments. At one year follow-up, again using CROPS and PROPS, these improvements were sustained.

After treating Rwandan adult and child genocide survivors with TFT, and conducting requested TFT trainings of Rwandan community leaders for two years, the authors of this study were invited to train and supervise a group of Rwandan women, already engaged on a volunteer basis, in treating their fellow countrymen and women for trauma. This service group, Women's Foundation Ministries, was willing to participate in a research study as part of this trauma relief project.

METHOD

Intervention

Thought Field Therapy is a brief treatment, often used as a self-help treatment, developed by psychologist Roger Callahan (Callahan, 1985; Callahan & Callahan, 2000). Once a client has identified a specific problem, a typical TFT session begins with exposure to the problem, usually by the therapist asking the client to think about the problem. While the client is thinking about the problem and identifying feelings elicited by thinking about the problem, the client is then asked to simultaneously stimulate selected acupoints on the surface of the skin, by tapping with their fingers, in a sequence that is specific to the identified emotion(s). Each TFT tapping protocol or algorithm designates the specific acupoints to be tapped, as well as the order in which they are to be tapped. These algorithms address a range of emotions such as anxiety, fear, anger, guilt, shame, depression, embarrassment, and addictive urges. Elements of PTSD, such as hyperarousal, dissociation, and defensive avoidance, are targeted using a trauma treatment protocol.

A client first rates the emotional intensity he or she feels when thinking about the problem, usually by giving it a 0 to 10 subjective units of distress (SUD) rating (Wolpe, 1958). The practitioner then selects the most appropriate tapping protocols for the client's identified emotions, and then models the tapping sequence. The client simultaneously taps his or her body, tapping on the points being modeled by the practitioner, while keeping the memory or trigger mentally activated. Then a SUD is taken and, if symptoms are reducing, another round of tapping is done after doing some auxiliary activities (including eye movements, bilateral stimulation, and counting). A subsequent SUD is assessed. The process is repeated following additional auxiliary activities involving other acupoints, until the rating is down to 0 or the lowest it can go for the client in the time available. Then, whatever other traumatic memories or triggers have arisen or remain may be addressed. Optimally, in treating a trauma survivor, each major traumatic memory that triggers the individual is addressed. Although there are more advanced levels of TFT that require more extensive training, only the TFT algorithms described above were taught and applied in this study. The scope of this paper will be limited to the use of TFT at the algorithm level to address symptoms of trauma.

Participants

Participants were 171 adult survivors of the 1994 genocide in Rwanda, between the ages of 18 and 73, who volunteered to receive brief treatment for symptoms of trauma. The participants were recruited by leaders of Women's Foundation Ministries before the arrival of the authors; all participants were members of various orphanages, AIDS, and widows' groups in the capital city of Kigali who felt that they suffered from symptoms of trauma. The participants were told by the leaders of Women's Foundation Ministries that they would receive free transportation by taxi-vans to and from the study, and snacks while actively participating in the study, but that they would receive no financial compensation. All participants in the study were 18 years or older, and all but a few were able to read Kinyarwanda, the language into which the consent forms and testing instruments were translated.

All participants met the DSM-IV criterion A1 for Posttraumatic Stress Disorder symptoms, (American Psychiatric Association [DSM-IV-TR], 2000): "Exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other threat to one's physical integrity; or witnessing an event that involves death, injury, or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate" (p. 463) by having been in Rwanda and having survived the genocide of 1994.

Participants identified one or more unwanted emotions relative to their past experiences, such as anxiety, fear, anger, guilt, or depression, that they wished to address. A majority, 68.3% (*n* = 99) of the participants, reported having PTSD symptoms (utilizing the sum score of the MPSS). The TFT treatment group was compared to the waitlist control group one week following their treatment to determine if TFT would produce changes greater than no intervention. The mean duration of the intervention for all participants was 41 minutes (SD = 29), and the median duration of the intervention for all participants was 30 minutes.

Of the 171 participants, one did not complete the questionnaires completely, and 12 participants from the treatment group and 13 participants from the control group did not return after seven days to complete the posttests. The final sample was comprised of 145 study participants between the ages of 18 and 73 (M = 37.97, SD = 12.71). The majority of the participants were female (119, 82.1%; male 26, 19.9%). The participants were native to many regions of Rwanda, with the largest proportions from Kigali (47, 32.4%) and Butare (25, 17.2%), Other regions represented in the study were: Other (23, 15.9%), Gitamara (21, 14.5%), Kibuye (8, 5.5%), Kibungo (7, 4.8%), Cyangugu (6, 4.1%), Gisenyi (4, 2.8%), Rugengeri (1, .7%), and Not specified: (1, .7%).

Reported experiences during the 1994 genocide included: being beaten, 87 (60%), having been abused, 80 (55.2%), witnessing others being beaten, 116 (80%), witnessing others being killed, 124 (85.5%), hearing others being hit or beaten, 118 (81.4%) and being forced to do things they were against 48 (22.1% with 9, 6.2% missing). Eighty-four (58%) of the participants reported that they had previously sought treatment for the problems they had experienced since the genocide of 1994. Ninety-nine participants (68.3%) attained the PTSD cutoff score of 71 or above on the sum of their MPSS frequency and severity subscales. PTSD sum scores on the pretest MPSS ranged from 11 to 116 (M =79.77, SD = 22.4).

Of the 145 participants, 74 (51%) were assigned to a wait list control group. Of those 74, 57 returned for treatment. Of those who were treated, 36 completed a post-treatment assessment. The decrease in the number of treated participants from the wait list control group returning for the second posttest was due to a miscommunication that resulted in the lack of transportation for an entire sub-group, constituting 37% of the treated wait list control group.

A two-year follow-up was conducted. Of the original 145 participants, 88 participants (60.7% of the original sample) completed the two-year follow-up. Equivalency to the initial group was examined using comparisons between those present initially in the sample and those with data available at 2-year follow-up. No differences or associations statistically significant at *p* = .10 were found between the initial sample and the sample available for follow-up for gender or for pretest TSI trauma and MPSS scales.

Rwandan Therapists

All of the 28 Rwandan therapists trained, with one exception, were female members of Women's Foundation Ministry community. The exception was a Rwandan male orphanage director who had missed a previous training in Kigali and had asked to attend this training. All therapists and participants were native Rwandans who spoke Kinyarwanda. The therapists received two days of training in TFT at the algorithm level, including hands-on practice and supervision conducted by the authors, using translators. None of the Rwandan therapists in this study were mental health professionals.

Treatment Protocol

The standard TFT algorithm training manuals used throughout the study had been translated into French, the written language with which the trainees were most familiar. They were also available in English for those who preferred English. The trainers were available for supervision throughout the entire study, and to ensure that the standard TFT algorithm protocols taught in the training were adhered to by the newly trained Rwandan therapists.

Measures

The Modified PTSD Symptom Scale (MPSS) (Falsetti, Resnick, Resnick, & Kilpatrick, 1993) was used to assess the frequency and severity of the PTSD symptoms. The MPSS is a 17-item self-report, pencil-and-paper questionnaire. The 17 items correspond to symptoms of PTSD in the DSM-IIIR. Frequency is assessed on a 4-point scale from 0 = not at all, to 3 = 5 or more times a week. Severity is assessed on a 5- point scale from A = not at all distressing, to E = extremely distressing. Scoring criteria for experiences of PTSD as determined by the test developers were 23 or above on frequency, 47 or above on severity, and 71 or above as a sum.

The TSI was created by Briere (1995) to assess symptoms that trauma victims experience. The full 100-item measure was used. The TSI asks respondents about how often specific experiences occurred during the past 6 months. The instructions were modified during the post-testing to assess how often the experiences occurred over the last week. Internal consistency of the TSI has been estimated with Cronbach's alphas ranging from .74 to .91 for each subscale (Cohen, 1988). For the present study, the Cronbach's alphas ranged from .66 to .89. The scores of each subscale were summed and converted into a T-score by the scoring program. Changes from pre- to posttest and from posttest to follow-up were examined for each symptom.

A total of 99 pretest and posttest TSIs were included in the study. Forty–six completed TSIs were excluded: 27 (19%) were excluded at pretest and 19 (13%) at posttest from the study due to very high scores (above 75 t-score) on the Inconsistent Response subscale as recommended by the test developers, as this indicated they were less consistent in responding than 98% of the general population.

The specific subscales of the TSI are measures of Anxious Arousal, Depression, Anger/Irritability, Intrusive Experience, Defensive Avoidance, Dissociation, Sexual Concern, Dysfunctional Sexual Behavior, Impaired Self-Reference, and Tension Reduction Behavior. The Anxious Arousal subscale measures symptoms of anxiety that are specific to those associated with posttraumatic arousal, such as jumpiness and tension. The Depression subscale measures symptoms of depression of both mood state (feeling sad) and cognitive distortions (feeling hopeless). The Anger/Irritability subscale measures irritable affect or anger, along with anger- related thoughts and actions. The Intrusive Experiences subscale measures symptoms of posttraumatic stress including nightmares, flashbacks, and intrusive thoughts. The Defensive Avoidance subscale measures post-trauma avoidance, both behavioral (avoiding places or things that remind one of a traumatic event) and cognitive (pushing painful thoughts from one's mind). The Sexual Concerns subscale measures sexual distress, including dysfunction, dissatisfaction, and unwanted sexually-related thoughts or feelings. The Dysfunctional Sexual Behavior subscale measures the use of sexual behaviors that are indiscriminant, potentially self-harming, or to achieve goals that are non-sexual. The Impaired Self-Reference subscale measures problems related to the "self" such as lack of self-support and self-other disturbance. The Tension Reduction Behavior subscale measures the tendency to turn to external methods of decreasing internal tensions or distress, including angry outbursts, self-harm, and suicidal threats (Briere, 1995).

All instruments were translated from English to Kinyarwanda, the first language of most Rwandans, by a native Rwandan. They were then back-translated to English by a native speaker of English, and then the versions were reconciled according to standards of test translations. Participants completed a demographic form including age, gender, birth region, and a list of experiences during the genocide of 1994 (experienced being beaten; witnessed others being beaten; witnessed others being killed; heard others being hit or beaten; heard about others being hit, beaten, or killed; and being forced to do things against their will.) The demographic form also included two questions about previously engaging in talking about their experiences and/ or previously seeking treatment.

Design and Procedures

A randomized waitlist control group design was used. If, after reading the consent letter, the participants gave verbal consent, they were randomly assigned to an immediate treatment group or the waitlist control group. Blank surveys were in file folders delineated as treatment (blue folders) or waitlist group (red folders) and were stacked alternately. The intake person removed the top file from the stack and assigned the participant to that group, continuing with alternating group assignments. To mitigate against measurement bias, standard pre-written instructions were given to each participating group stressing the need to answer each question accurately, and participants were assured of confidentiality of their coded responses, which would be scored by independent researchers in the USA. On the follow-up tests, the standard instructions stressed the need for accurate responses to each question.

All participants completed the demographic form and pretests (MPSS and TSI) privately, except on rare occasions where they needed help from a Rwandan translator for understanding a question. They were instructed to complete the MPSS prior to taking the TSI in the event that they would become weary of test-taking. Participants assigned to the treatment group returned two days later for treatment with TFT from a randomly assigned, newly trained Rwandan therapist. The participants formed a line, and the therapists came out one by one from another line and took the first participant in line. The study took place in a vacant rental home and back yard with plastic chairs and tables inside and outside.

The treatment group and the waitlist group were asked to return seven days following their treatment to complete the posttests. The waitlist group received treatment with TFT two days following the posttest and returned seven days after their treatment to take a second posttest. All pretests and posttests (with the exception of a few with minimal reading skills who were helped by translators) were completed independently by the participants while sitting at tables outdoors.

RESULTS

Group Comparability

The participants were randomly assigned to either the treatment group ($n = 71$) or the waitlist comparison group (n = 74). Demographic differences between the participants in the treatment group and control group were examined using chi square analyses and t-tests. No significant differences were found between the two groups on age or gender. The treatment group participants ranged in age from 18 to 73 (M = 37.80, SD = 12.94), and the control group participants ranged in age from 20 to 71 (M = 38.14, SD = 12.57). The treatment group was 80.3% female (n = 57), and the control group was 83.8% female (n = 62). The two groups had similar percentages of participants attaining the MPSS sum cutoff score of 71. At pretest, the treatment group had 50 (70.4%) participants, and the control group had 40 (66.2%) participants with MPSS sum scores of 71 or above (χ^2 (1, 145) = .296, p = .59). Pretest scores for the MPSS and the TSI are presented in Table 1 by group. The pretest scores for

Table 1.
Pretest Mean Scores for Treatment and Waitlist Control Groups

Measure	Treatment Group			Control Group			t	df	p
	M	SD	n	M	SD	n			
TSI Pretest									
Anxious Arrousal	68.20*	10.9	50	69.10*	10.4	49	.42	97	.67
Depression	68.02*	10.4	50	68.16*	10.6	49	.079	6.8	.95
Anger/Irritability	65.14*	10.4	50	63.35*	11.8	49	-.80	97	.42
Intrusive Experiences	1.44*	11.8	50	72.88*	10.1	49	.65	97	.52
Defensive Avoidance	63.52	7.8	50	63.29	7.6	49	-.15	97	.88
Dissociation	73.14*	15.7	50	72.92*	13.9	49	-.07	97	.94
Sexual Concerns	60.50	15.2	50	56.29	12.7	49	-1.50	97	.14
Dysfunctional Sexual Behavior	60.30	17.9	50	52.65	10.5	49	-2.60	79.5	.01**
Impaired self-reference	67.40*	11.5	50	66.61*	10.5	49	-.36	97	.72
Tension Reduction Behavior	67.14*	15.3	50	64.78*	13.3	49	-.82	97	.42
MPSS Pretest									
Frequency	35.20	9.7	71	34.70	8.9	74	-.32	143	.75
Severity	45.03	15.0	71	44.62	14.1	74	-.17	143	.87
Sum	79.83	23.2	71	80.32	21.2	74	-.24	143	.81

* indicates above the T-score of 65 indicating clinically significant.
** indicates below .05, thus significantly different at pretest.

the MPSS were compared using t-tests, and no significant differences were found between the pretest scores for severity or frequency.

Pretests on the TSI required the exclusion of inconsistent data, identified by the creator, Briere (1995), as a score of 75 or over on the Inconsistent Data subscale. Forty-six total cases were removed per Briere's criteria (21 from the treatment group and 25 from the control group). The resulting group sizes for TSI analysis were treatment group (n = 50) and control group (n = 49). Independent samples t-tests revealed that both groups demonstrated significant trauma symptoms but were not found to be significantly different except on one subscale. The treatment group's mean T-score for dysfunctional sexual behavior was significantly higher at pretest than the control group's mean T-score. Scores of 65 or higher are considered clinically significant for all TSI subscales. The treatment group had a mean pretest T-score of 65 or above on seven subscales (Anxious Arousal, Depression, Anger/Irritability, Intrusive Experiences, Dissociation, Impaired Self-Reference, and Tension Reduction Behavior), with the control group having a mean pretest T-score of 65 or above on five subscales (Anxious Arousal, Depression, Intrusive Experiences, Dissociation, and Impaired Self-Reference). The overall differences between the two groups indicate reasonable group equivalence.

Treatment Outcome

The MPSS and TSI pre- and posttests measure changes in specific trauma symptoms. The first analysis was a paired-sample t-test to determine within group changes for the treatment and control groups to determine if there were statistically significant differences between the treatment and control groups. Next, an ANCOVA was run controlling for pre-test scores to determine the effect of the intervention. If the assumptions of ANCOVA were not met, a repeated measures analysis of variance was conducted with a focus on the interaction term. To address inflation of Type I error due to use of multiple statistical tests, α = was set at .005.

