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Division of Applied Research and Evaluation Report

# Evaluation of Posttraumatic Stress Disorder Treatment Component

by

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## **Evaluation of Posttraumatic Stress Disorder Treatment Component**

### **Project Highlights**

The focus of this evaluation study is the Posttraumatic Stress Disorder Residential Treatment Curriculum [PTSD RTC] to treat PTSD in female juvenile offenders. The overall purpose of the evaluation was to assess the implementation of the PTSD RTC at treatment facilities with female juvenile offenders and to evaluate the effect of the intervention on participants.

The evaluation was designed to examine both process and outcome issues, including an examination of the implementation of the PTSD treatment groups, a curriculum review, and an assessment of treatment effectiveness. To investigate treatment effectiveness, we utilized a quasi-experimental design in which residential treatment facilities that chose to conduct PTSD RTC groups (treatment sites) were compared with residential treatment facilities that chose not to conduct PTSD RTC groups (comparison sites).

Our initial process-related findings were quite positive:

- The PTSD RTC is a well-developed guide for treating PTSD in female juvenile offenders that includes many practices that are supported by research.
- The training for PTSD RTC facilitators is also well-designed and thorough.
- For the most part, that facility staff reported (or anticipated) implementing the PTSD groups as intended.

The outcome-related findings are also promising as all of the results were in the predicted direction, the interactions of pre-post treatment changes were significant despite the very small sample sizes, and the effect sizes were moderate. The main outcome related findings include:

- Females in both the treatment and comparison groups experienced a decrease in their PTSD symptoms; however, the levels of PTSD symptoms are decreasing at a greater rate for the females in the treatment group than for the females in the comparison group.
- Females in both the treatment and comparison groups experienced a decrease in their levels of antisocial thinking and attitudes; the levels of anti-social attitudes and thinking are decreasing at a significantly greater rate for the females in the treatment group than for the females in the comparison group.

Although the outcomes findings hint at the potential for effectiveness, they should be interpreted with extreme caution given the very small sample size. Moreover, because all of the treatment group females are from one facility and most of the comparison group females are from one facility, the findings are primarily representative of only these sites and are not necessarily generalizable to the other sites. We would not use this sample to draw conclusions about the general effectiveness of this treatment. While additional research is warranted, there are several process-related issues that must be addressed before any such work commences including the high rate of females leaving the facilities sooner than expected and the need for statewide and facility-level project oversight.

## **Acknowledgments**

First, and most importantly, it is essential to acknowledge the females who chose to participate in the evaluation study and the parents who agreed to allow their daughters to participate. The females gave their time generously and were very open with us about private and often painful experiences. Their forthright and honest responses provided us with great insight into the population and the challenges they face. We thank the females for their help and wish them the brightest and healthiest of futures.

We would also like to thank staff within the facilities who helped make this work possible. The work that was required of them because of the study was above and beyond their normal duties and we appreciate their help. Many of the PTSD RTC group leaders and other facility staff entertained our seemingly endless stream of correspondence and questions with good humor, patience and prompt replies. They provided us with critical information regarding the females and the PTSD RTC groups and we are grateful for their ongoing assistance.

Appreciation is also extended to current and past members of the PTSD Evaluation Advisory Committee including, Dr. Ron Sharp, Larissa Kisner, Valerie Bender, Diane Stanoszek, Arlene Prentice, Nicole DiCesare, Deborah Almoney, Marcella Szumanski, Jane Heesen Knapp, Francine Slavik, Doug Hoffman, Diane Marsh, Jane Johnston, Patricia Torbett, Corey Kean and Deborah Ciocco. The Committee members provided invaluable feedback regarding the evaluation design, helped to identify facilities to participate in the study, and provided guidance throughout the study that helped us to overcome challenges. We thank them for their time and for sharing their expertise so freely.

We would also like to thank the developers of the PTSD RTC, Jane Heesen Knapp and Francine Slavik. Dr. Knapp and Ms. Slavik were extremely generous with their time. They welcomed our questions and observations and always engaged us in challenging, informative, and often amusing dialogue. They went out of their way to help us understand the complex issues entailed in treating female juvenile offenders with PTSD and the system in which the treatment is occurring. With their assistance, we were able to navigate this system and carry out the study with greater ease.

We are especially grateful to Valerie Bender, Research Associate at the National Center for Juvenile Justice and member of the PTSD Evaluation Advisory Committee, Dr. Robert McCall, co-Director of the University of Pittsburgh Office of Child Development, and Dr. Gary Zajac, Chief of Research and Evaluation for the Pennsylvania Department of Corrections and member of the Pennsylvania Commission on Crime and Delinquency Evaluation Advisory Committee. These individuals acted as “second readers” at various points in the writing process – an unenviable task at best. They provided thoughtful and critical advice from their unique areas of expertise and their input helped to make this a well-rounded report.

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# **Evaluation of Posttraumatic Stress Disorder Treatment Component**

## **Executive Summary**

### Description of the Posttraumatic Stress Disorder Project

The focus of this evaluation study is the Posttraumatic Stress Disorder (PTSD) Project. The PTSD Project began in 1999 when the Pennsylvania Commission on Crime and Delinquency (PCCD) awarded Alternative Rehabilitation Communities, Inc. a grant to develop and implement a curriculum (hereafter referred to as the PTSD Residential Treatment Curriculum [PTSD RTC]) to treat PTSD in female juvenile offenders.

According to the curriculum, the PTSD RTC is based on the theory that PTSD and its related symptoms contribute to delinquent/criminal choices made by female juvenile offenders. The authors of the PTSD RTC theorize that addressing PTSD in female juvenile offenders will help decrease the likelihood that they will engage in future delinquent behaviors. The PTSD RTC is carried out with female juvenile offenders in a group therapy context and consists of 15 lessons designed to help the females understand PTSD, identify PTSD symptoms, and learn methods to cope with their own symptoms.

### Description of the Evaluation

In October 2003, PCCD awarded funding to the University of Pittsburgh Office of Child Development to conduct an evaluation of the PTSD RTC. The overall purpose of the evaluation was to assess the implementation of the PTSD RTC at treatment facilities with female juvenile offenders and to evaluate the effect of the intervention on participants. The evaluation was

designed to examine both process and outcome issues, including an examination of the implementation of the PTSD treatment groups, a curriculum review, and an assessment of treatment effectiveness.

Process-related research questions focused on identifying the strengths and weaknesses in program theory, curriculum, and treatment implementation. To investigate these issues, we reviewed the PTSD RTC, conducted site visits, interviewed PTSD RTC facilitators and clinical supervisors, and reviewed the booster session trainings for PTSD RTC facilitators. All of these activities resulted in reports (available from the authors) and recommendations for project leaders.

The outcomes-related research questions focused on whether the treatment produced the intended effect. We attempted to investigate the association between PTSD treatment and outcomes related to participants' PTSD symptoms, self-esteem, orientation to the future, locus of control, antisocial thinking and attitudes, and antisocial behavior. We utilized a quasi-experimental design in which delinquent or delinquent and dependent females at residential treatment facilities that chose to conduct PTSD RTC groups (treatment sites) were compared with similar females at residential treatment facilities that chose not to conduct PTSD RTC groups (comparison sites).

Overall, we enrolled 41 females from the treatment sites and 55 females from the comparison sites. However, throughout the study, attrition and other factors such as group scheduling and coordination by the facilities prevented us from collecting data consistently, and we ended the



study with fewer participants than anticipated. There were only 6 females in the treatment group and 7 females in the comparison group for whom we had pre- and post-data and who we included in data analyses. Our findings do not represent the experiences of females at all of the sites that participated because all of the females in the treatment group were from one treatment site as were six of the seven females in the comparison group. This fact as well as the small sample size leads us to urge the reader to view results with extreme caution and as preliminary measures of the effectiveness of the PTSD RTC.

## Findings

### *Process-related findings*

Our initial process-related findings were quite positive. For example, our review of the program curriculum indicated that the PTSD RTC is a well-developed guide for treating PTSD in female juvenile offenders that includes many practices that are supported by research. Our informal review of the training for PTSD RTC facilitators found that it is also well-designed and thorough. The training provides staff with an explanation of the theoretical basis for the PTSD RTC and the potential consequences of PTSD for female juvenile offenders, and it also gives them many opportunities to practice their facilitation skills within the training context. In addition, through our site visits and interviews with facility staff, we found, for the most part, that facility staff reported (or anticipated) implementing the PTSD groups as intended.

### *Outcome-related findings*

- Females in both the treatment and comparison groups experienced a decrease in their PTSD symptoms; however, the levels of PTSD symptoms are decreasing at a greater rate for the females in the treatment group than for the females in the comparison group.
- Females in both the treatment and comparison groups experienced a decrease in their levels of antisocial thinking and attitudes; the levels of anti-social attitudes and thinking are decreasing at a significantly greater rate for the females in the treatment group than for the females in the comparison group.
- Females in both the treatment and comparison groups experienced positive changes in their levels of future orientation, self-esteem, and locus of control. However, there is no significant difference between the groups with respect to pre-post change. That is, one group does not seem to be improving at a greater rate than the other group.

The outcomes findings hint at the potential for effectiveness but should be interpreted with extreme caution given the very small sample size. Moreover, because all of the treatment group females are from one facility and most of the comparison group females are from one facility, the findings are primarily representative of only these sites and are not necessarily generalizable to the other sites. We would not use this sample to draw conclusions about the general effectiveness of this treatment. However, the findings from this study are promising considering that all of the results observed were in the predicted direction, the interactions of pre-post treatment changes were significant despite the very small sample sizes, and the effect sizes were moderate. Thus, it appears that for the females assessed at pre- and post-time points, the

treatment achieved its intended effect. While additional research is warranted, there are several unanticipated process-related findings that must be addressed before any such work commences.

### Unanticipated Findings

Unanticipated findings from this study speak to larger, interrelated issues at multiple levels within the juvenile justice system that affect the ability of the system to address the needs of the juvenile offender population. Although the goals and objectives of the PTSD RTC are clear and follow the logic of the program's theoretical underpinnings, program implementation challenges make it difficult to achieve them and/or measure them. These challenges are described below.

- Staff turnover made it difficult for facilities to conduct the groups on a predictable basis.
- Some facilities lack access to females who are classified as delinquent or delinquent and dependent for participation in the PTSD RTC. Facilities frequently included females outside of the program's target population in groups (i.e., females who did not have a delinquent classification). Because the PTSD RTC is intended to impact the link between PTSD and delinquency, only females classified as delinquent should have been involved in this treatment.
- Many of the females were released from the facilities prior to completing the evaluation and therefore *may* also have been released prior to completing treatment. The “unexpected” release of females from facilities has implications for treatment and future evaluation and also represents deficits in coordination and control within the facilities.
- The project lacks coordinated leadership at the state and facility levels. Other than the PTSD RTC group leaders, it was unclear whom, if anyone was responsible for monitoring program implementation and who could have addressed issues that interfered

with the program. These issues made it very challenging to conduct the consent process and collect data, but more importantly, they represent potential stumbling blocks to program implementation.

### Conclusions and Recommendations

**Our review of the program curriculum indicated that the PTSD RTC is a well-developed guide for treating PTSD in female juvenile offenders that includes many practices that are supported by research.**

- However, facilities were challenged in their efforts to carry out the groups as intended or to the extent needed to conduct the evaluation.

**Project leaders must gain an accurate understanding of the classification status of females in placement (i.e., Are they dependent, delinquent, or dependent and delinquent?). This information must be considered by project leaders as they determine treatment needs for these populations and how best to meet these needs using the PTSD RTC model either as-is or in some appropriately modified form. Once it is determined which females should participate in the PTSD RTC groups, the project leaders and facilities must ensure that females can participate fully in the treatment – in other words, females must remain in placement long enough to complete all of the PTSD RTC sessions.**

- We are currently in the process of investigating factors that determine females' lengths of stay in facilities. Through our work, we intend to identify where the system may be preventing facilities from carrying out the PTSD RTC groups as intended and preventing females from participating in treatment fully. PTSD project leaders may use this

information to address system-wide issues that are obstacles to implementing and evaluating the PTSD RTC.

**If the PTSD RTC is to succeed, and if that success is to be measured in a meaningful way, it is necessary to support facilities so they can carry out the treatment as intended and participate in evaluation activities. A central body must be responsible for providing this support and for holding facilities accountable.**

- For the program and future research to run more smoothly, there must be a state level entity in place that can:
  - Assess the capacity of facilities to implement the PTSD RTC groups, including identifying and engaging someone in a supervisory position within the facility who can act as a contact person.
  - Monitor the implementation of groups on an ongoing basis.
  - Provide ongoing training and support to facilities so that they can implement the PTSD RTC groups as intended, including assessing potential participants and dealing with issues of females' unexpected release from the facilities, and overcome any challenges they may face.
  - Provide support to the researchers to help them coordinate with the facilities.
  - Hold facilities accountable if they fail to conduct PTSD RTC groups as intended and/or participate fully in the evaluation.

## **Evaluation of Posttraumatic Stress Disorder Treatment Component**

### Project Description

The focus of this evaluation study is the Posttraumatic Stress Disorder (PTSD) Project. The PTSD Project began in 1999 when the Pennsylvania Commission on Crime and Delinquency (PCCD) awarded Alternative Rehabilitation Communities, Inc. (ARC) a grant to develop and implement a curriculum (hereafter referred to as the PTSD Residential Treatment Curriculum [PTSD RTC]) to treat PTSD in female juvenile offenders. By 2002, ARC had pilot tested and revised the group therapy curriculum and several juvenile facilities across the Commonwealth of Pennsylvania were conducting the groups.

In 2004, the PTSD Project shifted from ARC to Westmoreland County where it became the Pennsylvania PTSD Project Demonstration Site. The purpose of creating the PA PTSD Demonstration Site was to coordinate all training related to PTSD through Westmoreland County and the combined efforts of the Westmoreland County Juvenile Probation Office and Adelphoi Village. The goal of the Demonstration Site was to “educate juvenile justice and related systems professionals on: (1) understanding stress, trauma, and PTSD issues; (2) intervening with adolescents who have stress, trauma, and PTSD issues; and (3) implementing the PTSD treatment curriculum in residential programs” (from PTSD Advisory Board meeting minutes, December 12 & 13, 2005). In 2005, the Demonstration Site became operational. PCCD has provided financial support for the Demonstration Site since January 2005; this funding is scheduled to end in January 2009.

According to the curriculum, the PTSD RTC is based on the theory that PTSD and its related symptoms contribute to delinquent/criminal choices made by female juvenile offenders (Alternative Rehabilitation Communities, Inc. [ARC], 2003). The authors of the PTSD RTC theorize that addressing PTSD in female juvenile offenders will help decrease the likelihood that they will engage in future delinquent behaviors. The logic model in Appendix A outlines the inputs, activities, and outputs associated with the PTSD RTC as well as the anticipated changes in females' knowledge, attitudes and skills, behavior, and status as a result of participating in the treatment. In addition, the overarching goals of the PTSD RTC and the specific objectives of each session are described in Appendix B.

The PTSD RTC is carried out with female juvenile offenders in a group therapy context and consists of 15 lessons that take approximately 75 to 90 minutes to complete. Groups include 4 to 6 females, although they may range in size from 3 to 10 females. The groups typically meet once a week for 15 to 20 weeks. The PTSD RTC group meetings include mini-lectures, readings, worksheets, exercises and activities, and homework designed to challenge dysfunctional thoughts. In addition, the females are guided in relaxation techniques to help them alleviate and manage their PTSD symptoms.

The PTSD RTC group series begins with sessions designed to promote comfort among participants and with the group format and setting, as well as to introduce PTSD in general, understandable terms. Later lessons instruct participants how to identify PTSD symptoms and provide them with methods of coping with their own symptoms. Information presented in each session builds upon the content from the previous meeting, and all lessons include time for

discussion, sharing and peer support. Depending on individual members' and the groups' needs, a group lesson may be postponed to conduct a Problem-Solving Mutual Support Group to help members deal with increases in symptoms or pressing issues that may have emerged during the week (ARC, 2003). The objectives of each PTSD RTC group session are listed in Appendix B.

The PTSD RTC groups are facilitated by two staff members from the facility who act as group co-leaders. The group leaders are required to have at least a Bachelor's degree, although those without a degree may be group leaders if they are supervised by a Master's level clinician and have a psychiatrist available to them for consultative purposes. Group leaders must also have at least two years experience working with adolescents and conducting group therapy and must attend training provided by the PA PTSD Project Demonstration Site in order to conduct the PTSD RTC Groups (ARC, 2003). This training for prospective group leaders is intensive (40 hours) and includes role-playing exercises and a test of knowledge.

#### *Description of the research project and research questions examined*

In October 2003, PCCD awarded funding to the University of Pittsburgh Office of Child Development to conduct an evaluation of the PTSD RTC. The overall purpose of the evaluation was to assess the implementation of the PTSD RTC at treatment facilities with female juvenile offenders and to evaluate the effect of the intervention on participants. The evaluation was designed to examine both process and outcome issues, including an examination of the implementation of the PTSD treatment groups, a curriculum review, and an assessment of treatment effectiveness.