Pre-Post Change

There were significant decreases in reported symptoms from pre to posttest on the MPSS for the treatment group on both the Severity (mean change of 18.13 points) and Frequency Scales (mean change of 10.0 points; p < .001). There were significant decreases in reported symptoms from pre- to

posttest for the treatment group on all 10 TSI subscales, but no significant changes on any of the 10 TSI subscales for the control group. See Table 2 for means and standard deviations for pre- and post-intervention scores.

When the waitlist control group later received TFT, pre-post changes were assessed for that group, as well. All differences from pretest to post-treatment were statistically significant for MPSS frequency and severity and for the 10 TSI scales.

Group Comparisons

To determine if there were statistically significant differences between the treatment and control groups, analyses of covariance (ANCOVA) were conducted to adjust the groups' posttest scores for pretest differences. ANCOVAs were conducted for each TSI subscale and MPSS scales by using pretest scores as covariates. The adjusted posttest scores showed significant decrease in trauma symptom scores at p < .001 for the treatment group on all TSI subscales except for sexual concerns, and showed significant decreases on the MPSS frequency scale: Anxiety, F (1, 96) = 21.69, p < .001, η^2 = .18; Depression, F (1, 96) = 21.94, p < .001, η^2 = .19; Anger/Irritability, F (1, 96) = 25.98, p < .001, η^2 = .21; Intrusive Experiences, F (1, 96) = 25.30, p < .001, η^2 = .21; Defensive Avoidance, F (1, 96) = 17.84, p < .001, η^2 = .16; Dissociation, F (1, 96) = 13.83, p < .001, η^2 = .13; Sexual Concerns, F (1, 96) = 5.92, p = .017, η^2 = .06; Impaired Self-Reference, F (1, 96) = 12.97, p < .001, η^2 = .12; Tension Reduction Behaviors, F (1, 96) = 12.44, p < .001, η^2 = .12; and MPSS frequency, F (1, 142) = 16.51, p < .001, η^2 = .10. These results indicate positive effects of the intervention on trauma symptoms for the treatment group, with most effect sizes being moderate to large (Cohen, 1988).

For two variables, TSI subscale Dysfunctional Sexual Behavior and MPSS Severity, the homogeneity of regression assumption for ANCOVA was violated. Instead, a repeated measures analysis of variance was conducted. For Dysfunctional Sexual Behavior, the time (pre, post) by group (treatment, control) interaction was statistically significant, F (1.97) = 11.48, p = .001, η^2 = .10, with a decrease in mean subscale score for the treatment but not for the control group. For MPSS Severity, the time by group interaction was also statistically significant, F (1,143) = 24.17, p < .001, η^2 = .14, again with a decrease in mean MPSS severity for the treatment but not the control group. (Figure 1 provides an example

Table 2.
Mean Change Scores for Treatment and Waitlist Control Groups

Measure	M	SD	n	t	df	p
TSI Subscale						
Anxious Arrousal						
Treatment Group	10.34	12.6	50	5.79	49	.001**
Control Group	1.02	10.1	49	.71	48	.48
Depression						
Treatment Group	12.14	11.9	50	7.24	49	.001**
Control Group	2.20	11.3	49	1.37	48	.18
Anger/Irritability						
Treatment Group	11.90	12.9	50	6.52	49	.001**
Control Group	.29	11.6	49	.17	48	.86
Intrusive Experiences						
Treatment Group	11.50	13.3	50	6.12	49	.001**
Control Group	.71	11.4	49	.44	48	.66
Defensive Avoidance						
Treatment Group	7.50	12.6	50	4.23	49	.001**
Control Group	-.39	8.0	49	-.34	48	.73
Dissociation						
Treatment Group	12.24	20.1	50	4.31	49	.001**
Control Group	1.65	14.0	49	.83	48	.41
Sexual Concerns						
Treatment Group	8.96	15.4	50	4.13	49	.001**
Control Group	1.49	9.8	49	1.06	48	.294
Dysfunctional Sexual Behavior						
Treatment Group	9.78	17.9	50	3.86	49	.001**
Control Group	.04	9.3	49	.03	48	.98
Impaired self-reference						
Treatment Group	10.20	13.7	50	5.25	49	.001**
Control Group	1.92	11.5	49	1.17	48	.25
Tension Reduction Behavior						
Treatment Group	10.68	13.7	50	4.82	49	.001**
Control Group	1.31	12.5	49	.73	48	.47
MPSS						
Frequency						
Treatment Group	10.00	14.6	71	5.79	70	.001**
Control Group	2.15	9.4	74	1.98	73	.052
Severity						
Treatment Group	18.13	20.8	71	7.35	70	.001**
Control Group	3.86	13.5	74	2.46	73	.016*
Sum						
Treatment Group	21.09	29.7	71	5.98	70	.001**
Control Goup	13.39	30.2	74	3.82	73	.017**

* indicates p <.05, ** p <.01 level of significance

of the pattern of scores, specifically for MPSS severity.)

The number of participants meeting the MPSS Sum of Frequency and Severity Scale cutoff score of 71 or above decreased significantly for the treatment group (from 71.8% to 39.4%, $z = 4.50$, p < .01), while the control group decreased slightly (from 66.2% to 54.1%, $z = .88$, $p > .05$). The waitlist control group decreased substantially after that group also received treatment (from 54.1% to 11.1%, $z = .51$, $p < .01$). At follow-up, 7.4% of cases in the original treatment group met the criterion for PTSD, a significant decline from posttest to follow-up ($z = 4.71$, $p < .01$), while 4.6% of the waitlist control group (who later received treatment) met the criterion, a non-significant decline from posttest to follow-up ($z = 1.02$, $p > .05$) as shown in Table 3.

Maintenance of Change at 2-Year Follow-Up

No differences statistically significant at p < .01 were found between post-treatment and 2-year follow-up for any TSI scale or for MPSS severity, frequency, or sum (Table 4). With the exception of TSI subscale defensive avoidance and MPSS severity and sum, all follow-up means were slightly lower than posttest means. For TSI defensive avoidance and MPSS severity and sum, follow-up means were slightly
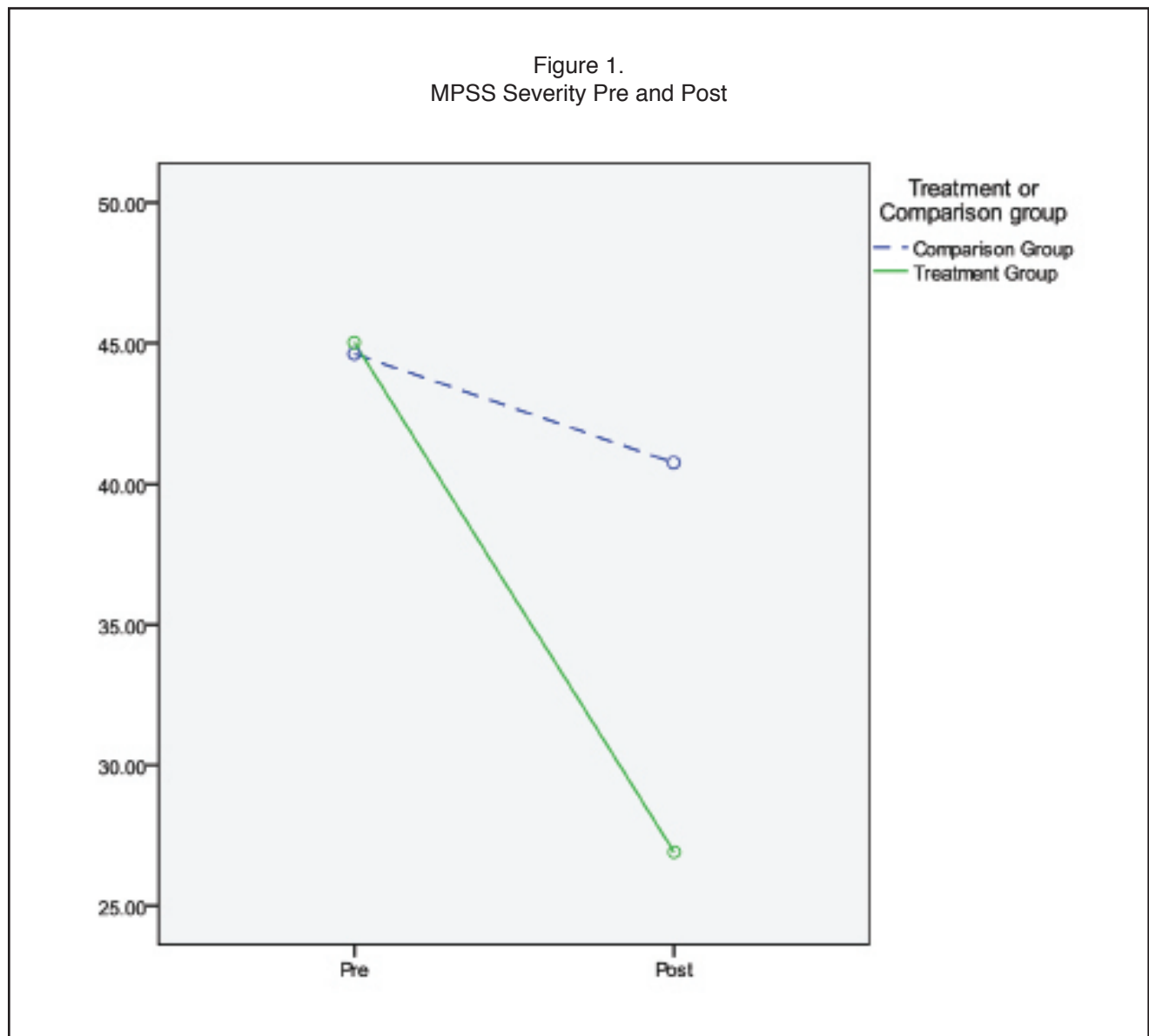

Figure 1.
MPSS Severity Pre and Post

Table 3.
Proportion of Groups Exceeding MPSS Criterion for PTSD by Group by Time

	Pretest	Posttest	Posttest 2	Follow-Up
Treatment--%	71.8%	39.4%	-	7.4%
n	71	71	-	54
Control--%	66.2%	54.1%	11.1%	4.6%
n	74	74	36	34

Note: Posttest 2 was given to the original waitlist control group after TFT was provided to them.

higher than at posttest. Cases for TSI comparisons were those with consistent TSI data at posttest after treatment and on follow-up test.

RESULTS

Group Comparability

This preliminary study in field conditions, utilizing randomized assignment to immediate treatment, waitlist control, and subsequent treatment for the waitlist control suggests the potential of this treatment to reduce psychological symptoms following large-scale trauma.

Results suggest that TFT significantly reduces symptoms of anxiety, depression, anger/irritability, defensive avoidance, dissociation, impaired self-reference, and tension reduction behaviors, as well as the severity and frequency of PTSD symptoms. The proportion of participants meeting the criteria for PTSD in the treatment group was reduced by 32.4%, as measured on the MPSS by a single session of TFT after 7days. While it cannot be assumed that one session of TFT can resolve traumatic stress symptoms originating from such severe and long-standing circumstances, it appears that TFT can facilitate a reduction in symptoms in a short period of time, even when provided by newly trained community-leader therapists. Follow-up assessment over a 2-year time period suggests the durability of the outcomes, with positive results consistent with those found by Sakai and colleagues (2010).

Limitations and Recommendation for Further Research

This study did not compare TFT with traditional standard of care treatments, other nontraditional methods of treating PTSD, or placebo treatments. Also, despite efforts to encourage accurate reporting of symptoms at each testing, and the assurance of confidentiality of the responses, it is difficult to ascertain social desirability and measurement bias effects. The TSI subscale reliabilities ranged from weak (.66) to strong (.89), and there are possible cultural missteps of using standardized instruments with Rwandan war survivors, although the TSI has been used in prior research with Rwandan war survivors (Hagengimana, Hinton, Bird, Pollack,& Pitman, 2003; Pham, Weinstein, & Longman, 2004). The study population was limited to volunteers from one region of Rwanda who were informed of the study and had access to participate in this study. The outcomes may not be generalizable to all Rwandans or other war survivors. As with all transcultural research, little is known about the impact of persons from of western cultures training Rwandans to treat their own people and the resulting impact on the scores of the participants.

Despite these limitations, the results suggest the positive effects of this treatment and the possible sustained effects of this treatment over time. Future research recommendations include studies using a placebo treatment for the waitlist control group to determine placebo effect, replication of this randomized waitlist control group study with other trau-

Table 4.
Mean Change Scores (Post-Treatment – 2-Year Follow-Up)

Measure	M	SD	df	t	p
TSI Pretest					
Anxious Arrousal	3.58	12.05	64	2.35	.02
Depression	2.98	10.79	64	2.21	0.3
Anger/Irritability	.38	11.63	64	.26	.80
Intrusive Experiences	1.23	12.22	64	.81	.42
Defensive Avoidance	-.11	11.50	64	-.08	.94
Dissociation	3.55	16.06	64	1.77	.08
Sexual Concerns	1.89	11.41	64	1.33	.19
Dysfunctional Sexual Behavior	.50	10.46	64	.38	. 70
Impaired self-reference	2.88	11.70	64	1.97	.54
Tension Reduction Behavior	1.25	12.80	64	.78	.44
MPSS Pretest					
Frequency	.18	15.00	87	.11	.91
Severity	-.25	17.61	87	-.13	.89
Sum	-.07	31.01	87	-.02	.98

matized populations, and comparison studies with standard treatments of PTSD.

Recognizing that no one therapy works for everyone, latent growth modeling would be useful in identification of individuals for whom TFT was more and less effective. To best use this technique, data would be needed at more than three time points.

Clinical Implications

Prolonged and intense PTSD due to violence, victimization, and war is a problem throughout the world. Most communities that have undergone overwhelming experiences such as war or disasters lack the resources needed to provide mental health service access to all who may seek them.

Findings from this study suggest that brief treatment using TFT could be effective in alleviating symptoms of trauma in survivors of the Rwandan genocide, and that treatment could be provided by local volunteers trained and supervised with this methodology. Findings also suggest that treatment effects could be maintained over time.

While it is desirable to utilize experienced mental health professionals in treating severe PTSD, the possibility of enlisting community leaders to treat fellow community members employing an efficacious, non-narrative therapeutic modality that does not require years of clinical training vastly enhances the potential mental health care resources in a community devastated by large-scale trauma. Both the brief treatment time required and the possibility of using local lay practitioners to provide the treatment hold promise for filling seemingly insurmountable gaps in available mental

health services. A model utilizing trained community leaders to deliver an effective and efficient trauma intervention would provide for on-going and broader-based relief for the survivors of massive trauma. Such a model would facilitate recovery on a wider scale and empower the community, as well as the individual survivors. This model of using TFT to address symptoms of trauma may be able to help fill some of the gaps in these services.

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Longitudinal Stroop Score Changes
in Adolescent Females with PTSD

Jose Salazar
Hofstra University

Robert Motta
Hofstra University

Abstract: This study is a preliminary investigation that analyzed whether or not the Emotional Stroop procedure would be able to detect the changes in PTSD levels of individuals as they undergo treatment for that disorder. This repeated measures, small n study utilized 8 in-patient adolescent females with a history of sexual abuse and an Axis I diagnosis of PTSD. Individuals were given the Emotional Stroop procedure and two standardized, self-report measures of PTSD every two weeks over the course of five months. In addition, daily point sheets of adaptive behavior were also collected. The individual's change on the standardized measures was compared against their change in reaction time on the Emotional Stroop procedure, and changes in the percentage of time the individual earned privileges based on the behavioral management system. The results provided some promising information that suggests that these measures do co-vary and that the Emotional Stroop does indeed reflect variations in levels of PTSD. This is the first study to show that therapeutic changes in PTSD are reflected in changing reaction times on the Emotional Stroop. [International Journal of Emergency Mental Health, 2011, 13(3), pp. 173-187.]