Process-related research questions focused on identifying the strengths and weaknesses in:

- Program theory
- Curriculum
- Treatment implementation

The outcomes-related research questions were focused on whether the treatment produced the intended effect. We attempted to investigate the following questions:

- What is the association between PTSD treatment and outcomes related to participants?
  - PTSD symptoms?
  - self-esteem?
  - future orientation?
  - locus of control?
  - antisocial thinking and attitudes?
  - antisocial behavior?

*Results of any literature reviews performed and the nature of the problems examined*

Previous research has shown that incarcerated/antisocial youth experience or are exposed to more violence and victimization (e.g., witnessing or experiencing physical, sexual, or emotional abuse or trauma) than comparison populations and have higher rates of PTSD symptoms/diagnoses than comparison populations. Moreover, rates of violence and victimization and PTSD symptoms/diagnoses are higher for females than males regardless of whether they are incarcerated (Wood, Foy, Goguen, Pynoos, & James, 2002; Griffin, 2000; Wood, Foy, Layne, Pynoos, & James, 2002; Oregon Youth Authority, 2002; Cauffman,

Feldman, Waterman, & Steiner, 1998). Based on these findings, the need for effective gender-specific programming for female juvenile offenders around trauma and PTSD is clear, especially given research indicating an association between trauma, PTSD, and antisocial behavior.

Research has shown that experiencing trauma is associated with increased mental health problems, including PTSD and depression, and increased delinquent/antisocial behaviors, such as substance use/abuse and aggressive acting out (Aherns & Rexford, 2002; Greenwald, 2002; Cauffman, et al, 1998; Shaffer & Rubeck, 2002; Lipschitz, Rasmusson, Anyan, Cromwell, & Southwick, 2000; Kilpatrick, Saunders, & Smith, 2003). In addition, PTSD is associated with a host of self-restraint problems including impulse control, inability to suppress anger, lack of self-control, and tendency toward self-destructive behaviors, such as substance abuse, self-mutilation and other risky behaviors (Cauffman et al, 1998).

Despite findings that link trauma, PTSD, and antisocial behavior, the nature and direction of the relationship between these factors is unclear. Some research suggests that individuals who have experienced trauma and subsequently developed PTSD may live in a “self-perpetuating cycle of violence” (Aherns & Rexford, 2002; McMackin, Leisen, Sattler, Krinsley, & Riggs, 2002).

Within this cycle, PTSD symptoms, such as hypervigilance and fearfulness, contribute to the individual’s sense of the world as a dangerous place and may result in aggressive acting out or avoiding behaviors to protect themselves from perceived threats.

However, research has also shown other factors may mediate the likelihood that individuals who experience childhood trauma will engage in subsequent delinquent behavior. These factors include external variables, such as neighborhood context, social support mechanisms, and pro-social peers, as well as internal variables, such as self-control and anger management (Giordano, Deines, & Cernkovich, 2006; Hay & Evans, 2006; Schuck & Widom, 2005). Such research suggests that delinquency is a coping skill adopted by some victims of childhood trauma, but other victims are able to enact more positive coping mechanisms that do not lead them to delinquency. Teaching individuals these more positive coping mechanisms should be a central feature of treatment designed to address trauma in juvenile offenders.

PTSD and its effects have unique consequences for female juvenile offenders, because they can interfere with the offenders' response to treatment for criminogenic risk factors and decrease their chances of rehabilitation. Research has shown that females' traumatic stress symptoms may be exacerbated by their involvement in the juvenile justice system, including retraumatization as a result of seclusion, restraint, or other common system practices (Hennessey, Ford, Mahoney, Ko, & Siegfried, 2004). If PTSD goes undiagnosed, facility staff may expend effort treating the behaviors or symptoms associated with PTSD versus addressing the underlying issues of trauma. In addition, if offenders are released without resolving PTSD issues, they may continue to display antisocial behaviors, which may increase their risk of re-offending and increase the likelihood of continued involvement with the juvenile justice system and eventually the criminal justice system.

Interventions that employed a cognitive-behavioral approach, such as that being used in the current project, showed positive results treating PTSD, including reduced PTSD and related symptoms and improved ability/skills to manage symptoms. These findings apply to traumatized children (Deblinger, Lippman, & Steer in Aherns & Rexford, 2002; March, Amaya-Jackson, Murray & Schulte in Aherns & Rexford, 2002), juvenile sex offenders (McMackin, Leisen, Sattler, Krinsley, & Riggs, 2002), and incarcerated males (Aherns & Rexford, 2002). Results from a pilot test of the current treatment curriculum indicated that females who attended the PTSD RTC groups experienced fewer PTSD symptoms following their participation in the groups (Zajac, 2004).

Despite positive preliminary results, more research was needed to assess the effectiveness of this approach for treating PTSD, because the amount of research in this area is fairly limited and often lacks pre- and post-treatment measures, does not measure the impact of treatment on participants' behavior, studies small experimental populations, and does not include comparison/control groups. This evaluation was intended to contribute to the scientific body of knowledge regarding the relationship between trauma, PTSD, and antisocial behavior by investigating whether treating PTSD produces corresponding decreases in antisocial tendencies.

Although research indicates a need to address PTSD in the female juvenile offender population, the program must be well-designed and well-implemented, especially if one intends to evaluate the program's effectiveness. Researchers in the criminal justice field have highlighted the need to examine a program's design, implementation, and, ultimately, its evaluability before attempting to assess the program's effectiveness (Juvenile Justice Evaluation Center, 2003;

Latessa & Holsinger, 1998; Van Voorhis & Brown (n.d.); Welsh & Harris as cited in Welsh, 2006). Questions that one may ask with regard to each of these areas are described below. We referred to many of these questions as we reflected on the information we gathered through this study and our experiences in implementing the study.

### Program Design

- What is the problem? How big is the problem?
- Who does the problem affect and how?
- What theory guides the program?
- What are the goals and objectives of the program? Are they realistic and achievable?
- Is the program logic sufficient to produce measurable results?

### Program Implementation

- Are the people who need the program being reached?
- Do facilities have the capacity and resources to run the program as it was designed (e.g., trained staff with an understanding of their responsibilities, space, time to run the program)?
- What are the variations in program implementation? Who is responsible for monitoring program implementation and making corrections to ensure program integrity?

## Evaluability

- What does the program look like “in action”? When observed, does the program operate as intended?
- Does the program have the capacity to provide/generate data for an evaluation (e.g., conduct intake assessments, maintain progress reports, document activities)?
- Who is responsible for collecting and providing data? Who can hold staff and facilities accountable and/or address challenges if data are not collected?
- What additional data would be required for an evaluation? Is the facility/staff capable of collecting and managing additional data collection?
- Who will be responsible for translating findings into program adjustments?

*Relevance of the research study to the local, state, and federal criminal justice systems.*

By assessing the program theory, curriculum, and implementation and investigating the effect of treatment, the researchers have produced evaluation results and developed recommendations to inform program sponsors, developers, and practitioners so that they may support, continuously improve, and deliver a program that is theoretically sound, replicable, and effective. Moreover, the evaluation results will advance the field’s understanding of challenges in carrying out such treatment as well as the potential relation between PTSD and antisocial tendencies and will increase knowledge regarding PTSD and its treatment in female juvenile offenders.

## Project Scope and Methodology

### 1) Process

We conducted a process evaluation in which we investigated the soundness of the treatment approach as well as how treatment implementation differed across facilities. The following process-related strategies were employed over the course of the study:

- Reviewed the PTSD RTC. The initial review of the PTSD RTC was extensive and examined the appropriateness and relevance of the curriculum in treating PTSD in a female juvenile offender population. We compared the curriculum to best practice standards to determine if it is based on sound theory, is directed toward the appropriate population, and delivers the treatment through the most effective means. We also summarized the strengths of the RTC and provided recommendations for improvement that were subsequently addressed by the curriculum authors (Zajac & Puzanchera, 2004). A second review outlined how the recommendations from the first review were addressed and also summarized feedback offered by group leaders about the RTC (Zajac, 2006b).
- Conducted site visits and interviews. We engaged in these activities in Fall 2004 to assess the facilities' implementation of the treatment. We gathered information about how facilities were conducting RTC groups to determine if they were being implemented as intended. Based on the information gathered, we developed recommendations for the curriculum, facilitator training, and group implementation (Zajac & Puzanchera, 2005).

- Reviewed booster sessions for PTSD Group Leaders. We assessed the appropriateness of these trainings and gathered feedback from participants regarding their satisfaction with the training. Based on feedback from the Group Leaders, we provided recommendations for future booster sessions (Zajac, 2006a).
- Reviewed group leaders' ratings of group implementation. This review provided us with information about group leaders' abilities to implement the groups as intended and their observations of females' responses to participating in the PTSD RTC. The process also gave group leaders the chance to suggest changes to the PTSD RTC (Zajac, 2006c).
- Interviewed clinical supervisors and PTSD RTC Group Leaders. In these interviews, we asked respondents to examine their experiences with the PTSD RTC groups to help project leaders develop trainings for clinical supervisors and group leaders (Zajac, DeGel, Castleton, 2007).

The reports summarizing each of these activities are attached in Appendix C. The findings from these process-related activities are detailed in later sections of this report.

## 2) Outcomes

The outcomes portion of the evaluation utilized a quasi-experimental design in which residential treatment facilities that conducted PTSD RTC groups (treatment sites) were compared with residential treatment facilities that were not conducting PTSD RTC groups (comparison sites). Treatment sites adopted the PTSD RTC groups independent of the evaluation (i.e., they were not assigned by researchers to conduct the groups nor were they conducting groups solely for the purpose of the evaluation). In addition, the choice of comparison sites to NOT offer PTSD RTC groups was independent of the evaluation.



The juvenile court system was solely responsible for assigning the females in the study to residential treatment facilities; the evaluation study had no influence on the placement of females in either comparison or treatment facilities nor did the evaluation have any bearing on the length of time that the females were in placement. Regardless, the groups were expected to be similar across sites (i.e., all sites were to serve adolescent female offenders with PTSD symptoms). Females participated in the evaluation for up to one year, unless they were released from the facility, transferred to another facility, or ended probation, at which point their participation in the evaluation ceased. The consent documents used for study enrollment are included in Appendix D.

At treatment sites, the evaluation was open to females who were identified by facility staff to participate in the PTSD RTC groups and who were 12-21 years old and designated delinquent or delinquent and dependent by juvenile court. A delinquent individual is a child, 10 years of age or older whom the court has found to have committed a delinquent act and to be in need of treatment, supervision, or rehabilitation. Delinquent acts include acts that would be considered a crime if committed by an adult (Juvenile Law Center, 2003).

In addition to being delinquent, the court may also find that a juvenile is dependent. According to Pennsylvania statute regarding juvenile matters (42 Pa.C.S. § 6302), this may occur if the juvenile:

(1) is without proper parental care or control, subsistence, education as required by law, or other care or control necessary for his physical, mental or emotional health, or morals;

- (2) has been placed for care or adoption in violation of law;
- (3) has been abandoned by his or her parents, guardian, or other custodian;
- (4) is without parent, guardian, or legal custodian.

If a court finds that a juvenile is dependent, the court may, among other things, transfer temporary legal custody to a private or public agency. It is under these circumstances that dependent females came to be in the treatment and comparison sites involved in the study even though they had not been charged by the police for delinquent behaviors. Although dependent females were in these placements (and were often participating in the PTSD RTC groups), they were not included in the study because they were not charged for their delinquent behaviors. These are the behaviors that the PTSD RTC is supposed to ultimately impact. Females who were classified as both dependent *and* delinquent were included in the study.

At treatment sites, facility staff is solely responsible for deciding whether to include females in the PTSD RTC groups. These decisions are based on clinical judgment (i.e., informal staff observations) and results from an interview staff conduct with the females regarding PTSD-related symptoms and issues. If the observations and interview indicate that a female meets PTSD diagnostic criteria, she is usually included in the treatment groups. Decisions regarding females' participation in PTSD RTC groups were unrelated to the evaluation and were not at all informed by the researchers.

At comparison sites, the evaluation was initially open to females in the facility who were 12-21 years old, designated delinquent or delinquent and dependent by the Courts, and who facility

staff indicated were likely to remain in the facility for approximately 4 to 6 months. Facility staff or the researchers administered the PTSD Checklist (Amaya-Jackson, McCarthy, Newman, Cherney, 1995) to females who consented or assented to participate in the evaluation and whose parents/guardians provided consent. This self-report instrument asks females about past experiences and how they feel about these experiences and is similar to the interview used to identify females for the PTSD RTC groups at treatment sites. Females at comparison sites whose responses indicated that they met PTSD diagnostic criteria continued participating in the evaluation.

Evaluation assessments were self-administered by the females who were overseen by facility staff at treatment sites and by facility staff or the researchers at comparison sites. The instruments are described below and copies of the instruments are included in Appendix E.

- PTSD Checklist (Amaya-Jackson, McCarthy, Newman, Cherney, 1995) -- Self-report of traumatic experiences and level of PTSD symptoms.
- Rosenberg Self-Esteem Scale (Rosenberg, 1965) -- Measure of self-esteem.
- The Future Outlook Inventory (Cauffman & Woolard, 1999) -- Measures individuals' future orientation.
- Nowicki and Strickland Locus of Control Scale (Nowicki & Strickland, 1973) -- Measures perceived control in affiliation, achievement, and dependency.
- How I Think Questionnaire (Gibbs, Barriga, & Potter, 2001) -- Measures cognitive distortion and problem behaviors in antisocial youth.

Facility staff provided the following information:

- Demographic information
- In-Program Behavioral Assessment (Latessa, 2002) -- Measure of females' behavioral tendencies and changes throughout treatment, completed by PTSD RTC group facilitators.
- Clinical Contact Session Rating (Simourd, 2003) -- PTSD RTC group facilitators report their weekly assessment of females' level of engagement in treatment groups.

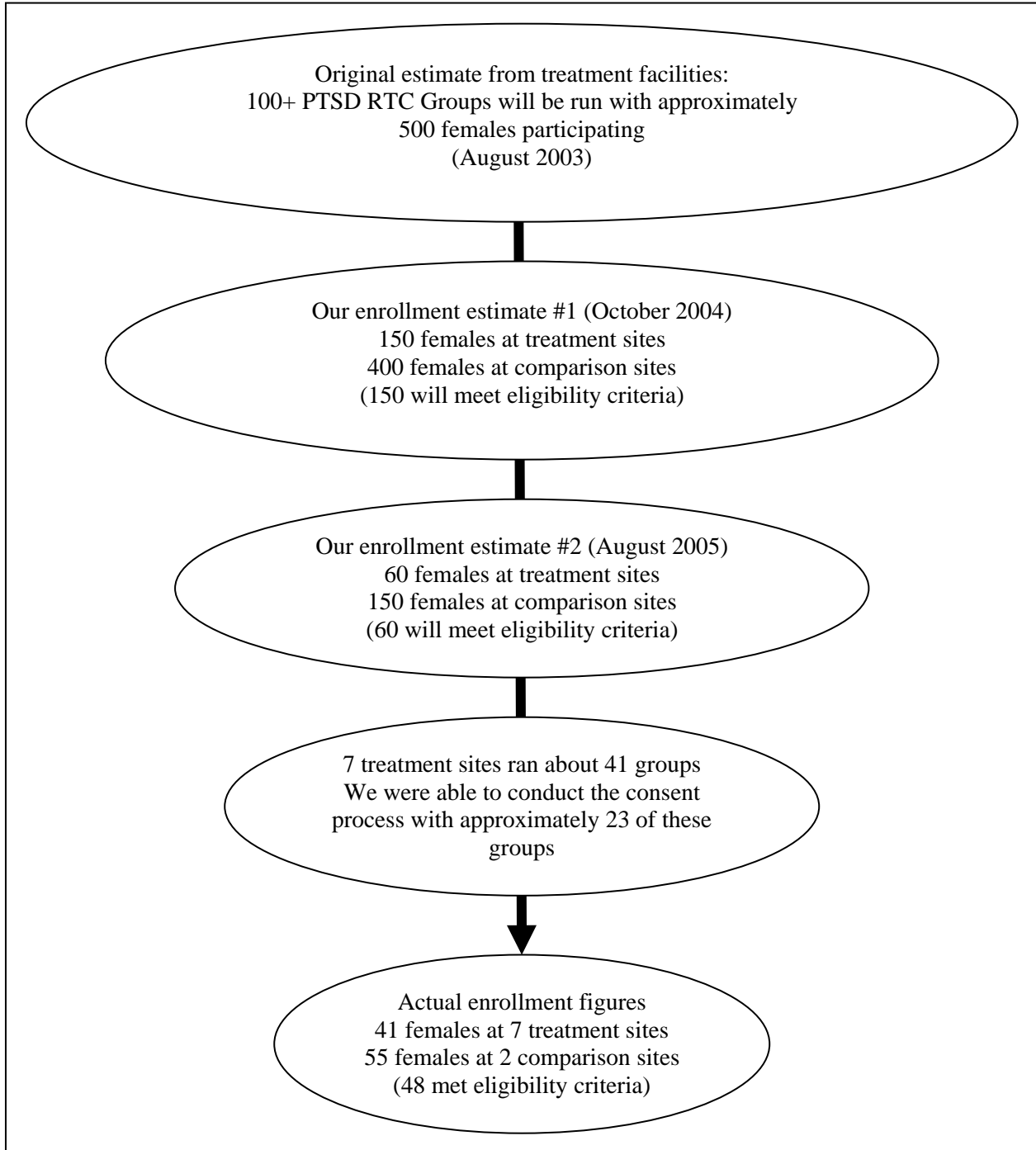
At treatment sites, females completed instruments prior to the treatment (or very early in the treatment program), mid-way through the treatment, and immediately following treatment, as well as 1 month, 3 months, and up to 6 months after the end of the treatment group, while still in placement, for up to one year. Females at the comparison sites completed the assessments on the same schedule while they remained in placement, for up to one year. The schedule is described in Table 1.