Key words: *Stroop, PTSD, posttraumatic stress disorder, sexual abuse*

The Stroop Effect is the name for the psychological phenomenon by which reaction time can be altered based on the semantic meaning of words. E.R. Jaensch first described this effect in his book published in 1929. However, his description of this phenomenon was written only in German, and it was not until 1935 when John Riddley Stroop investigated the effect and published it in English that it was named "the Stroop Effect." The original research demonstrated that the reaction time on a color-naming task could be delayed when the word was printed in a color that was different from that word's semantic meaning (e.g. the word "red" printed in blue ink). In this task the word's semantic meaning provides cognitive interference, thus slowing down cognitive processing (MacLeod, 1991).

The Stroop effect has been reliably established through the many different research studies dedicated to further investigating the Stroop procedure. Santos and Montgomery (1962) found that the Stroop was a reliable instrument that was not influenced by events that occurred between test and retest. Jensen (1965) and Regan (1978) also concluded that the Stroop procedure, after multiple administrations, is highly reliable and shows minimal practice effects. McCown and Arnoult (1981) found that the phenomenon reliably existed even when words were printed in different spatial orientations. Similarly, MacLeod and Dunbar (1988) and Roe,

Jose Salazar, PsyD, is a graduate of Hofstra University's School-Community Doctoral Program and a psychologist with the New York City Department of Education. Robert Motta, PhD is a professor of psychology at Hofstra University and director of the School Community Psychology Doctoral Program. Correspondence regarding this article should be directed to Jose Salazar at jvs810@yahoo.com.

Wilsoncraft, and Griffiths (1980) have found that changes in Stroop interference can only be minimally and temporarily altered by explicit practice and teaching and that an individual will not improve in their Stroop reaction times because they have attempted the task multiple times.

From the classical Stroop studies, experimental variations were made to try to examine the processes involved in causing the interference. Klein (1964) created an experiment that utilized multiple Stroop cards that had differing stimuli. Klein used the traditional color-word incongruous card, a card with words that have an attached color association (e.g. grass, fire), common words without color associations (e.g. take, friends), uncommon words with no color association (e.g. helot, eft), and nonsense syllables that were not able to be pronounced (e.g. hjh, bhdr). Klein's results showed that the classical incongruous card showed the greatest difference score from a control card and thus the greatest level of interference. The interference scores then gradually decreased from the color-associated words to the common but not color-associated words to the uncommon words and lastly to the card with the nonsense syllables. Because the color-associated words showed more interference than the other common words that were not associated with colors, Klein concluded that the word's semantic meaning was creating interference that was greater when it was incongruous with the color stimuli. The continued decrease in interference scores was also explained by the fact that common words would create more interference than uncommon words because they have more meaning to people, and uncommon words would create more interference than the nonsense syllables that were not able to be pronounced because the uncommon words could at least be read.

With the research indicating that semantic meaning causes increased interference, research began to focus on utilizing words that would be emotionally salient to groups of people. Because the semantic meaning of the words that would be utilized would have a particularly strong meaning to that group, it was expected that individuals within that group would respond slower to a Stroop card comprised of those emotionally salient words. Also, because the emotional salience is related to a characteristic that is unique to that group, it was expected that the time on the Stroop card could be able to be utilized to discriminate individuals that are part of that group from individuals who are not. For example, by modifying the cards to have words that are characteristic of an emotional disturbance such as posttraumatic stress disorder

(PTSD) or major depressive disorder, individuals with one of those diagnoses would respond significantly slower than individuals without those diagnoses. This modification of the classical Stroop task has become known frequently as the Emotional Stroop Procedure (MacLeod, 1991).

McNally, Kapsi, Rieman, and Zeitlin (1990) examined this Emotional Stroop phenomenon utilizing Vietnam Veterans. Those veterans with PTSD showed a longer delay in naming the color of PTSD-relevant words than on other words (positive, neutral, or OCD). Also these participants showed a greater delay on the PTSD-relevant card than did other Vietnam Veterans without PTSD symptoms. Their study showed that the Emotional Stroop phenomenon does occur in individuals with PTSD and that this procedure can effectively discriminate between individuals with and without PTSD.

The Emotional Stroop procedure has been subsequently studied many times. It has been shown to be a method for identifying individuals with other traumas, including rape (Foa, Feske, Murdock, Kozak, & McCarthy, 1991), secondary trauma (Motta, Souzzi, & Joseph, 1994), and other psychological disorders, including social phobia (Mattia, Heimberg, & Hope, 1993) and depression (Lubliner & Motta, 2011). These studies have shown that the trauma-related schemas can be activated by exposure to the trauma-specific words on the Stroop and thus cause longer latency periods on color-naming these trauma specific words compared with neutral word performance. Thus, Freeman and Beck (2000) have concluded that the Emotional Stroop procedure can be used as a quantitative measure of the intrusive symptoms of PTSD.

The Emotional Stroop was used with children and adolescents with a history of sexual abuse in Dubner and Motta (1999). In Dubner et al. (1999), the Emotional Stroop procedure was administered to children and adolescents in foster care who were sexually abused, physically abused, or not abused at all. The Emotional Stroop procedure in this research utilized cards with "0000," neutral words, positive words, words associated with obsessive-compulsive concerns, and words that were sexual in nature. All the words on each of the cards were printed in various colors. The "0000" card served as a control card against which the researchers were able to compare individual performances on the other cards. Their results illustrated that those with posttraumatic stress disorder and a history of sexual abuse performed significantly slower on the color-naming task in response to sexually-loaded words than individuals who were physically abused or not abused at all. Also shown was that these children with PTSD

and a history of sexual abuse required significantly longer on the color-naming task on the sexual card than they did on any other card. The research by Dubner and colleagues concluded that this Emotional Stroop procedure could be used to help verify incidences of sexual abuse and identify those with PTSD.

While the research has repeatedly shown that the Emotional Stroop procedure can discriminate between individuals with and without psychological conditions such as PTSD and depression, research is limited in demonstrating whether or not the reaction times on the Emotional Stroop procedure will change in response to changes in the individual over time. That is, as a person responds to treatment and is less symptomatic of a disorder, does that individual's reaction time on the Stroop decrease, indicating a decrease in cognitive interference?

Ball, Mitchell, Touyz, Griffiths, and Beumont (2004) attempted a longitudinal analysis of the Emotional Stroop procedure. Their study examined whether participants who met the diagnostic criteria for anorexia would show a reduction in response latencies if they responded to treatment. The results indicated that those who responded to treatment, as indicated by behavioral and weight measures, showed a reduction in the interference time on the Stroop. These results provide evidence that the Stroop may be responsive to longitudinal change as they were able to successfully demonstrate that reaction times on the Emotional Stroop can indeed change concurrent with current functioning.

While Ball and colleagues (2004) provided some evidence for the responsiveness of the Stroop to psychological change, their study dealt with anorexia. Posttraumatic stress disorder is a unique condition in that it is a response to a specific stressor and negatively impacts all domains of functioning. In PTSD one may find alterations in perception, emotional responsiveness, arousal, behavior, etc. Anorexia, anxiety, and specific phobias are more circumscribed disorders.

The Present Study

The current study sought to be a preliminary examination of whether the Emotional Stroop procedure described in Dubner and Motta (1999) could be utilized as a means for detecting change in an individual with PTSD in response to therapeutic intervention. Research thus far has not examined whether the Emotional Stroop will react like other measures

of PTSD and reflect change over time. It was hypothesized that utilizing the statistical process control method of visual inspection, the ipsative of z analysis, and cross correlations, changes in difference scores across time on the Emotional Stroop card with sexually relevant words would be accompanied by corresponding changes in PTSD, as measured by standardized measures of PTSD. It was also hypothesized that stability of the times on the Sexual Card, would be accompanied by stability of standardized PTSD scores.

METHOD

Participants

Participants for this repeated measures, small n study were adolescent (14-17 year old) female girls ($n = 8$) in a long-term inpatient psychiatric facility with a history of sexual abuse and a diagnosis of posttraumatic stress disorder, as indicated by their intake reports and confirmed by initial performance on the PTSD measures. Participants were required to have a reading level that was sufficient to read the words on the Stroop cards. Dubner and Motta (1999) show that the Stroop stimulus cards can be utilized with children as young as 8-years old. The institutional review board of the facility from which the participants were selected, as well as the institutional review board from Hofstra University which sponsored the current study, approved this research.

Measures

The Stroop procedure described in Dubner and Motta (1999) the Child Post-Traumatic Stress Disorder-Reaction Index (CPTSD-RI; Frederick, Pynoos, & Nader, 1992) and the Childhood PTSD Symptom Scale (CPSS; Foa, Johnson, Feeny, & Treadwell, 2001) were utilized in this study. The individual's daily progress on the behavioral system utilized in the hospital was also recorded.

The Emotional Stroop Procedure

The Emotional Stroop procedure from Dubner and Motta (1999), as described previously, has been shown to be able to correctly identify sexually abused adolescents. The control card, the neutral word card, and the sexual card were utilized for this study. Each card had 50 of the designated stimuli for that specific card (i.e. "0000" on the control card, neutral words such as "pen" and "mix" on neutral card, and

sexual words such as "naughty" and "sex" on the sexual card) printed in varying colors. Participants are asked to simply name the color in which each word is printed. Performance on this task is response latency, which is defined as the time to color-name stimuli on the relevant card minus the time on the control card. Santos and Montgomery (1962) found that the Stroop color-naming task had a reliability that was significant at the .01 level. Strauss, Allen, Jorgensen, and Cramer (2005) found a reliability of .89 in anxiety-based variations of the Emotional Stroop task. Validity of the use of the Emotional Stroop Procedure to identify PTSD in sexually abused adolescents can be seen in Dubner and Motta (1999).

The Child Post-Traumatic Stress Disorder-Reaction Index (CPTSD-RI)

The CPTSD-RI (Frederick, Pynoos, & Nader, 1992) is a 20-item, 5-point Likert-type scale designed to assess the reactions of school-aged children to a broad range of trauma. The CPTSD–RI is one of the most widely utilized measures of childhood PTSD and has good interrater reliability (α = .88; Nader, Pynoos, Fairbanks, & Frederick, 1990) and internal consistency (α = .78–.83). CPTSD–RI scores have been found to have good validity as they correspond highly with actual diagnosis based on interview (r = .91; Frederick, 1985). This scale requires children to think about a traumatic event and then to rate the extent to which that event has caused them to feel certain ways or experience behavioral symptoms. Scores are summed to yield an overall PTSD score. A score of greater than 60 is indicative of "very severe PTSD," a score of 40 to 59 of "severe PTSD," a score of 25 to 39 of "moderate PTSD," and a score of 12 to 24 of "mild PTSD;" a raw score of less than 12 indicates that PTSD is "doubtful."

The Childhood PTSD Symptom Scale (CPSS)

The CPSS (Foa, Johnson, Feeny, & Treadwell, 2001) is a 24-item, 4-point Likert-type scale that was developed to be a childhood version of the Posttraumatic Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997). The scale was designed to reflect additional aspects of PTSD not assessed for in the CPSTD-RI, including acting or feeling as if the traumatic event were recurring—that is, flashbacks, a sense of foreshortened future, inability to recall important aspects of the trauma, irritability or outbursts of anger, and hypervigilance. The scale has shown to be both internally consistent (α = .80; Foa et al., 2001) and have convergent validity with the CPSTD-RI (r = .80; Foa et al., 2001). This instrument asks children to think about the traumatic event that occurred and rate how often they have experienced PTSD-associated symptoms in the last 2 weeks. Scores are then summed and scores above 11 are considered to reflect significantly high levels of PTSD.

Daily Behavioral Point Sheet

All residents at the inpatient hospital participate in a token economy system. Each child's progress is monitored daily through a point sheet which each child must keep on their person at all times. Throughout the day, staff regularly award points to the children for showing appropriate behaviors such as following directions, completing tasks, expressing feelings appropriately, and accepting "no" appropriately. For these types of behaviors the children typically earn 100 points each time. For other important behaviors, such as performing daily living skills independently, the children earn 50 points. The point sheet is collected daily and scores determine specific privileges. If the target number of points is achieved in a given day, the individual earns "full-level" privileges. Full-level privileges allow the individual access to more television time, access to more free-time options, later bedtime, and the ability to attend trips designated for patients earning full-level. For the purposes of this study, behavior was recorded daily and the percentage of times the individual earned these privileges in the two weeks prior to the date of assessment was calculated.

Procedure

Participants were taken out individually to a private setting where they were administered the CPTSD-RI, CPSS, and the Emotional Stroop procedure. They were assessed every two weeks using the identical procedures. At the time of each assessment the individual's percentage of achieving full-level privileges for the previous two weeks was also calculated. Each participant was scheduled to be assessed a total of 10 times, once every two weeks. However, three of the eight participants did not complete the full schedule of assessments. Participant 1 was only administered the assessments 7 times before she was discharged from the hospital following her demonstration of enough emotional stability to warrant her discharge. Participants 5 and 7 only had four and five assessments respectively, as both refused to continue participation following their last respective measurement.

Statistical Analyses

The results of this research were assessed by the statistical process control method of visual inspection, the ipsative of z analysis, and cross correlations. Results on all four measures will be graphed for each individual.

The Statistical Process Control Method of Visual Inspection

Statistical process control was utilized to assess whether or not the participants had shown change in their reaction times and PTSD scores. Statistical process control is a method of visual inspection that incorporates statistical controls to provide the researcher with a set of lines of demarcation to aide in visual inspection. This method involves the creation of a central line that represents the average score and calculation of upper and lower limits based on variability (Wheelers and Chambers, 1992).

The Ipsative of z.

The ipsative of z approach is a statistical analysis that creates an ipsative standard score based on the individual's own scores (Yarnold, Feinglass, McCarthy, & Martin, 1999). Under ipsative standardization, raw scores on the variable collected at multiple points in time are transformed into corresponding standard scores that reflect their magnitude relative to the population of scores on the variable for the individual (Yarnold, 1992). Comparisons between two z scores of interest are then made to check for a significant change. Using this analysis, the researcher can see if significant change has occurred across time. In this study this analysis was performed on the standardized PTSD measures and the difference scores on the Sexual Card to see if a significant change from the first to final measure had occurred. It was hypothesized that individuals who had a significant change in PTSD scores would also have a corresponding significant change in their Stroop times. For the purpose of this research study the ipsative of z approach compared the first and last data points for all individuals as well as other points of interest based on the graphs.

To perform this method of analysis, a z score for the points of interest was calculated for each individual. The z score is equal to the point of interest raw score minus the mean; then this result is divided by the standard deviation.

The z scores of the two points of interest are then subtracted from each other and the absolute value of that number than must exceed a critical difference score to reflect a statistically significant change. The critical difference score is calculated as: $CD = 1.96(J [1- \text{Reliability Coefficient for the Measure}])^{1/2}$

In this formula, J is equal to the number of comparisons being made. The formula is designed so that more comparisons will require a greater difference to be considered significant. The number of comparisons differs between each participant, as points of interest based on the graphs were compared.

The Reliability Coefficient for the Measure is the test-retest reliability of each measure. Originally, Yarnold (1988) utilized lag-1 autocorrelations to be subtracted from one in the formula. However, Mueser, Yarnold, and Foy (1991) modified the procedure so that test-retest reliabilities would be used specifically when there are a small number of data points as is the case in the present study. For the purpose of this study the test- retest reliabilities for each measure were: the Sexual Card of the Emotional Stroop was .89 as found in Strauss, Allen, Jorgensen, and Cramer (2005); the CPTSD-RI was .88 as shown in Pynoos et al. (1987) and the CPSS was .84 as demonstrated in Foa, Johnson, Feeny, and Treadwell (2001).