*Table 1. Instrument Schedule*

	Pre (Week 1)	Mid (Week 8)	Post (Week 17)	Follow-Up			
				1 mo (Wk 21)	3 mo (Wk 29)	6 mo (Wk 41)	9 mo (Wk 52)
<b><i>Instruments completed by females</i></b>	<ul style="list-style-type: none"> <li>• PTSD Checklist</li> <li>• Rosenberg Self-Esteem Scale</li> <li>• Future Outlook Inventory</li> <li>• Nowicki-Strickland Locus of Control Scale</li> <li>• How I Think Questionnaire</li> </ul>	PTSD Checklist	<ul style="list-style-type: none"> <li>• All Pre instruments</li> <li>• Group Satisfaction Survey</li> </ul>	All Pre instruments			
<b><i>Instruments completed by facility staff</i></b>	<ul style="list-style-type: none"> <li>• Demographic Information</li> <li>• In-Program Behavioral Assessment</li> <li>• Clinical Contact Session Rating</li> </ul>	<ul style="list-style-type: none"> <li>• In-Program Behavioral Assessment</li> <li>• Clinical Contact Session Rating</li> </ul>		In-Program Behavioral Assessment			

In August 2003, when we were developing our evaluation proposal, the six treatment facilities that intended to participate in the study estimated they would conduct over 100 groups with approximately 500 females over two years. In October 2004, we submitted the study to the University of Pittsburgh Institutional Review Board for review. By this time, some of the facilities had decided not to participate in the study and others had been added, including one comparison site. Based on estimates from these sites, we anticipated that 150 females would enroll in the study at treatment sites and that we would enroll and screen approximately 400 females at the comparison sites. Using previous research as a guide, we estimated that 150 of the 400 females enrolled at the comparison site would meet the study eligibility criteria and continue in the study. As the study progressed, however, our enrollment estimates became even more conservative based on various observed challenges, discussed in later sections of the report. By August 2005 (and through the end of the study), our goal was to conduct the study with 60 females each in the treatment and comparison groups (after enrolling and screening 150 females at the comparison sites). This information is illustrated in Figure 1.

Figure 1. Study Enrollment



As noted above, treatment facilities originally estimated that they would conduct over 100 groups over two years of the study. In reality, the seven treatment sites that participated to various extents throughout the study conducted approximately 41 groups over about two and a half years. It is difficult to pinpoint why treatment facilities conducted so many fewer groups than they had estimated. However, when we interviewed PTSD RTC group leaders in the fall of 2006, half of the group leaders (n=6) stated they had run fewer PTSD RTC groups than they expected since becoming group facilitators. These group leaders indicated they ran fewer groups than expected for the following reasons: They lacked a sufficient number of females to participate in the groups, females at their facilities would not be in placement long enough to complete the groups, females and/or staff lacked time needed for the PTSD RTC groups, and high staff turnover (Zajac, DeGel, & Castleton, 2007). Indeed, staff turnover was a challenge, because there was at least one change of group leaders (due to staff members leaving the facility or changing their position in the facility) in almost all of the treatment facilities.

These reasons are consistent with our observations through the course of the study. In addition, we found that some treatment facilities failed to conduct the PTSD RTC groups because females in their care did not meet the criteria for PTSD RTC group inclusion (i.e., they were classified as dependent only rather than delinquent or delinquent and dependent). In other cases there were competing priorities that made the facility staff unable to conduct groups (e.g., one facility was going through an accreditation process and did not have the capacity to conduct the groups during this process). Some facilities also suspended the PTSD RTC groups over the summer months, because this was often a time during which females transitioned out of the facilities.

Unfortunately, in some cases, facilities were unresponsive to our requests regarding when they would be conducting groups, so we cannot say with certainty how many groups they conducted.

The comparatively low number of groups actually conducted and the number of females participating in them severely impacted the evaluation and is reflected in the number of females who participated fully in the study (discussed and illustrated below). More importantly, these low figures reveal challenges to implementing this or any treatment in such facilities. We will discuss this issue in greater detail in the later sections of this report.

We were able to conduct the consent process with females in 23 of the 41 groups that facilities ran. There were 18 groups with whom we did not conduct the consent process. There were two primary reasons that we did not conduct the consent process with these groups. First, in eight of the groups there were no females who were eligible to be in the study. That is, the females were either not going to be in placement for 4-6 months after enrolling in the study or their status was “dependent” only (vs. delinquent or delinquent AND dependent status).

The second reason that we did not conduct the consent process with groups was that the facilities did not inform us that they had started a PTSD RTC group; by the time we were informed, it was too late to conduct the process and collect baseline data because the group had already been running. While this was a challenge for the evaluation, it also signifies communication and coordination challenges that may be present within the facilities and could have implications for their operations and ability to treat females.



Despite being unable to recruit from as many groups as expected, the females and families with whom we conducted the consent process were very receptive to the study and we had a relatively high rate of agreement to participate. Over the course of the study, nearly three-quarters of the females with whom we spoke about the study at treatment sites agreed to participate (71%) and only approximately 10% declined to participate outright. Thus, most of the non-participants were a result of failure of the facilities to execute procedures as intended, not because the participants selected to not participate, which would have been a more serious bias in the evaluation.

Overall, we enrolled 41 females in the treatment group and 55 females in the comparison group. However, throughout the study, attrition and other factors prevented us from collecting data consistently, and we ended the study with many fewer participants than anticipated. There were only 6 females in the treatment group and 7 females in the comparison group who had completed enough assessments to allow us to conduct analyses. Figures 2 and 3 illustrate the levels of attrition and corresponding reasons for it in this study. The majority of those who did not complete the evaluation (48 of 82) were discharged from the facility before all data collection could be completed.

As shown in Figure 2, over half of the females who enrolled in the study (25 out of 41) did not provide pre/baseline data. Half of these females (n=12) completed the pre instruments, but did so after already engaging in at least 4 of the 15 PTSD RTC group sessions. Therefore, these data do not represent baseline data. A lack of communication and coordination was often at the root of delays in pre instrument administration. For example, we requested that the facility staff

notify us as soon as they began planning and recruiting for their next PTSD RTC group so that we could prepare to conduct the consent process. However, it was often the case that facilities failed to notify us until they were ready to begin the PTSD RTC group (i.e., engage in the first session) and once we conducted the consent process (which almost always included obtaining consent from the females' parents by mail), the groups were well underway. Although we knew there was the possibility that the groups would proceed and the data would represent something other than baseline (as they do in these 12 cases), we almost always proceeded with the consent process because groups' start dates were frequently delayed, and sometimes we ended up with baseline data after all.

Another issue that prevented us from collecting not only baseline but post data was the unexpected release of females from the treatment facilities. As shown in Figure 2, four females were enrolled in the study but were released from the facilities before completing pre instruments and another eight females completed pre instruments but were released from the facility prior to completing post instruments. This represents potential deficiencies at multiple levels. First, it indicates that facilities may be enrolling females who are inappropriate for the PTSD RTC groups, because they may be released from the facilities before they can complete the treatment. Second, this issue may represent a lack of knowledge and/or control regarding how long females remain in the treatment facilities. For example, it was often the case that facilities could not tell us exactly when a female was released from the facility. This is why there are 5 cases in which we indicated that we are unsure if the females completed treatment prior to their release from the facility.