Cross Correlations

Cross correlation is a standard method of estimating the degree to which two series are correlated. Auto correlations are a type of cross correlation that utilizes lagged versions of the series being compared (Bourke, 1996). These auto correlations can be used to determine if the changes in the two series being compared are related and when the relationship exists. That is, does change in one series correspond with change in the other series and, if there is change, does that change occur simultaneously or is there a lag in time between changes. For the purposes of this study, changes at an auto lag of 0 was most scrutinized, as the hypothesis suggests that changes on the Emotional Stroop and changes on the other measures should occur simultaneously.

RESULTS

The purpose of the current study was to analyze whether or not difference scores of the Emotional Stroop Sexual Card would fluctuate in a pattern that was consistent with the

fluctuation of standardized measures of Posttraumatic Stress Disorder. Due to the length of analyses, only Participant 1's complete results are presented with accompanying graphs. Following Participant 1's results, summary tables of each participant's results are shown.
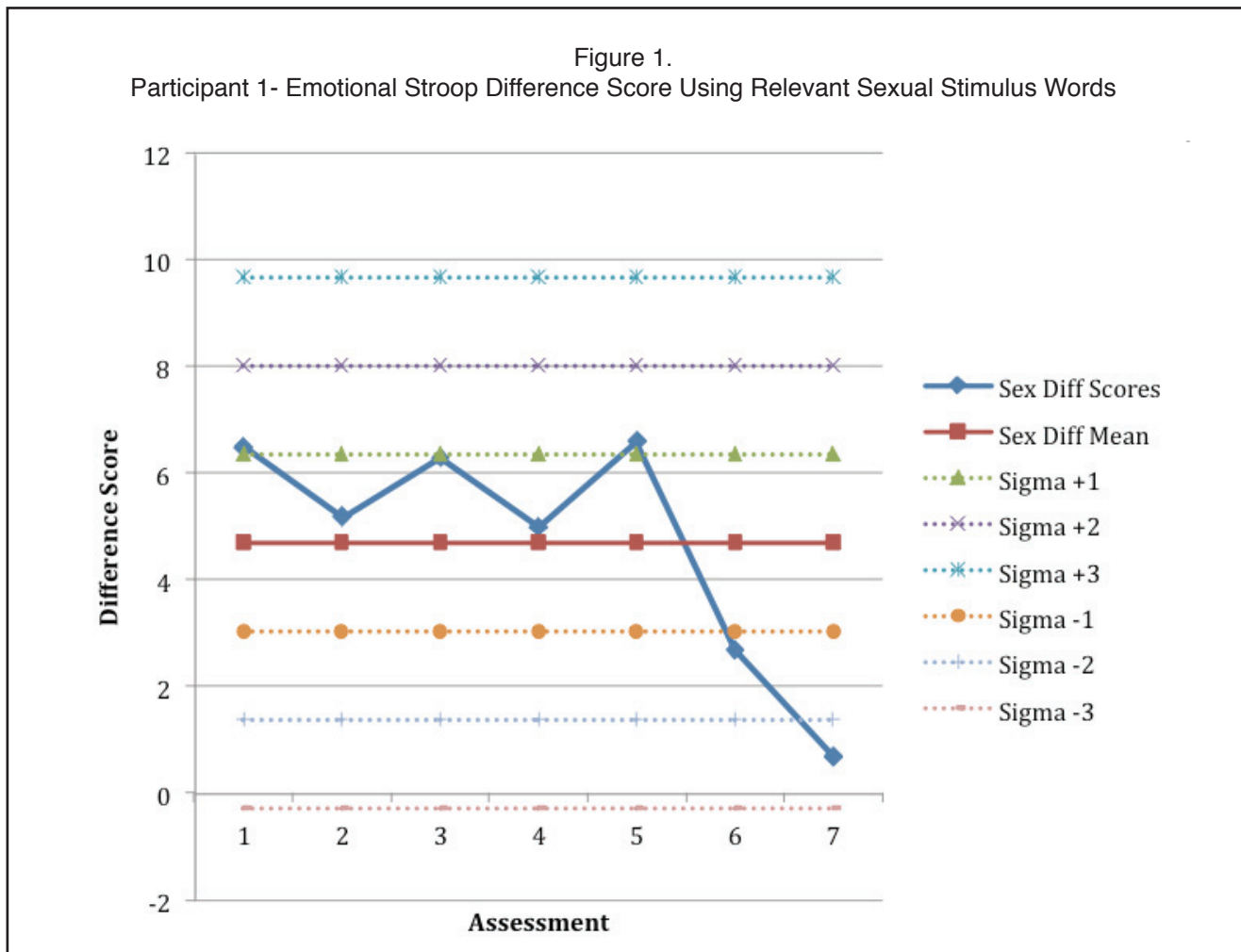
Participant 1

Demographic Information

Participant 1 was a 16-year old African-American female with a confirmed history of sexual abuse by both a similar-aged cousin and a significantly older, non-related adult. Her Axis I diagnoses were PTSD, Bipolar Disorder, and Conduct Disorder. She was unable to participate in this study for the entire duration due to her discharge from the hospital between Assessments 7 and 8. Her discharge was the result of demonstrating improved self-control and stabilization of psychiatric symptoms.
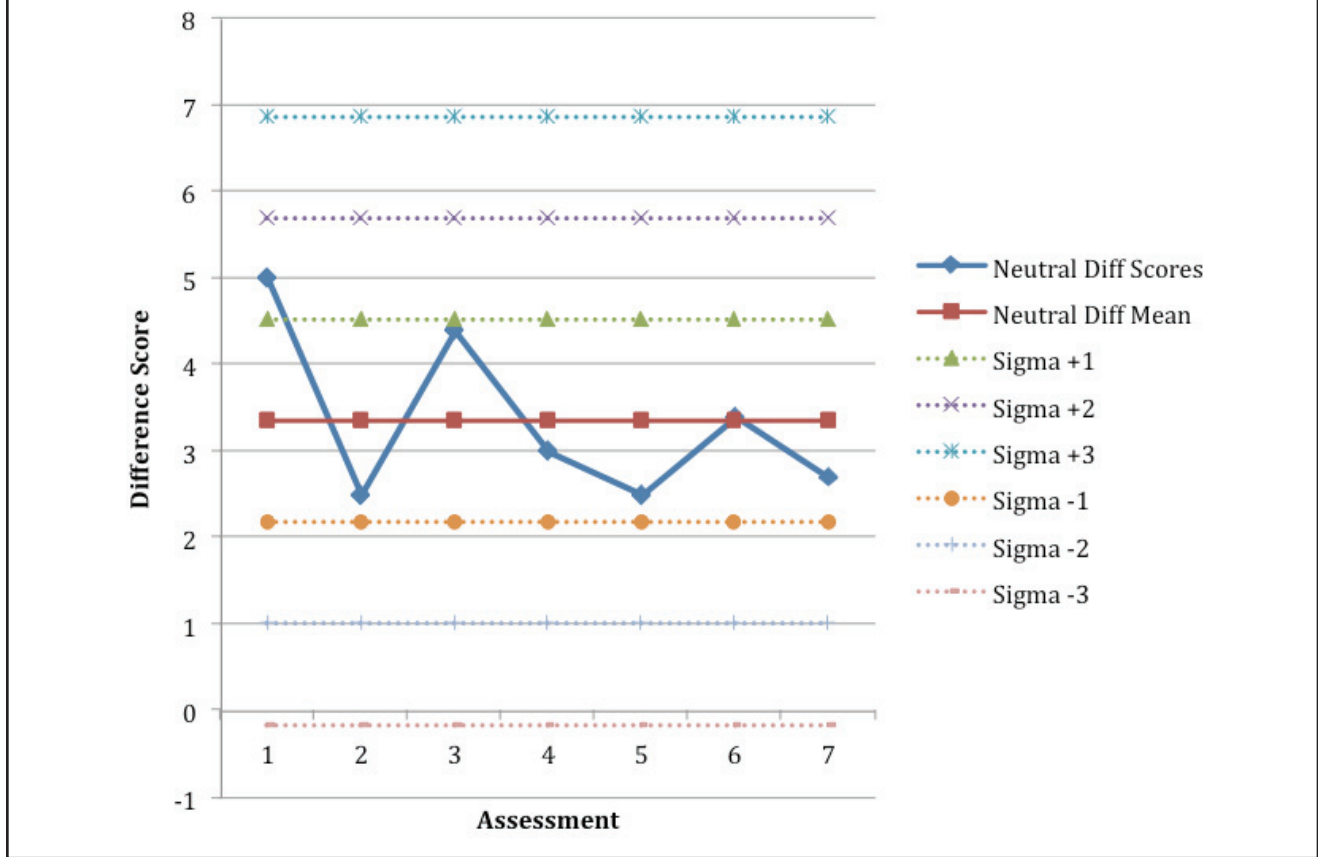
Statistical Process Control Method of Visual Inspection

The difference scores on the Emotional Stroop for Participant 1 on both the Sexual and Neutral Cards can be seen on Figures 1 and 2 respectively. These graphs are drawn

Figure 1.
Participant 1- Emotional Stroop Difference Score Using Relevant Sexual Stimulus Words

Note: Assessments are separated by two weeks of time; Sex Diff Scores= the time in seconds a participant takes to perform the Stroop color-naming task with relevant sexual stimulus words minus the time in seconds to perform the task with "0000" as the stimulus; Higher difference scores are indicative of PTSD symptomology; Sex Diff Mean= the average of the participant's Sex Diff Scores from all assessments; All Sigma scores are lines of demarcation calculated using Statistical Process Control and are designed to aid in the visual inspection of figures; Positive Sigma units are for scores above the mean and negative Sigma units are used for scores below the mean; A participant's score that is closer to or exceeds larger Sigma units (+3, -3) demonstrates increased variation from the mean and likely a fluctuation that did not result simply by chance, while a score that is closer to the mean and smaller Sigma units (+1, -1) indicates that the score did not fluctuate significantly from the mean and may be due to normal variance.

Figure 2.
Participant 1- Emotional Stroop Difference Score Using Neutral Stimulus

Note: Assessments are separated by two weeks of time; Sex Diff Scores= the time in seconds a participant takes to perform the Stroop color-naming task with relevant sexual stimulus words minus the time in seconds to perform the task with "0000" as the stimulus; Higher difference scores are indicative of PTSD symptomology; Sex Diff Mean= the average of the participant's Sex Diff Scores from all assessments; All Sigma scores are lines of demarcation calculated using Statistical Process Control and are designed to aid in the visual inspection of figures; Positive Sigma units are for scores above the mean and negative Sigma units are used for scores below the mean; A participant's score that is closer to or exceeds larger Sigma units (+3, -3) demonstrates increased variation from the mean and likely a fluctuation that did not result simply by chance, while a score that is closer to the mean and smaller Sigma units (+1, -1) indicates that the score did not fluctuate significantly from the mean and may be due to normal variance.

with the sigma lines outlined by the statistical process control method of visual inspection.

At the first assessment, Participant 1's difference score on the Emotional Stroop card with the sexually relevant stimulus words is just above the first positive sigma unit. This indicates a score that is above the mean but not by very much. For the next several assessments, up until Assessment 6, Participant 1's difference scores on the Sexual Card remain between the average difference score and this first positive sigma unit. At Assessment 6, however, Participant 1's difference score dips below the first negative sigma unit. This trend continues to the final assessment for Participant 1, where her

difference score dips even further and exceeds two negative sigma units. A score that exceeds the second sigma unit is more likely indicative of a significant change.

On the Emotional Stroop that utilized neutral stimulus words Participant 1 began with a score that, like the Sexual Card, exceeded one sigma unit above the mean. The pattern of difference scores on the Neutral Card, after this first assessment fluctuated above and below the mean but never did exceed a sigma unit in either direction of the mean. Such limited variation indicates a stable performance on the Neutral Card for Participant 1.

Figure 3.
Participant 1- Scores on the Child Post-Traumatic Stress Disorder- Reaction Index
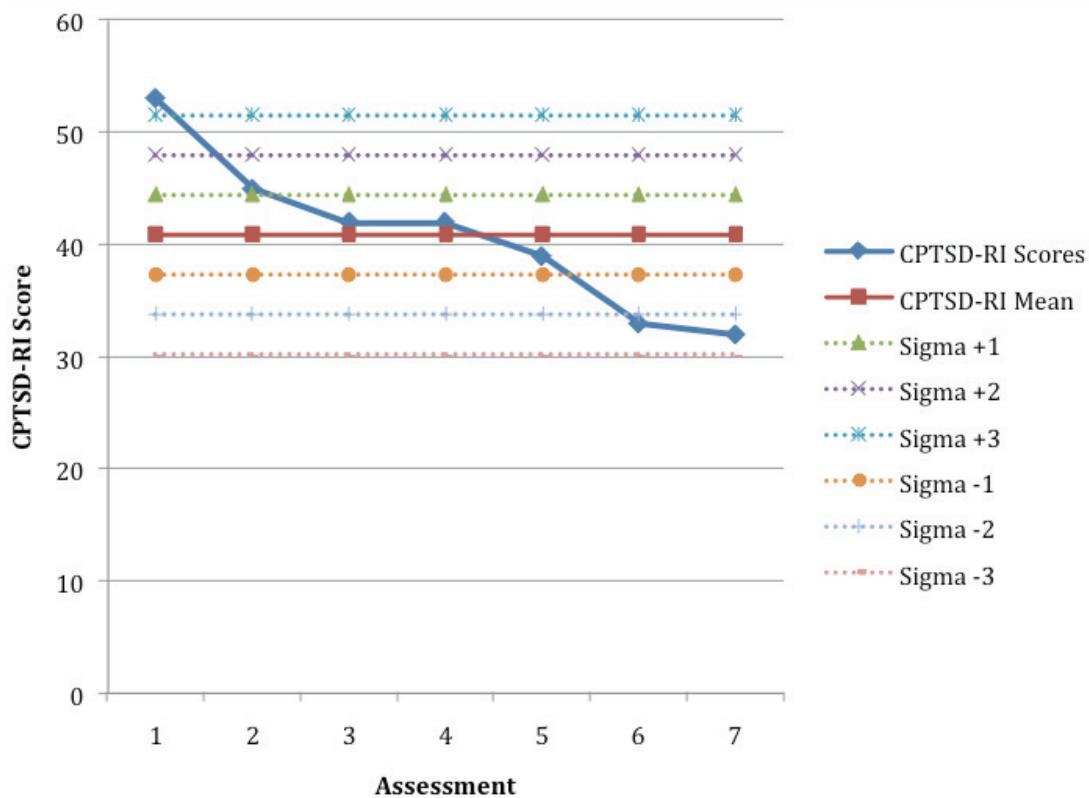
Note: Assessments are separated by two weeks of time; CPTSD-RI= Child Post-Traumatic Stress Disorder-Reaction-Index; Higher scores on the CPTSD-RI are indicative of higher levels of PTSD symptomology; CPTSD-RI Mean= the average of the participant's CPTSD-RI scores across all assessments; All sigma scores are lines of demarcation calculated using Statistical Process Control and are designed to aid in the visual inspection of figures; Positive sigma units are for scores above the mean and negative sigma units are used for scores below the mean; A participant's score that is closer to or exceeds larger sigma units (+3, -3) demonstrates increased variation from the mean and likely a fluctuation that did not result simply by chance, while a score that is closer to the mean and smaller sigma units (+1, -1) indicates that the score did not fluctuate significantly from the mean and may be due to normal variance.