Other issues that resulted in the loss of baseline data are unfortunate, but not uncommon in social science research. Baseline data from three females in one facility were lost in the mail as the facility attempted to mail the instruments to us. To maintain the confidentiality of females' responses, we do not direct facility staff to make copies of females' completed instruments before mailing them to us. Therefore, the facility mailed us the original documents and, unfortunately, they never reached us. In addition, as would be expected in this population, some females (n=2) did not have the capacity to participate in the PTSD RTC groups, and they were removed due to behavioral issues.

At the comparison sites, females were far more likely to complete the pre instruments to provide baseline data. As shown in Figure 3, 48 of the 55 females completed the pre instruments and only 6 were released prior to the collection of baseline data. However, over the course of the study, most of the females did not complete post instruments (n=41). The primary reason for this was females' release from the facilities prior to completing post instruments (n=30). While this was challenging for the evaluation, it represents less of a concern since the females were not engaged in the treatment and therefore their release did not necessarily represent an interruption in the females' care. Additional reasons for a lack of post data from the comparison sites are also to be expected in social science research and include not meeting the screening criteria (n=7), being absent when instruments were administered (n=2), and refusing to complete the post instruments (n=2).

With such a high rate of attrition, we were concerned that the females who completed the evaluation might be different from the females who did not complete the evaluation.<sup>1</sup> That is, females who participated fully in the evaluation might represent a unique sub-sample and that any findings related to them would not be generalizable to the broader population. To explore this issue, we conducted analysis comparing females who completed the evaluation (n= 13) and females who did not complete the evaluation but for whom we had baseline data (n=44) to determine if these two groups differed in terms of their baseline scores. Analyses showed that the females who completed the evaluation and females who did not complete the evaluation did not differ from each other in terms of future orientation, anti-social attitudes and thinking, locus of control, or self-esteem at baseline. However, females who completed the evaluation had significantly higher levels of PTSD symptoms at baseline than their counterparts. The average baseline score for females who completed the evaluation was 42.15, compared to 32.57 for females who did not complete the evaluation.<sup>2</sup> These findings indicate that even with the high degree of attrition, females who needed to stay in treatment/placement the most did so (i.e., those with the highest level of PTSD symptoms). However, it is unknown if this occurred by design (i.e., facilities and the courts made conscious treatment and placement decisions based on females' symptom level and related behavior) or coincidence.

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<sup>1</sup> Females who “completed the evaluation” include those who completed at least baseline and post-assessments at Week 17.

<sup>2</sup>  $t_{55}=2.17, p<0.05$

Figure 2. Instrument Completion at Treatment Sites

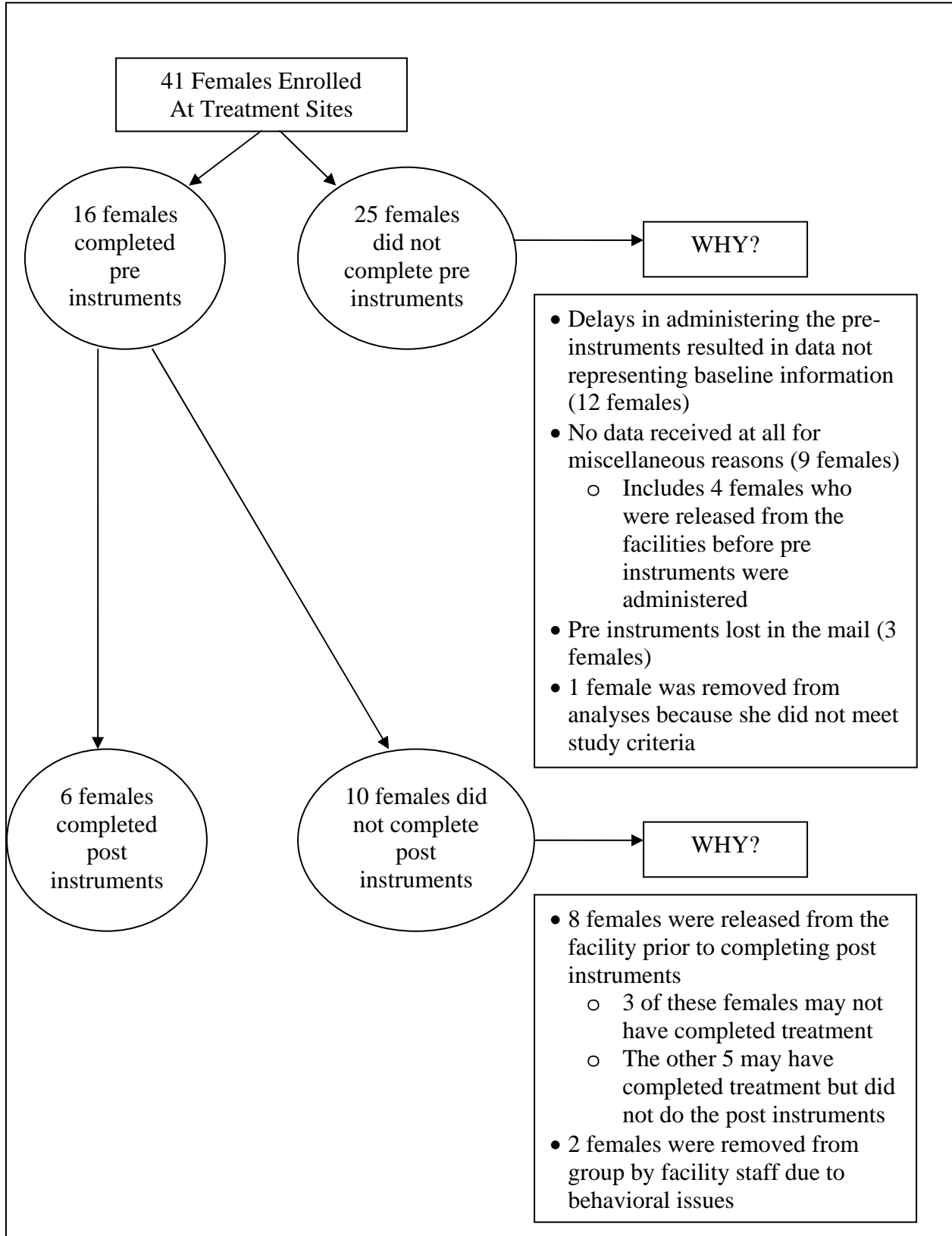
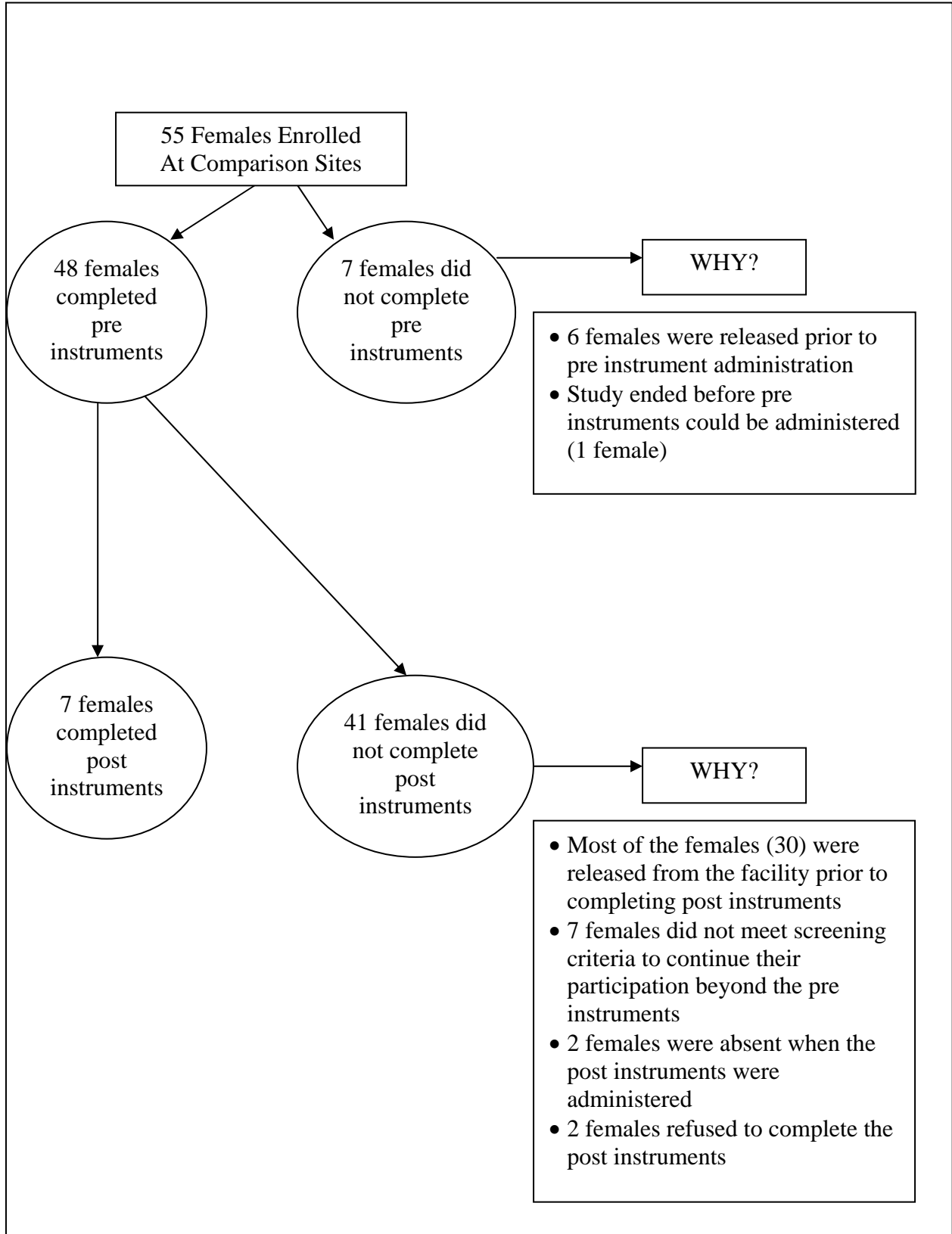


Figure 3. Instrument Completion at Comparison Sites



Participant enrollment and data collection were also impeded by the Institutional Review Board (IRB) process at the University of Pittsburgh. The study was subject to a review by the full board (rather than an expedited or exempt review) because the study participants were juveniles and were considered prisoners by the IRB. The entire IRB process took approximately one year, including developing/revising the protocol and review by the IRB committee. Review by the IRB committee was delayed twice, once because a prison representative was unavailable and another time because the committee could not reach a quorum. This process and delays that were beyond our control shortened our initial intended data collection period considerably; however, we compensated for this time by extending data collection at the end of the study.

In addition, the study was subject to an audit by the IRB. At the end of July 2006, we submitted our project to the Institutional Review Board (IRB) of the University of Pittsburgh for annual review. This was the second renewal following the project's initial approval in October 2004. During the July 2006 review, IRB committee members raised concerns over issues primarily focusing on incomplete data. The incomplete data referred to by the IRB was demographic information about the females that was provided by facility staff; the majority of the incomplete data was in the process of being compiled by facility staff at the time of the review. We were prepared to explain these circumstances to the IRB and also to emphasize that the incomplete data is anticipated in this type of research. Incomplete data of this kind did not significantly compromise the study and did not increase risk for the females participating in the study. However, we were not provided this opportunity and the IRB put its approval for the PTSD project on hold, and requested that (1) the project be audited – a standard request when concerns are noted – and that, following the audit, (2) we resubmit the project protocol for a second

review. We made every effort to expedite the audit/renewal process (including submitting the renewal ahead of schedule); however, the procedural delay associated with the process resulted in a lapse in our original IRB approval. Consequently, we were required by the IRB to stop all efforts relating to enrolling females and collecting data until the IRB renewed approval.

The audit was conducted by the University of Pittsburgh Research Conduct and Compliance Office on August 31<sup>st</sup> and their findings (received September 11, 2006) were not out of the ordinary (e.g., issues with the informed consent documents such as dates not matching on the signature pages and issues related to guardianship, etc). These issues were not matters that increased risk for the participants and are all matters that we fully addressed. However, as noted above, because the audit procedure caused our IRB approval to lapse (August 23, 2006) we also had to resubmit the project protocol for a second review, which added further delay to resuming enrollment and data collection.

The IRB notified us that they had approved the revised project protocol on October 20, 2006 and we resumed all study activities on October 23, 2006. However, the delay was not without consequence for data collection,

- During the ‘lapsed’ period in which the IRB prohibited us from collecting data we lost the opportunity to collect mid-point data from 4 females and follow-up data for 1 female at the treatment sites. In addition, we were unable to collect mid-point data for 11 females in the comparison sites.

Future researchers will need to take IRB issues into consideration and build in time for such unexpected delays.



*Analytical methods performed to examine the program in question*

The models we present are profile analyses. These are univariate repeated-measures ANOVAs in which the two groups -- treatment and comparison -- are compared with respect to change between two time points, pre- and post- treatment. In this model, the interaction effect (time by group) tests the main evaluation hypothesis, which is that the two groups are changing at different rates.

For our main analyses we employ conventional tests of statistical significance, evaluated at the usual alpha level of 0.05. Unfortunately, the number of participants available for our statistical models is very small, and so even where the treatment produces real results, these conventional tests may fail to detect the results as statistically significant. To compensate for this low statistical power, we present statistical results, and then look further at non-significant results as long as effect sizes are at least low to moderate.<sup>3</sup> Technically, we will consider even a non-significant finding worth investigating further if (1) change in either group was at least one half of the pooled initial standard deviation, or (2) the effect size (partial eta-squared, in most models) associated with group differences is at least 0.10. We believe that for the purposes of this evaluation, this approach to probing non-significant results will prevent us from overlooking important enlightening "clues" that may exist in our sparse data. But we realize that this approach is unconventional, and readers are free to base their judgments only on the conventional tests of statistical significance. Moreover, we hope it is clear that while multivariate models are indicated by our evaluation question, they cannot be employed with our small sample.

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<sup>3</sup> In judging whether an effect size is "moderate" we follow the advice of Cohen (1988), p. 413 and pp. 531-535.

### Detailed Findings and Analysis

Over the course of the evaluation, it became apparent to us that there was a mismatch between the treatment and the facilities' abilities to carry it out as intended, or at least to carry it out in the manner expected/required to yield outcome evaluation findings. Therefore, while we present some very limited findings related to the impact of the treatment on the participating females, our primary focus in this section of the report is what happened to our methodology in the context of these facilities. These process-oriented findings have implications not only for the PTSD RTC but also for any treatment implemented within the juvenile justice system.

#### Outcomes-related findings

The findings presented here are from analyses conducted with data from six females in the treatment group and seven females in the comparison group. We included only these females in the analyses because they are the only females for whom we had pre- and post-data. All of the females in the treatment group were from one treatment site as were six of the seven females in the comparison group, therefore our findings do not represent the experiences of females at all of the sites that participated. This fact as well as the small sample size leads us to urge the reader to view results with extreme caution and as preliminary measures of the effectiveness of the PTSD RTC.

Moreover, because the females represent only one treatment site and just two comparison sites, it is possible that the results are attributable to the characteristics of and differences between facilities rather than females' participation in the PTSD RTC groups. For example, the facility represented by the treatment group is highly invested in the PTSD project, and most of the PTSD

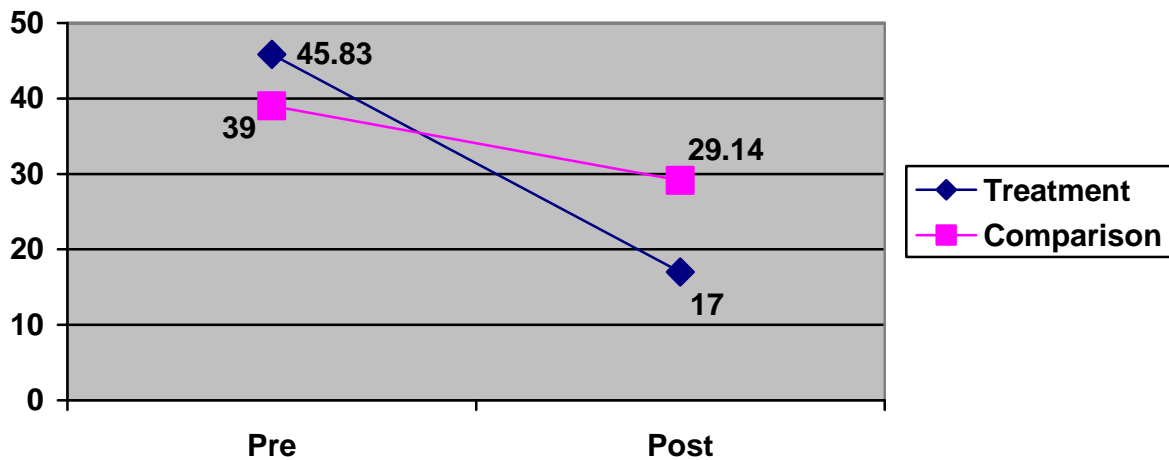
RTC groups run at this facility were co-facilitated by an individual with an extensive educational background and experience in the juvenile justice and mental health fields. This level of buy-in and staff expertise may have contributed to changes in the females' conditions as much as or more than their participation in the groups. However, six of the females in the comparison group were from a facility that shares many characteristics with the represented treatment site. For example, similar to the treatment site, the comparison site focuses on abuse, neglect, and victimization issues through group counseling with a cognitive behavioral emphasis. All of the females at this comparison site participated in groups to deal with surviving abuse, improving their emotional health, managing anger, and overcoming drug and alcohol issues. Although there may be other characteristics, such as staff training, that could account for differences between the treatment and comparison group females, the fact that the facilities have similar treatment philosophies and programming, supports our results which suggest that the differences between the treatment and comparison groups can be attributed to the PTSD RTC groups.