Participant 1's performance on the standardized measures of PTSD, the CPTSD-RI and the CPSS, can be see in Figures 3 and 4, respectively. Sigma lines calculated according to statistical process control that are used to aid in visual inspection are also displayed in these graphs.

For Participant 1, the score at the first assessment on the CPTSD-RI was far above the mean. It even exceeded three sigma units above the mean. Such a high score is indicative of very high PTSD symptomology. From that assessment forward, Participant1's scores on the CPTSD-RI steadily decreased downward. At Assessment 6, the decrease became significant enough to exceed two negative sigma units. This trend continued to the next and final assessment, as her

difference score continued to be below two negative units.

On the other standardized measure, the CPSS, Participant 1 showed a similar pattern. On the first assessment of this measure, Participant 1's score was over two sigma units above the mean. As on the CPTSD-RI, this score showed a decline over time and, also like on the CPTSD-RI, decreased to the point where it exceeded negative two sigma units at Assessment 6. For the final assessment the decrease continued even further, as the CPSS score was at its low point and three sigma units below the mean at Assessment 7.

The behavioral measure used in this research was the percentage of times each participant was able to earn full-level privileges in the 14 days since the previous increased

psychiatric stability. Figure 5 illustrates Participant 1's performance on this measure and includes sigma lines calculated according to statistical process control.

On this behavioral measure, Participant 1, at the time of the first assessment, had earned these privileges 11 times out of the previous 14 days. This was the lowest percentage of earning full-level privileges that Participant 1 would have for the duration of this study. Her percentage increased over the next two assessment periods. A decrease at Assessment 4 was noted but this also corresponds to a shift in her behavioral management program designed to require even more positive behavior and thus make it more difficult for privileges to be earned. Following this shift, Participant 1's

percentages again increase and are stable at 100% for Assessments 6 and 7.

Examining the entirety of Participant 1's results, scores on the Sexual Card, CPTSD-RI, and CPSS seem to correlate together and seem to reflect similar changes in levels of symptomology. The difference scores on the Emotional Stroop's Sexual Card coincided with CPTSD-RI and CPSS scores, such that when the results on these standardized measures illustrated a significant decrease, a corresponding reduction in Stroop difference scores was noted. These results also appear to correlate with behavioral indicators, as Participant 1 demonstrated improved stability that lead to her discharge following the lower scores at Assessments 6

Figure 4.
Participant 1- Scores on the Childhood PTSD Symptom Scale
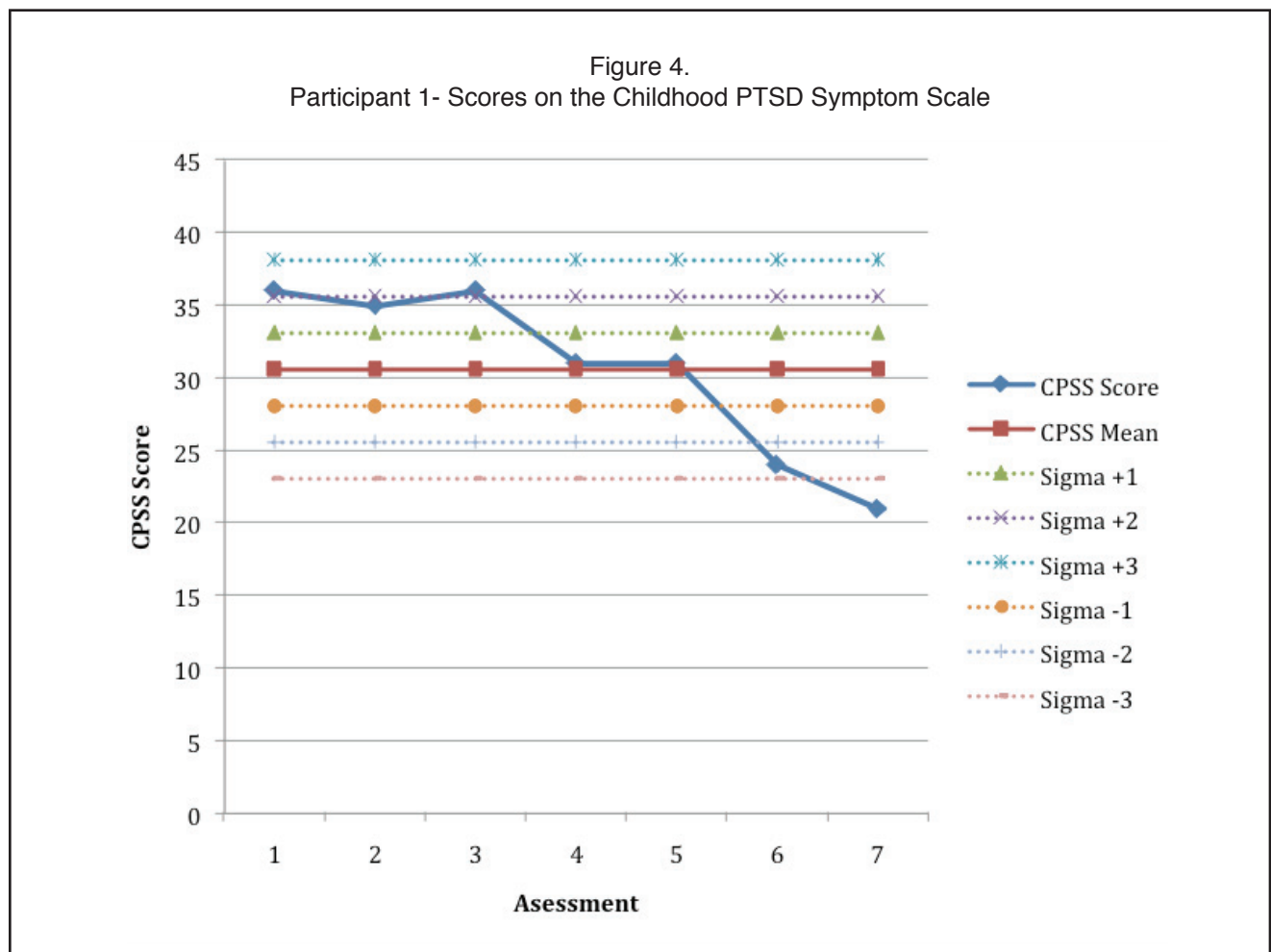
Note: Assessments are separated by two weeks of time; CPSS= Childhood PTSD Symptom Scale; Higher scores on the CPSS are indicative of higher levels of PTSD symptomology; CPSS Mean= the average of the participant's CPSS scores across all assessments; All sigma scores are lines of demarcation calculated using Statistical Process Control and are designed to aid in the visual inspection of figures; Positive sigma units are for scores above the mean and negative sigma units are used for scores below the mean; A participant's score that is closer to or exceeds larger sigma units (+3, -3) demonstrates increased variation from the mean and likely a fluctuation that did not result simply by chance, while a score that is closer to the mean and smaller sigma units (+1, -1) indicates that the score did not fluctuate significantly from the mean and may be due to normal variance.

Figure 5.
Participant 1- Percentage of Times Full-Level Privileges Were Earned By the Participant in the Two Weeks Prior to the Date of Assessment
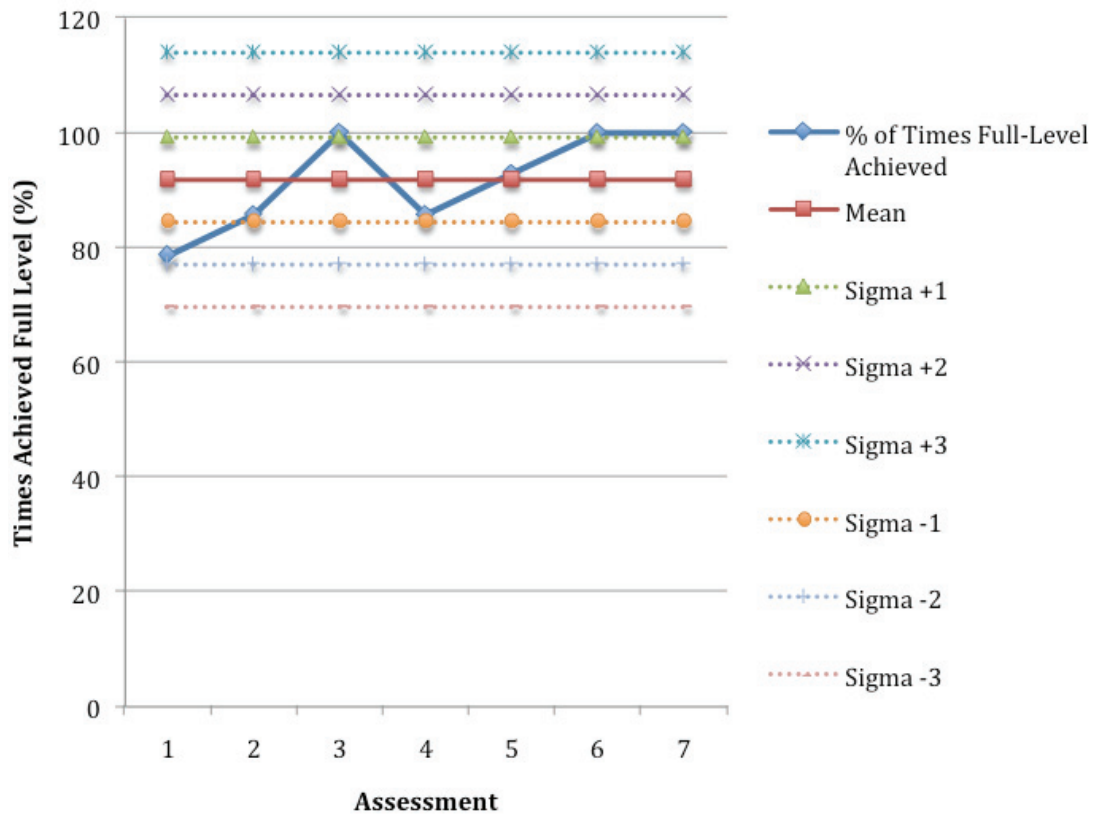
Note: Assessments are separated by two weeks of time; All participants in the current research participate in a behavior modification system designed to increase appropriate behaviors and in this system they have the potential to earn full-level privileges (which include access to more desirable free-time activities and extended bed times) each day if they earn the requisite number of daily points; Points are earned through demonstrating appropriate behaviors throughout the day; % of Times Full-Level Achieved= the number of days out of the 14 days between assessments that the participant was able to earn the required points to earn full-level privileges; Mean= the average of the percentage of time the individual was able to achieve full-level; All sigma lines are lines of demarcation calculated using Statistical Process Control and are designed to aid in the visual inspection of figures; Positive sigma units are for scores above the mean and negative sigma units are used for scores below the mean; A participant's score that is closer to or exceeds larger sigma units (+3, -3) demonstrates increased variation from the mean and likely a fluctuation that did not result simply by chance, while a score that is closer to the mean and smaller sigma units (+1, -1) indicates that the score did not fluctuate significantly from the mean and may be due to normal variance.

and 7. Her percentage of achieving full-level privileges also demonstrated a pattern of increased behavioral stability as her PTSD scores lessened.

These results for Participant 1 indicate that difference scores on the Emotional Stroop's Sexual Card did indeed lower significantly when a corresponding reduction in

CPTSD-RI and CPSS scores was seen. The Neutral Card did not show such a pattern. However, while the difference score on the Sexual Card did have a large decrease at Assessment 6, it is noteworthy that this score did not go

below two negative sigma units until the next assessment while the scores on the CPTSD-RI and CPSS were already at that level. Also it is important to note that at Assessment 1, when the CPTSD-RI and CPSS had scores that were at least two sigma units above the mean, the difference score on the Sexual Card was just above one sigma unit.

Examining Participant 1's results as a whole, her scores seem to provide evidence that the changes in the Stroop do correspond with changes on the standardized measures of PTSD.

Ipsative of z Analysis

Participant 1 began the research with a difference score on the Sexual Card of 6.5 at the first assessment and completed her participation at the seventh assessment with a difference score of 0.7. This decrease of 5.8 points was statistically significant $z = 2.6$, $p < .05$. On the CPTSD-RI, she scored 53 on the first measure and 32 at the final assessment. On the CPSS, a shift from a score of 36 at the initial testing to a score of 21 was seen. Both reductions in PTSD symptomology were found to be statistically significant, $z = 2.92$, $p < .05$, and $z = 2.5$, $p < .05$ respectively.

Statistical analysis using the ipsative of z demonstrates that for Participant 1 there were corresponding, statistically significant, downward shifts in difference scores on the Sexual Card and on scores on the two standardized measures of PTSD, the CPTSD-RI and the CPSS. This confirms results from the statistical control process method of visual inspection that corresponding changes were seen across these measures. These results provide evidence that when significant changes on the Stroop occur, corresponding significant changes on the standardized measures of PTSD also occur.

Cross Correlational Data

Auto lag cross correlations were performed comparing the difference score on the Sexual Card of the Emotional Stroop to the two standardized measures of PTSD and the behavioral measure. It was expected that a significant positive correlation should be seen with the two standardized measures at a lag of 0. Also at a lag of 0, a significant negative correlation between the behavioral measure and the Stroop should be seen.

When comparing the difference scores on the Emotional Stroop with the scores on the CPTSD-RI there is a significant positive correlation, $r = .77$, $p < .05$, at a lag of 0. The correlation of scores on this same card and the CPSS was also significant at a lag of 0, $r = .92$, $p < .05$. When correlating the scores on the Sexual Card with the behavioral measure a negative correlation is seen, but it is not significant, $r = -.54$, $p > .05$.

Overall Summary of Results

Across all the participants of this research there is evidence to suggest that changes on the difference scores of the Emotional Stroop card with the sexual stimulus words do correspond to changes in scores on the standardized measures of PTSD. This evidence can be seen utilizing both the statistical process control method of visual inspection and the ipsative of z. A summary of the results of all participants can be seen in Table 1.

Table 1.
Summary of Participant's Results Using Statistical Process Control and the Ipsative of z Analysis

Participant	Statistical Process Control	Ipsative of z Analysis
1	+	+
2	+	±
3	+	±
4	±	+
5	+	+
6	-	±
7	-	-
8	+	+

Note: + = support for correspondence between Emotional Stroop and standardized measures; ± = partial support for correspondence between Emotional Stroop and standardized measures; - = no support for correspondence between Stroop and standardized measures

Using cross correlations, at a lag of 0, there is further evidence suggesting that the Sexual Card of the Emotional Stroop does co-vary with the CPTSD-RI, the CPSS, and the behavioral measure. Table 2 provides a summary of all the correlations.

DISCUSSION

The current study was designed to be a preliminary analysis of whether or not difference scores on an Emotional Stroop card with relevant sexual stimulus words would fluctuate in A manner that was consistent with the fluctuation of standardized measures of Post-Traumatic Stress Disorder. This research aimed to demonstrate a conceptual redundancy between the Emotional Stroop and the CPTSD-RI and the CPSS, and that these measures co-varied as change occurred across time. Results appear to indicate that changes on the difference scores on the Emotional Stroop did in fact correspond with changes on the standardized measures of PTSD.

The overall results of this research study appear to provide evidence of two different phenomena regarding the Emotional Stroop. The first of these is conceptual redundancy between this version of the Emotional Stroop and the CPTSD-RI and CPSS. That is, the Sexual Card of this version of the Emotional Stroop appears to be measuring the same construct measured by the standardized measures of PTSD, the CPTSD-RI and the CPSS. These results confirm the findings of Dubner and Motta (1999) and Freeman and Beck (2000) that the Emotional Stroop can be used to verify incidences of sexual abuse and identify individuals with PTSD. These results give further evidence for the use of an Emotional Stroop Procedure to identify an individual with a psychological disorder such as PTSD, depression (Lubliner & Motta, 2011), social phobia (Mattia, Heimberg, & Hope, 1993), anorexia (Ball, Mitchell, Touyz, Griffiths, and Beumont, 2004), generalized anxiety disorder (Matthews, Mogg, Kentish, and Eysenck, 1995), and specific phobia (Lavy, van den Hout, and Arntz ,1993).

The second conclusion that can be drawn from the results of this study, which was the primary concern of this research, is that the data are indicative of a covariance of Stroop scores with the standardized PTSD measures. Prior to this research it was unknown as to whether or not an Emotional Stoop Procedure for PTSD would be able to effectively detect

Table 2.
Summary of Participant's Cross Correlational Data for the Stroop Difference Scores
with Each Measure

Participant	CPTSD-RI	CPSS	Behavioral Measure
1	.767*	.916*	-.540
2	.668*	.530	.530
3	.907*	.539	-.173
4	-.167	-.227	.225
5	.841	.951	-.539
6	.650*	-.114	.134
7	-.767	.407	.843
8 .	.750*	.598	-.861*

Note: Cross correlations were performed with the difference scores on the Sexual Card of the Emotional Stroop with each measure; CPTSD-RI= Child Post-Traumatic Stress Disorder-Reaction-Index; CPSS= Childhood PTSD Symptom Scale; Behavioral Measure= behavior modification system designed to increase appropriate behaviors.

* p < .05.

changes in PTSD. The results of this research now show that a reduction of cognitive interference that corresponds with a reduction of PTSD as measured through the standardized self-report measures is also reflected in faster reaction times on the Emotional Stroop. This coincides with results by Ball, Mitchell, Touyz, Griffiths, and Beumont (2004) who found that as participants with anorexia responded to treatment, a reduction in the interference time on the Stroop occurred. However, these results contradict Devineni, Blanchard, Hickling, and Buckley (2004) who showed no change in Stroop times as individuals responded to treatment. This contradiction, however, is likely due to Devineni and colleagues' participants never demonstrating a difference between the control and relevant stimulus cards even before treatment, while the participants in the current study did demonstrate that initial difference difference.

The reduction in cognitive interference, as seen in faster response times on the Emotional Stroop, is indicative of therapuetic progress. If the Emotinal Stroop did not co-vary with the other measures and instead remained stable due to a persistence of cognitive distortions, then the Emotional Stroop would be at best a quick screener with very little practical use. It would be able to detect previous incidences of sexual abuse without being able to give any information about the current functioning of the individual.

One of the major problems with the current methods of diagnosing PTSD, particularly with children, and particularly involving instances of sexual abuse, is the prevalence of denial. Even in situations with overwhelming evidence that indicates an instance of sexual abuse has occurred, children have a propensity for denying such instances. In the Dubner and Motta (1999) study, very few children were willing to self-disclose incidents of sexual abuse. Even the United States Department of Health and Human Services has stated that it estimates that the prevalence rate of abuse, particularly sexual abuse, is vastly underreported (2008). Because it is symptomatic of children who have been sexually abused to question what has occurred and to self-blame and feel shame, these children are often extremely hesitant to share with professionals their experiences of sexual abuse (Finkelhor et al., 1986). Utilizing this version of the Emotional Stroop to detect PTSD in children who have been sexually abused has the benefit of not requiring the child to self-disclose. The Emotional Stroop appears to work with sub-conscious mechanisms that cause cognitive interference; thus children would not necessarily have to come forth and admit to and

discuss their history of abuse in order to receive and appropriate diagnosis and treatment and then have their progress monitored. The Emotional Stroop can become a measure of PTSD that never actually requires discussion of the traumatic event and its effect on the individual.

Another concern with the standardized measures of PTSD is the issue of intentional manipulation by the individual. The two standardized measures of PTSD used in this study are reliant on the self-reporting of symptoms. The individual being assessed must report his or her own levels and experiencing of PTSD symptoms. The questions in these measures are fairly obvious as to their intent. Questions that require a respondent to rate how often they are experiencing nightmares regarding their traumatic event or how often they feel bad or upset about the event are fairly easy for an individual to recognize as questions about the symptoms of a disorder. If the individual wishes to appear mentally healthy, it is easy for that person to not endorse items like those. Likewise, an individual looking to receive secondary benefits from the diagnosis of a mental illness, could easily manipulate these items to appear as though they were experiencing these symptoms. In fact, Taylor (2010) demonstrated that approximately 55% of participants in his study demonstrated malingering, or the intentional exaggeration of symptoms, of PTSD symptomology. Use of the Emotional Stroop procedure would help alleviate this concern, as the Emotional Stroop procedure was demonstrated by Lubliner and Motta (2011) to be not susceptible to intentional manipulation. Individuals who have a desired outcome to either appear to have a disorder that they do not or to appear mentally healthy when they are not, can manipulate self-report measures but cannot manipulate the Emotional Stroop. The Emotional Stroop can be an assessment tool that measures PTSD without an individual realizing exactly what is being measured and therefore not subject to the individual's motivations.

Another advantage in using the Emotional Stroop as a measure for PTSD is in its practicality and simplicity. The Emotional Stroop simply requires the use of a card with trauma-relevant words, a card with "0000" to serve as a baseline, and a stopwatch. The administrator needs only to explain to each individual to simply perform a color-naming task and then record the times. Almost no training is necessary for the administrator. Also the reading level to participate in this particular assessment is low and requires less overall reading comprehension than the standardized measures. Finally, because this assessment simply requires an individual

to color-name and not perform more taxing activities such as reading and rating feelings, compliance with participation on this assessment is more likely.

Additional research is necessary to help clarify and expand on the results of this study regarding the Emotional Stroop and its relationship to current, standardized measures of Post Traumatic Stress Disorder. This study is limited to a preliminary report because of a small sample size. An increase in sample size could help to further expand the knowledge base on the Emotional Stroop. This study utilized female adolescents who were hospitalized; perhaps future research utilizing a different sample might yield contrary results or may provide further support of the current results. With further research into the Emotional Stroop procedure, eventually it may receive enough empirical support to become a new clinical measure of PTSD that is less susceptible to intentional manipulation and that is not reliant on self disclosure.

Summary

The present, preliminary study is the first to demonstrate that the Emotional Stroop procedure can be used to reliably reflect improvements in PTSD symptoms as a result of treatment. The value of the Emotional Stroop is that it is relatively immune to intentional response manipulation, unlike many of the paper and pencil measures. Current results must be considered preliminary and replication studies are needed. Nevertheless, the present results point to the Emotional Stroop as a promising new method for assessing progress in treating PTSD.

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Selected Annotated Journal Resources

Elizabeth A. Bailey, M.S. and Colleen Jones, B.A.

Arvison, J., Kinniburgh, K., Howard, K., Spinazzola, J., Strothers, H., Evans, M., . . . Blaustein, M. E. (2011). Treatment of complex trauma in young children: Developmental and cultural considerations in application of the ARC intervention model. *Journal of Child and Adolescent Trauma*, **4, 34-51.**

TYPE OF ARTICLE

* Original Experimental Investigation: Quasi-Experimental Design.

OBJECTIVE/PURPOSE OF THE ARTICLE

* To explore the implementation of the Attachment, Self-Regulation, and Competency (ARC) model with a younger clinical population, specifically an ethnoculturally diverse population involved in a state child protective agency.

The ARC Framework

* The ARC framework is a flexible intervention for treating children and adolescents who have experienced complex trauma. It is component based and specifically addresses three core domains impacted by exposure to chronic, interpersonal trauma, including: attachment, self-regulation, and developmental competencies. Ten core targets for intervention are identified based on these domains, as well as a final target that attempts to integrate the domain-specific skills. .

Attachment

* The attachment components focus on the child's caregivers, be it parents, relatives, foster or adoptive parents, residential staff in a milieu, school personnel, etc. There are four identified targets that include: 1) caregiver management of affect, 2) attunement, 3) consistent response, and 4) routines and rituals.

Self-Regulation

* The self-regulation module focuses on the child's ability to identify, modulate, and express his or her internal experience. Three targets are identified: 1) affect identification, 2) modulation, and 3) affect expression.

Competency

* This domain focuses on the child's ability to acquire typical developmental skills. Children who experience trauma commonly invest energy into survival and not the development of age-appropriate competencies. Two targets are identified: 1) executive functions and 2) self-development and identity.

Trauma Experience Integration

* This target attempts to ingrate the range of skills included in the attachment, self-regulation, and competency domains.

Adaptations for a younger, ethnically diverse population:

Age Adaptations

* For younger children, trauma may have occurred before the development of expressive language, which means that they may lack the skills necessary to process the trauma in a coherent, sequential verbal narrative.
* Using ARC techniques, trauma processing happens when the child experiences heightened physiological reactions. Having this distress identified, validated, and modulated by a caregiver helps the child regain a sense of internal safety.
* Additionally, ARC grounds treatment in the caregiver relationship to provide a reparative experience for the

child, since most complex PTSD occurs within a caregiver relationship.

Cultural Considerations

- Extra emphasis was placed on cultural awareness during treatment, due to the variety of ethnic groups in the treatment population.
    - o One case study is included, where in a child's family of origin, respect was demonstrated by listening quietly. In the boy's adoptive family, his silence was interpreted as stubborn and defiant.
    - o Another case study included the use of a child's Native American heritage to create themes and build a sense of identify for the client.

Efficacy of this Approach

- This article provides some data on the efficacy of ARC treatment.

Procedure

- The sample originally consisted of 93 children who had been exposed to multiple traumatic experiences. Authors reported that at the time of the manuscript submission, only 53.8% (50 clients) had an end of treatment status, and only 52% of this group had completed ARC treatment, leaving a total of 21 clients' data available for analysis.
- The average age of this sample was 7.5 years and the average number of sessions was 50. This population was ethnically diverse, with 65.6% indentifying as American Indian/ Alaskan native, 39.8% as Caucasian, 20.4% as African American, 4.3% as Native Hawaiian/Pacific Islander, and 2.2% as Asian.
- Data for children receiving ARC treatment are collected through the NCTSN's core data set, which is managed by Duke Clinical Research Institute. The Child Behavior Checklist (CBCL) was the primary measure used to look at results due to the young age of this population, including both the young child's version for ages 1.5-5 years and an older child version for ages 6 to 18 years. The CBCL was administered at baseline, at 3-month intervals, and at discharge.

RESULTS

- From the data that could be analyzed, the CBCL showed a statistically significant, 19 point, decrease in symp-

toms. This was determined using a paired-samples t test.

- It was also found that children who completed treatment achieved a high rate (92%) of permanent placement. This compares favorably to the 40% placement rate for children in foster care in the state.

CONCLUSIONS/SUMMARY

- These results demonstrate some initial efficacy in applying ARC treatment to a younger and more diverse population.
- The range of ethnic identities included in this study also suggests that there is a strong likelihood of generalizability to other populations.
- Additionally, the higher rate of permanent home placements has significant clinical and policy implications.

CONTRIBUTIONS/IMPLICATIONS

- From this article, clinicians should have an initial understanding of the goals and targets of ARC treatment, as well as examples of how to adapt the treatment goals to unique client needs.
- This article provides evidence of efficacy among a unique population.

Read, J. P., Ouimette, P., White, J., & Colder, C. (2011). Rates of DSM-IV-TR trauma exposure and posttraumatic stress disorder among newly matriculated college students. Psychological Trauma: Theory, Research, Practice, and Policy, 3(2), 148-156.

TYPE OF ARTICLE

- Original Empirical Investigation: Experimental Design

OBJECTIVE/PURPOSE OF THE ARTICLE

- To determine the prevalence rates of DSM-IV Criterion A trauma exposure and PTSD among incoming college students, as well as examine socio-demographic predictors of Criterion A trauma and PTSD.

METHODS

Participants

- The sample consisted of 3,014 (58% female) incoming college freshmen students at two midsized public universities.

- The sample was ethnically diverse, with 74% of participants identifying as Anglo Caucasian, 12% as Asian, 11% as Black, 4% as Hispanic/Latino, 2% as American Indian/ Alaskan, and 1% as Hawaiian/Pacific Islander.

Measures

- Demographics: Participants reported on several demographic characteristics, including gender, age, ethnicity, and parents' education level.

- Trauma Exposure: Seven items from the Trauma Life Events Questionnaire were used to create a brief measure of lifetime trauma exposure. These items assessed exposure to: an accident/natural disaster/fire, combat, sudden unexpected loss of a loved one, life-threatening illness (self or loved one) physical assault (self or observed), sexual assault, and an other event that was life-threatening, caused serious injury or extreme distress.

- Traumatic Stress Sequelae: The PTSD Checklist- Civilian Version (PCL-C) was used to evaluate PTSD symptoms among participants who had endorsed trauma exposure. Participant responses were then rated as "symptom" or "non-symptom," based on empirically derived cut-scores. Participants were then grouped into "PTSD-Positive" and "PTSD-Negative" groups consistent with the DSM-IV-TR diagnostic criteria. Cronbach's alpha in this sample was 0.93.

Procedure

- Recruitment procedures were identical at both universities and data collection took place in three cohorts. All eligible incoming students were sent a "pre-notification" during the summer prior to matriculation. This was followed two weeks later by a personalized email and link to a secure online survey, as well as an identical hard-copy packet containing the same surveys and a self-addressed stamped envelope. Approximately 60% of surveys were completed through the online option and there was no association between PTSD/trauma and mode of response.

- Weekly email and phone call reminders were used to enhance participation rates and the final response rate was 58%, which after cleaning was done, resulted in 3,014 usable cases. There was a slight overrepresentation of women (58% vs. 47% average) and Caucasian students (72% vs. 62%) noted in this final sample.

RESULTS

Procedure

- Sixty-six percent (n = 1999) of participants reported a traumatic life event. The average reported number was about 1.5 (SD = 1.45), with 23% reporting one event, 20% reporting 2 events, and 25% reporting 3 or more events.

- The most common events were a life-threatening illness (35%) and sudden death of a loved one (34%), followed by accident/natural disaster/fire (26%), physical violence (24%), other event (20%), sexual assault (7%), and combat (1%).

- Women were more likely to report trauma exposure than men and experienced more traumatic events than men.

- Non-White ethnicity was not associated with ever having trauma exposure; however, for those with a history of trauma, a small effect size was found between minority status (coded yes or no) and associated with a higher number of events.

- Additionally, a medium effect size was found between lower SES and trauma exposure.

PSTD

- About 9% of the population (n = 266) reported trauma and met criteria for PTSD.

- The rate of PTSD increased as the number of trauma types experienced increased, and were highest among those who were exposed to unwanted sex (31%), physical violence (22%), and "other" (21%).

- Female gender and lower SES was associated with an increased risk for PTSD.

Trauma and PTSD Predictors

- Additional analyses were conducted to examine potential predictors of trauma. Within this model, the odds of having a history of trauma exposure were 1.52 times higher for participants form one school than the other. The odds of trauma exposure were also 2.46 times higher for women than men. And finally, the odds of trauma exposure decreased by 7% for every one-unit increase in SES score.

- These analyses also examined predictors of PTSD. Results indicated that odds of PTSD were 1.98 times higher for each addition trauma experienced and 1.73 times higher for those with a history of unwanted sexual contact than those without this history. No effects of gender or SES were found on PTSD status.

CONCLUSIONS/SUMMARY

- These results show that students enter college with a significant number of trauma histories and PTSD symptoms.

- These results also show that trauma characteristics were a better predictor for the development of PTSD than sociodemographic factors.

- The discovery that 66% of participants reported a history of exposure to a Criterion A event was consistent with previous studies of college students, albeit in on the lower end of prior estimates. This is likely due to the stricter requirements necessary to meet Criterion A compared to simpler event exposure.

CONTRIBUTIONS/IMPLICATIONS

- Results indicate that 9% of incoming college students meet criteria for PTSD. This study featured a more heterogeneous population than previous studies, which increases generalizability of the results obtained.

- This study also captured rates of trauma exposure and PTSD symptoms prior to beginning college, which is unique compared to other samples, which often survey current college students.

- This study, combined with pre-existing research, demonstrates that more immediate, trauma-related factors- such as trauma severity- appear to have a stronger effect on PTSD risk for college students than further removed sociodemographic factors.

Reiff, M., Castille, D. M., Muenzenmaier, K., & Link, B. (2011). Childhood abuse and the content of adult psychotic symptoms. Psychological Trauma: Theory, Research, and Policy. Advance online publication. doi: 10.1037/a0024203

TYPE OF ARTICLE

- Original Empirical Investigation: Experimental Design

OBJECTIVE/PURPOSE OF THE ARTICLE

- To examine the hypothesis that some hallucinations and delusions are related to experiences of childhood abuse and thus connected to real events in either content or emotional valence.

METHODS

Participants

- Data were collected from a larger study designed to evaluate treatment outcomes for people with severe mental illness. The study sample consisted of men and women ($N = 184$) attending outpatient psychiatric services in the New York City burroughs of the Bronx and Queens.

- The sample was narrowed to specifically include persons who had experienced both childhood sexual and physical abuse or neither form of abuse, as well as only clients who had descriptions of hallucinations and/or delusions in their therapy transcripts.

- In the study subsample ($n = 30$), the average participant age was 37.3 years, gender was male (56.7%) and marital status was single (63.6%). The most common diagnoses were schizophrenia (31%), schizoaffective disorder (35%), bipolar disorder (23%), and major depressive disorder (12%).

Measures

Childhood Abuse

- The Histories of Physical and Sexual Abuse Questionnaire (HPSAQ) was used to assess childhood trauma. This measure is retrospective and comprises of open-ended, standardized questions, asking the respondent to describe events of physical and sexual abuse.

- Medical histories were also reviewed for indications of childhood physical and sexual abuse.

Psychotic Symptoms

- The Psychiatric Research Interview for Substance and Mental Disorders (PRISM) was used in conjunction with the psychotic symptoms module from the Structured Clinical Interview for DSM-IV-TR (SCID). Specific probes were made into the content of the psychotic symptoms.

Correspondence between Trauma and Content

- The Core Conflictual Relationship Theme Method (CCRT) was used to assess relationship patterns. The CCRT was modified in two ways to evaluate the correspondence between trauma events and subsequent symptoms.

Procedure

- Participants were pulled from a larger study designed to evaluate treatment outcomes for people with severe mental illness.

- Information was gathered during 2-3 hour face-to-face interviews. Each participant was compensated $50 for his/her participation.

- Thematic content analysis and grounded theory techniques were used to identify trauma-related content. The authors identified codes that identify themes that may be related to childhood abuse. Coding was done blind to trauma history and was completed by multiple raters.

- For each code category, participants received a score of 1 (present) or 0 (absent). Nine categories of symptom content were summed to create a "Trauma-Relevant Symptom Content" score. These included: Perceived Threat to Self, Somatic or Tactile Sensations, Olfactory Sensations, Kinetic Sensations, Specific or Real Person, Fear, Malevolence or Unpleasantness, Sexual Content, and Memory of a Traumatic Event. A higher score on the Trauma-Relevant Symptom Content indicates a greater number of the nine trauma-related characteristics in the content of an individual's symptoms.

RESULTS

- The average number of respondents reporting trauma-relevant symptoms was significantly higher in the childhood abuse (CA) group than the no CA group.

- Symptoms involving command hallucinations, religious content, and guilt were similar in both groups, although grandiose delusions were more common among the CA group compared to the non CA group.

- This study demonstrated that several elements are more likely to be present in the hallucinations and delusions of individuals who experienced childhood abuse than those who did not.

CONCLUSIONS/SUMMARY

- Findings of this study were consistent with approaches that seek to understand psychotic symptoms in the social context, as well as those that propose that childhood trauma can contributed to the onset and/or course and severity of psychotic illness.

- Previous research indicates that childhood trauma often goes undetected by clinicians. The authors note that an increased awareness of associations between certain psychotic symptoms and childhood trauma may lead to improved diagnostic interviews, so that clinicians know when to inquire further and to assess whether certain hallucinations and delusions may be associated with an early history of trauma.

CONTRIBUTIONS/IMPLICATIONS

- This study provides a new analytic strategy to assess correspondence between childhood trauma and psychotic symptoms based on the CCRT method.

- Another important recommendation arising from this study is for clinicians to ask for details of psychotic symptoms. The presence of trauma-relevant characteristics in the content of an individual's symptoms alerts clinicians to the need to routinely assess traumatic experiences in each clinical interview.

Iverson, K.M., Bauer, M. R., Shipherd, J. C., Pineles, S. L., Harrington, E. F., & Resick, P.A. (2011). Differential associations between partner violence and physical health symptoms among Caucasian and African American help-seeking women. Psychological Trauma: Theory, Research, Practice, and Policy. Advance online publication. doi 10.1037/a0025912.

TYPE OF ARTICLE

- Original Empirical Investigation

OBJECTIVE/PURPOSE OF THE ARTICLE

- To examine whether African American females demonstrate a differential relation between partner violence and physical health symptoms as compared to Caucasian females.

METHODS

Participants

- Participants who identified as either African American or Caucasian were selected from a sample from larger study examining correlates of recent partner violence.

- Inclusion criteria for the parent study were females who reported an intimate relationship with a perpetrator for at least three months and endorsed a recent act of physical partner violence between two weeks and six months prior with at least two severe acts or four minor acts of physical violence within the past year.

- In total, 232 African American and 91 Caucasian females participated ($N = 323$).

Materials

- A self-report subscale of The Revised Conflict Tactics Scale (CTS-2) was used to determine frequency of physi-

cal partner violence.

- A modified version of the Pennebaker Inventory of Limbic Languidness (PILL) was utilized to assess physical health symptoms.
- The Posttraumatic Diagnostic Scale (PDS) assessed PTSD symptom severity.

Procedure
- Females seeking services at domestic violence shelter or victim agencies were invited to participate and provided with contact information for examiners if interested.
- Females who met selection criteria following a telephone screen reported to a Trauma Recovery Center for two visits to complete a series of questionnaires.
- Participants were provided $40 for participation.

RESULTS
- Mean levels of partner violence and physical health symptoms did not differ significantly between African American and Caucasian females.
- Results demonstrated a significant positive relation between partner violence and health symptoms for African American females, whereas no association was found between partner violence and physical health symptoms for Caucasian females.
- Mediation analyses revealed that PTSD symptom severity partially mediated the relation between partner violence and physical health symptoms for African American females.

CONCLUSIONS/SUMMARY
- Results indicate that the association between partner violence and physical health symptoms differs as a function of race.
- When controlling for income, shelter status, and relationship to the perpetrator, the effect of race remained significant.
- PTSD symptoms affect the degree to which partner violence impacts physical health for African American women.

CONTRIBUTIONS/IMPLICATIONS
- These findings can potentially inform culturally competent treatment for Caucasian and African American women.

Cougle, J. R., Resnick, H., & Kilpatrick, D. G. (2011). Factors associated with chronicity in Posttraumatic Stress Disorder: A prospective analysis of a national sample of women. Psychological Trauma: Theory, Research, Practice, and Policy. Advance online publication. doi 10.1037/a0025954.

TYPE OF ARTICLE
- Original Empirical Investigation.

OBJECTIVE/PURPOSE OF THE ARTICLE
- To identify factors associated with chronicity of Posttraumatic Stress Disorder (PTSD).
- To examine the impact of binge drinking, number of baseline PTSD symptoms, poorer perceived health, and history of childhood trauma on PTSD chronicity.

METHODS

Participants
- Participants were selected from the National Women's Study (NWS), a longitudinal telephone survey ($N = 190$).
- Inclusion criteria were women who reported PTSD symptoms lasting over six months.

Materials
- Telephone interview was used to gather demographic information, drug and alcohol history, and abuse history.
- The NSW PTSD module was utilized to measure PTSD according to DSM-IV criteria using a Yes-No self-report format.
- Lifetime history of violence and recent exposure to violence at the first and second assessment, as well as engagement in help-seeking behaviors, were gathered in interview format.
- The NSW Depression module was used to assess baseline depression.

Procedure
- Households were selected using random digit dialing.
- Females were contacted for assessments 1 and 2 years after the initial interview.
- The interview questions were read verbatim to the participants by the female interviewer using a computer-assisted telephone interview procedure.

RESULTS

- Those with chronic PTSD reported significantly more re-experiencing symptoms than those in remission.

- Those with chronic PTSD reported higher prevalence of rape and higher prevalence of physical assault before the age of 18 years.

- Childhood physical assault was significantly correlated with history of rape.

- Binge drinking and poorer perceived health did not predict chronicity.

- The majority of those who reported remission of PTSD at the two-year assessment also met criteria for remission at the one-year assessment, while the majority of those reporting chronic PTSD at the two- year assessment also met criteria for chronic PTSD at the one-year assessment.

CONCLUSIONS/SUMMARY

- Number of baseline re-experiencing symptoms, rape history, and history of childhood physical assault were predictive of chronicity.

- Mental health treatment seeking demonstrated no relation to remission status, suggesting that for most women (48.2%) symptoms remit in the absence of treatment.

CONTRIBUTIONS/IMPLICATIONS

- The finding that exposure to childhood physical assault is a predictor of PTSD demonstrates the need for clinicians to gather in depth history of abuse to predict treatment outcome.

- Assessing risk factors identified in this study may help to identify more severe cases of PTSD.

Mott, J. M., Graham, D. P., & Teng, E. J. (2011). Perceived threat during deployment: Risk factors and relation to Axis I disorder. Psychological Trauma: Theory, Research, Practice, and Policy. Advance online publication. doi 10.1037/a0025778.

TYPE OF ARTICLE

- Original Empirical Investigation.

OBJECTIVE/PURPOSE OF THE ARTICLE

- To examine the relation between perceived threat before deployment, defined as "an individual's subjective perception of risk of danger," and presence of Axis I

disorders post-deployment (Mott, Graham, & Teng, 2011, p. 1).

- To identify predictors of level of perceived threat.

METHODS

Participants

- This study examined data collected from 1,740 veterans.

- Information gathered included mental health assessment, which included a semi-structured diagnostic clinical interview, as well as self-report measures of rick and protective factors.

- Participants served at least one tour in Iraq or Afghanistan, were predominately male (89%) and ranged in age from 19 to 60 years.

Materials

- Presence of post-deployment Axis I diagnoses was obtained by reviewing each participant's medical record.

- The Deployment Risk and Resilience Inventory (DRRI) was used to assess factors of risk and resilience, including perceived threat, exposure to combat, pre-deployment life stressors, family cohesion, deployment preparation, deployment environment, and unit support.

Procedure

- Upon enrollment, veterans completed a required mental health evaluation conducted by VA mental health staff members.

- Examiners identified the medical records of 1,740 veterans for use in this study.

RESULTS

- Highest rates of comorbidity occurred with PTSD and mood disorders.

- A negative correlation between PTSD and other anxiety disorders was observed.

- Results indicate positive correlations between perceived threat and deployment environment, perceived threat and combat preparation, and deployment environment and combat preparation.

- Unit support showed a strong relation with combat preparation.

- Using a complex regression analysis, perceived threat significantly predicted the presence of at least one of the following Axis I disorders: PTSD, mood disorders, and

other anxiety disorders.

- Those with higher reported perceived threat levels were more likely to have comorbid diagnoses.

- Perceived threat was not demonstrated to predict the presence of substance use disorder post-deployment.

- Deployment environment and deployment preparation were demonstrated to be the strongest predictors of perceived threat.

CONCLUSIONS/SUMMARY

- Higher levels of perceived threat during deployment were predictive of a PTSD diagnosis post-deployment.

- In addition, higher levels of perceived threat were predictive of other Axis I diagnoses in the following categories: mood disorders and other anxiety disorders.

CONTRIBUTIONS/IMPLICATIONS

- These findings have implications for screenings and assessments of veterans during deployment.

- It is important to identify a soldier's perception of threat prior to deployment to identify level of risk for Axis I diagnoses post-deployment.

- Additionally, by increasing training prior to deployment and improving the deployment environment, the risk for development of PTSD, mood disorders, and other anxiety disorders may decrease.

Corrections to Reviews in Issue Volume12, Number 4: Consulting and Advising in Forensic Science: Empirical and Practical Guidelines was reviewed by Kendall Johnson. We apologize for the omission of the reviewers name. The Criminal Triad: Psychological Development of the Criminal Personality Type was reviewed by David F. Bjorklund.

Book and Media Reviews – Daniel Clark, Editor

Managing Trauma in the Workplace:
Supporting Workers and Organizations
Edited by Noreen Tehrani
Routledge, London & New York, 2011, 328 pages

Reviewed by Kendall Johnson, PhD

Books addressing trauma in the workplace abound. Less available, however, are resources outlining the effects of trauma on the organizational level. Edited by Noreen Tehran, Managing Trauma in the Workplace: Supporting Workers and Organizations, discusses strategies for organizations as well as individuals, primary as well as secondary trauma in emergency and non-emergency organizations, and issues surrounding resilience as well as response and intervention. Tehrani has gathered contributions from an impressive set of international researchers and practitioners addressing various elements provision of workplace trauma support.

The collection is divided into four parts. Part I investigates the nature of organizational trauma, within the contexts of child protective social work, police service, British war veterans, human resource professions, air traffic control, schools, insurance claims departments and the courts. The papers in this section used a variety of methods ranging from opinion pieces, to quantitative, qualitative and mixed empirical studies, to literature reviews to draw out general and context-specific stressors and the workplace effects of post-trauma reactions.

Part II widens the inquiry into organizational dimensions of trauma and their implications. Particular attention is payed by the four papers in this section on the effects of organizational culture, the nature of systemic reaction, and the impact of intense as well as chronic stressors upon organizational structure and function, productivity and continuity.

Organizational support for both workers and the systems in which they work is considered in the three papers in Part III. These chapters include a case study of the 7 July 2007 London bombing intervention with the British Transport Police, a summary of several crisis intervention models, and Tehrani's discussion of supporting employees at risk for secondary traumatic stress and burn-out.

The four papers in Part IV shift the discussion from specific interventions to the more general task of building resilience in organizations and the prospect of post-traumatic growth. A detailed discussion of Bloom's sanctuary model of collaborative and supportive leadership is followed by Tehrani's "toolbox" of strategies aimed at teaching workers to deal with trauma symptoms in such a way as to encourage adaptation and well being. A paper by David Murphy, John Durkin and Steven Joseph nicely summarize a post-medicalized perspective of growth potential inherent in distressing experiences and the organizational support necessary for such growth. The issue of clinical supervision in building resilience is explored by Stuart McNab, and Tehrani's discussion of the issue of resilience on the organizational level serves as a summary for the book.

Several chapters are of special interest to this reviewer. First is the excellent and informative discussion by Sandra Bloom on trauma-organized systems and parallel process. This succinct outline casts light upon the often mystifying behavior of organizations that have endured crisis or chronic stress and subsequently evolve interaction patterns that are counter-productive (such as collective amnesia, authoritarian leadership, silencing, and alexthemia). Also interesting is Tehrani's own quantitative study using questionnaires and structured interviews to explore the secondary traumatic stress, anxiety, depression and burnout levels among workers (e.g., insurance claims personnel, investigators, intelligence officers) indirectly exposed to victims distress through testimony, written materials or images associated with the trauma. Her very interesting discussion illuminates subtle dimensions of secondary traumatic stress as well as

the vulnerability of a wide variety of personnel. Lastly, the Murphy et al. paper brings out an interesting, though easily misapplied principle: growth is more likely to result from a direct engagement with emotional reactions than from the consolation of others. This perspective is a call for us to re-examine our assumptions about intervention. While recovery seeks a restoration of our prior assumptions about the world and our selves, growth requires revision of those assumptions. How can we incorporate a more sophisticated view of trauma and distress into our intervention and recovery efforts without abandoning victims at their moments of greatest need?

Sadly, the usefulness of this otherwise well conceived collection is limited by several flaws. For example, the utility and accuracy of Lowe's discussion about the organizational effects of trauma is compromised by the typical U.K. aversion to it's own mis-formulation of Mitchell's CISM development in workplace crisis management and subsequent adaptation to school settings. The rigid mischaracterization of CISD as psychological treatment and CISM as CISD not only places Lowe's description about 10 years behind best practice, but ignores the resilience-building potential of a diverse and flexible approach. Similarly, Klein and Alexander's paper discussing impact of trauma in organizations is similarly compromised by their comparison of Psychological First Aid with CISD, despite the different targets and applications of the techniques—even going on to disqualifying CISD on the basis of mixed empirical support while embracing TRiM and PFA on the basis of "face-validity." Further, while some of the articles are intended for an experienced audience, some seem to target novices to the field.

In short, Managing Trauma provides an ambitious, if mixed, survey of the effects, mitigation, and possibilities of supporting employees through adverse circumstance, delivering more than it's share of useful information and strategies for those who would attempt to understand and respond to workplace distress.

Violence Goes To College: The Authoritative Guide to Prevention and Intervention, 2nd. Ed.
By John Nicoletti, Sally Spencer-Thomas, and Christopher Bollinger
Springfield, Illinois: Charles C. Thomas, 2010

Reviewed by Kendall Johnson, PhD

In their comprehensive and useful John Nicoletti, Sally Spencer-Thomas, and Christopher Bollinger point out a dilemma common to all public agencies: how to assist communities in building resilience and preparedness for bad things without creating instability and panic? While they note that violence threatens campuses in a variety of forms, they propose a conceptualization that highlights a common element: on many levels, violence can be best described as a virus. It usually follows an escalating pattern in which vulnerability feeds circumstance, noticeable signs telegraph an escalating progress, and barriers can be erected to deflect and forestall the culmination of the violent culmination. The goal of intervention, then, is successful interruption.

In Part I they present concepts basic to understanding campus violence, including a formula and the elements and issues of response, and in Chapter 3 discuss factors such as setting, culture, society, student developmental levels, faculty, and community relationships specific to college campuses that shape the risks facing managers. Two in particular are highlighted: the prevalence of substance abuse and the "sacred cows" of tradition and favored groups such as athletes and greeks that complicate prevention and intervention. Alcohol is considered such an issue as to warrant a separate chapter, with focus on the links between alcohol and violence.

The chapters in Part II provide general prevention strategies and capacity building for managing college violence. Chapter 5 presents a brief but concise discussion of signs and symptoms of impending violent acts, analyzing threats (including "distal and proximal" cues, to follow their medical metaphor) and abuse. More is mentioned on these topics in later typologically specific chapters. Chapter 6-8 present an array of actions that can be taken to prevent or intervene in violent situations, including human resources (including a Behavioral Intervention Team), effective policies and procedures. Of particular note to readers of this journal is Chapter 10 by Christopher Bollinger and Sally Spencer-Thomas

on dealing with aftermath issues. Appropriate subtitled *A Community Affected* the chapter discusses the range of appropriate recovery activities necessary in the context of a complexly interwoven community such as a college campus.

Each written by different contributors or sets of contributors, the separate chapters in Part 3 provide a more comprehensive look at the types of violence on campuses: sexual assault, suicide, hate crimes and lesser forms of hateful violence, hazing, avenger violence, rioting, homicide and non-sexual assault, and arson and bombing. All are structured to give background frequency data, a description of general features of the particular type of violence discussed, important distinctions within the typology, legal and policy considerations, and directions for prevention and intervention. Several of these chapters are worth special note, dealing with the issues of suicide, avenger violence, and homicide/non sexual assault.

In this regard Chapter 12 Suicide provides an overview of suicidology and framing reference of suicide as a public health problem. It outlines prevention and intervention factors couched within a discussion of both the risk and protective factors afforded by campus life. Sally Spencer Thomas, Rae Sandler, and Jina Jensen detail a comprehensive approach based upon the exemplary U.S. Air Force evidence based Suicide Prevention Program, including a post-vention plan providing support for survivors of suicide. Special issues are explored such as contagion, suicide on campus, and homicide/suicide. Adoption of the Air Force model makes sense, not just because of its documented effectiveness, but because of the similarity of populations. Like campuses, the Air Force deals with large numbers of intelligent, primarily young people living away from their home and community, cultural diversity, high stress levels, with most in close group living situations. Similarly, the Air Force model has mobilized a supportive network of professionals to provide prevention, intervention and post-vention.

Written by John Nicoletti and Heather Morris, Chapter 15, Avenger Violence On College Campuses provides an approach to the management of mass murder. The violent avenger is a profile that, used properly, can lead to effective prevention and intervention strategies. In trade or text treatments of campus violence, it is tempting to lace the narrative with dramatic accounts of incidents that have garnered media coverage. Nicoletti and Morris do so in their Chapter 15 discussion of avenger violence, but with infuse their case studies with highly useful lessons learned derived from their

analysis. One difficulty of basing a profile on a few low incidence but high profile cases such as the incidents at Columbine High School or Virginia Tech is the tendency to limit thinking. Since they happened, and they were massive, they are undeniable as evidence. Yet focus on a few cases flies in the face of the question: "What else might have happened?"

It must be recognized that issues such as sample size and selection can result in ignoring signs that don't fit the profile. Characteristics such as broadcasting, practice runs, or ideation may, or even likely will characterize pre-incident escalation, but also may not. Nicoletti and Morris do not fall into the trap of reducing their assessment system to such limitations, but rather open their discussion to the systematic context giving priority to emerging information. It is important that cases and circumstance take priority over assessment systems. Thus Nicoletti and Morris outline the use of the Impact Behavioral Assessment of Risk which does not rely upon perpetrator statements to predict the risk of violence, but rather organizes observed behaviors from a variety of perspectives within the institutional context with particular focus on the extent they fit a pattern suggesting progression toward violence. Probably the most useful approach in the chapter is the System Risk Management Approach involving campus wide (not simply individual) strategies, ranging from monitoring, to referral, to mobilization of resources, "knock and talk" sessions, systematic planning, through "intervention and interruption."

Interestingly, Nicoletti and Spencer-Thomas' Chapter 17 Homicide And Non Sexual Assault charges ahead without the literature or empirical basis of their previous chapters. Little background literature is available on homicide on college campuses; thus these comments are self-admittedly preliminary and intended to guide further research and planning. The chapter presents clustered case examples yielding possible typologies and type-specific recommendations for avenger (based upon perceived grievance), and relationship-based (end-stage stalking) homicide. Also mentioned is infanticide, the killing of unwanted new born babies. Other types of non-sexual assaults discussed in this chapter include physical assault, dating violence—including verbal abuse— and violence among gay and lesbian couples. While not as detailed as one might wish about systematic prevention and comprehensive intervention strategies, the authors are to be congratulated for this beginning attempt at finding order in a previously poorly understood area.

One area not addressed in this book is the issue of terror-

ist attack. While we haven't yet faced a significant, organized attack on a college campus yet we easily might. Without precedent as a guide, it is tempting to not attempt suggesting preventative, interventive, or post-ventive guidelines. Yet we must do so. As we have seen, fear is a potent political weapon and to attack a nation's children is to strike fear into the heart of a people. Our campuses are inviting targets. If the author's of this volume are up to an eventual third edition,

I would hope they would consider a chapter that dares, as they did with Chapter 17 (Homicide and Non-sexual Assault) to broach this unfamiliar ground.

All in all Violence Goes To College presents a surprisingly comprehensive and useful addition to the professional arsenal of those who study, work in, or are eventually asked to respond to college campuses following violence.

Psychotherapy After Brain Injury: Principles and Techniques
By Pamela S. Klonoff
New York: Guilford, 2006, 288pp.

Reviewed by Laurence Miller, PhD

There was a time when mental health clinicians would have been shocked at the idea of doing psychotherapy with brain injured patients. Above all, successful psychotherapy – in the traditional models, at least – is all about communication, understanding, and insight, the very faculties that are impaired by disease or damage to the brain. Those with neuropsychological impairment were thus often denied the crucial treatment modality that could help them cope and come to terms with their disabilities and their shattered sense of self.

Beginning in the 1970s with the pioneering work of Leonard Small, and continuing into the 1980s through the efforts of Neil Brooks and Rodger Wood, moving into the 1990s with the work of George Prigatano, Rolland Parker, Laurence Miller, Karen Langer, Linda Laatsch, and Lisa Lewis, and now into the 21st century by the present volume, brain injury psychotherapy has evolved into a robust subspecialty with a range of evidence-based treatment modalities, ranging from cognitive rehabilitation to behavioral self-management, to insight-oriented psychotherapy. This is presented all in one package by brain injury expert Pamela Klonoff. While this book is designed for clinicians working in structured program settings, most of its lessons can be productively applied by clinicians working in outpatient, office-based settings.

The book begins by presenting a structured, phased model of treatment that enables the clinician to plan and carry out therapy from initial injury, through early rehabilitation efforts, to longer-term adjustment issues and integration back into the real world. Also provided is an excellent description

of the nuts-and-bolts practicalities of brain injury treatment, from note-keeping and reimbursement issues to coordination of care with other professionals.

Subsequent chapters provide detailed descriptions and illustrative case histories of the various components of this multidimensional treatment model, including strategies for increasing patients' self-awareness and self-acceptance through cognitive retraining, psychoeducation, and social interaction. Unlike other injuries, damage to the brain impairs the very organ of coping that patients rely on to deal with their changed capacities and limitations. Essential for recovery is helping patients mourn the lost part of their selves and work through their grief and rage, to develop a new set of standards and values for themselves and those around them, learning to change what they can and accept a new self-definition that does not cause them fear, pain, and guilt.

Most brain injured patients will eventually return to their families, and chapters on life skills training and family interventions explain how to ease the transition for both the patient and his or her loved ones. Families will tell you that the major stressor of dealing with their brain injured family member is not cognitive impairment but impulsive, inappropriate, and out-of-control behavior, often related to damaged frontal lobe brain systems. Thus, a major factor influencing how the brain injured patient will get along with others is the quality of his or her communication and overall social skills, and a chapter is devoted to helping patients understand and communicate with others, develop adequate self-control and social interaction skills, and provide strate-

gies for handling issues related to substance abuse, sex, and personal relationships.

Finally, the formal component of treatment must come to an end, and a separate chapter is devoted to the transition from a clinical setting to the real-world setting the patient must return to. Dealing with injured patients and families in distress can be challenging to clinicians, and a final chapter discusses psychotherapist self-care, including countertransference issues, stress, and burnout.

The only omission I would supplement in a book like this involves the law. For a volume that so crucially emphasizes the importance of integrating brain-injured patients into real life, I would have liked to see some discussion of the legal and forensic aspects of traumatic brain injury, as many of these patients are involved in Workers Compensation, personal injury, disability claims, or even criminal cases. Addressing the challenges of the legal system to patients, families, and clinicians alike would have rounded off this book's otherwise comprehensive coverage of brain injury life issues.

Overall, Psychotherapy after Brain Injury is a clinical masterwork by a seasoned doctor that takes hard-headedly realistic, yet exquisitely compassionate approach to the treatment of patients with traumatic brain injury. If you are a neuropsychologist or psychotherapist who evaluates or treats brain-injured patients, this is the standard by which you should be practicing, and this book is required reading.

Assessment of Feigned Cognitive Impairment: A Neuropsychological Perspective
Edited by Kyle Brauer Boone
New York: Guilford Press, 2007, 481pp.

Assessment of Malingered Neuropsychological Deficits
Edited by Glenn J. Larrabee
New York: Oxford University Press, 2007, 386pp.

Neuropsychology of Malingering Casebook
Edited by Joel E. Morgan & Jerry J. Sweet
New York: Psychology Press, 2009, 677pp.

Reviewed by Laurence Miller, PhD

Mental health clinicians who provide clinical services, including psychological and neuropsychological evaluations, typically assume that our patients are telling us the truth and trying to do their best on test items – after all, isn't their honest in the best interests of our trying to help them? But as these three edited volumes attest, subjects with something to hide or to prove will often do their best to skew the evaluation results in the direction they want it to go, that is, to deceive the evaluator; that is to malinger; that is, to lie. Even in the case of neuropsychological evaluations – examination of brain functions using carefully validated psychometric tests – subjects referred for evaluation by the courts, insurance companies, their workplace, or even their own doctors, often find ingenious ways to "beat the system," and these books guide neuropsychological practitioners on how to beat back.

All three volumes provide useful psychometric strategies and clinical wisdom for uncovering and dealing with malingered neuropsychological performance, including the use of both standard neuropsychological tests (IQ, memory) and specialized tests of feigned impairment; the application of malingering-detection strategies to specific cognitive domains, such as attention, concentration, language, memory, reasoning, and problem-solving; and the challenges in dealing with special clinical populations, such as traumatic brain injury, dementia, epilepsy, learning disorders, toxic and electrical injury, chronic pain and medical disorders, and various psychiatric syndromes.
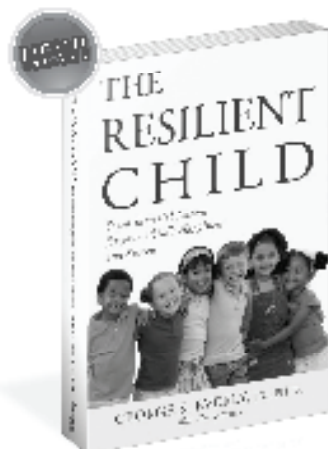
Special strengths of the Boone volume include how to retool standard neuropsychological tests to be utilized as malingering-detectors. The Larabee book provides useful tables and cutoff scores for many of the widely-used spe-

cialized malingering measures, and the sizable casebook by Morgan & Sweet is packed with information about malingering assessment in such diverse populations and syndromes as toxic mold, Lyme disease, depression, and AIDS dementia. The latter book also more comprehensively addresses specific uses of neuropsychological measures in legal and workplace contexts.

Each of these volumes has its own strengths, and all are recommended for serious neuropsychological practitioners.

The overriding message that informs all of these handbooks is just how common malingering is in neuropsychological (and, by extension, all psychological) testing, and how reluctant many evaluators are to acknowledge this. As clinicians, we like to think we're smart and are difficult to fool. We aren't. But the tools and techniques provided in these volumes will give neuropsychological practitioners a head start in maintaining the credibility of our evaluations and – just as important – assuring that patients receive proper clinical care.

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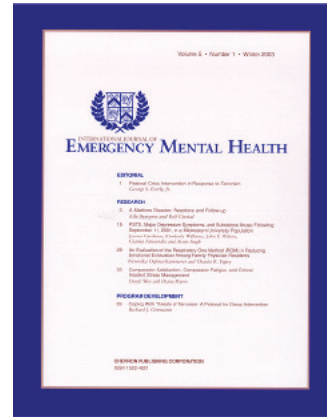
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