### *PTSD Symptoms*

As shown in Figure 4, females in both the treatment and comparison groups experienced a decrease in their PTSD symptoms; however, the groups changed at significantly different rates. At pre- assessment, the females in the comparison group had slightly lower levels of PTSD symptoms than the females in the treatment group; however, there is no significant difference between the scores. The treatment group's pre-assessment score of 45.83 is not significantly different from the comparison group's pre-assessment score of 39.

The interaction between time and facility type (treatment v. comparison) was examined to determine whether the two groups were changing at different rates, and in fact, there is a statistically significant difference between their rates of change.<sup>4</sup> Further analysis determined that only the treatment group changed significantly.<sup>5</sup> The levels of PTSD symptoms are decreasing at a greater rate for the females in the treatment group than for the females in the comparison group.

Figure 4. Change in levels of PTSD Symptoms



We also investigated several demographic variables to see if they were related to levels of PTSD symptoms at baseline because if certain variables are related to PTSD symptoms, facility staff could use these variables to help them identify females as potential participants in PTSD RTC groups. The demographic variables included the amount of time spent in placement prior to the baseline assessment, whether females had a history of involvement with child welfare services, whether they had a history of prior offenses, and whether they had current or previous

<sup>4</sup>  $F_{1,11} = 6.75, p < 0.05, \text{partial } \eta^2 = 0.38$

<sup>5</sup>  $p < 0.01, \text{partial } \eta^2 = 0.73$

psychiatric diagnoses. Analyses showed that time in placement, history of involvement with child welfare services, and history of prior offenses were not related to levels of PTSD symptoms at baseline. However, as may be expected, there was a relationship between having current and/or previous psychiatric diagnoses and level of PTSD symptoms at baseline. Females with a diagnostic history have significantly higher levels of PTSD symptoms than females without such histories.<sup>6</sup> Females with current or previous psychiatric diagnoses had average PTSD scores of 36.63 compared to scores of 23.13 for those who did not have diagnoses. Therefore, facility staff may wish to consider the presence of current and/or past psychiatric diagnoses as a “clue” they may use when deciding which females to interview as potential participants in the PTSD RTC groups.

#### *Anti-Social Attitudes and Thinking*

As shown in Figure 5, females in both the treatment and comparison groups experienced a decrease in their levels of antisocial thinking and attitudes. One would expect at least some level of decrease in these scores since both the treatment and comparison sites are placements designed to address anti-social attitudes and thinking. However, there is a significant change only in the treatment group.

Similar to the findings above, the treatment group’s pre-assessment score of 3.62 is not significantly different from the comparison group’s pre-assessment score of 2.95. However, we find that there is a significant interaction between time and facility type<sup>7</sup>, indicating that the treatment and comparison groups change at different rates from pre- to post-assessment. Further

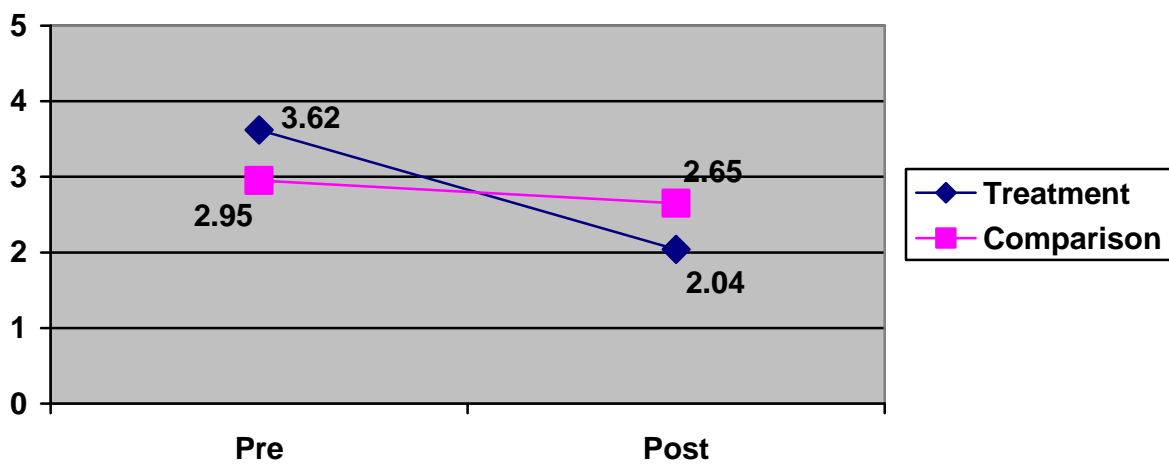
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<sup>6</sup>  $r_{pb} = .377, p < 0.05$

<sup>7</sup>  $F_{1,10} = 9.28, p < 0.05, \text{partial } \eta^2 = 0.48$

analysis shows that there is a significant time difference in the treatment group but not in the comparison group.<sup>8</sup> This shows that the levels of anti-social attitudes and thinking are decreasing at a significantly greater rate for the females in the treatment group than for the females in the comparison group.

Figure 5. Change in levels of Anti-Social Attitudes and Thinking



*Future Orientation, Self-Esteem, and Locus of Control*

Analyses also revealed that treatment and comparison females experienced positive changes in their levels of future orientation, self-esteem, and locus of control. However, the interaction between time and type of facility was found to be non-significant for these measures.<sup>9</sup> These non-significant interactions mean that there is no significant difference between the groups with

<sup>8</sup>  $p < 0.01$ , partial  $\eta^2 = 0.71$

<sup>9</sup> Future orientation,  $F_{1,11} = 2.16$ , n.s., partial  $\eta^2 = 0.14$ ; Self-esteem,  $F_{1,11} = 2.42$ , n.s., partial  $\eta^2 = 0.18$ ; Locus of control,  $F_{1,10} = 0.00$ , n.s.,  $\eta^2 = 0.00$

respect to pre-post change. One group does not seem to be improving at a greater rate than the other group.<sup>10</sup>

The outcomes findings reported here hint at the potential for effectiveness but should be interpreted with extreme caution given the very small sample size. Moreover, because all of the treatment group females are from one facility and most of the comparison group females are from one facility, the findings are primarily representative of only these sites and are not necessarily generalizable to the other sites. We would not use this sample to draw conclusions about the general effectiveness of this treatment. However, the findings from this study are promising considering that all of the results observed were in the predicted direction, the interactions of pre-post treatment changes were significant despite the very small sample sizes, and the effect sizes were moderate. Thus, it appears that for the females assessed completely, the treatment achieved its intended effect. The generality of this observation to many more females and facilities as well as possible participant bias in the reduced available sample are the primary limitations of the evaluation. While additional research is warranted, there are several process-related issues that must be addressed before any such work commences.

#### Process-related findings

Our initial process-related findings were quite positive. For example, our review of the program curriculum indicated that the PTSD RTC is a well-developed guide to treating PTSD in female juvenile offenders that includes many practices that are supported by research (Zajac & Puzzanchera, 2004). Our informal review of the training for PTSD RTC facilitators found that it

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<sup>10</sup> In regards to future orientation and self esteem, post-hoc tests were not warranted by the usual rules, but seemed justified on the basis of the interaction effect sizes. There is evidence for a significant change in the treatment group but not in the comparison group.

is also well-designed and thorough. The training provides staff with an explanation of the theoretical basis for the PTSD RTC and the potential consequences of PTSD for female juvenile offenders, and it also gives them many opportunities to practice their facilitation skills within the training context. In addition, through our site visits and interviews with facility staff, we found, for the most part, that facility staff reported (or anticipated) implementing the PTSD groups as intended (Zajac & Puzanchera, 2005). We have included highlights of the process-related findings below and included the process evaluation reports in Appendix C.

Through our review of the PTSD RTC we found that the curriculum clearly articulates the general treatment goals, as well as more specific objectives of each PTSD RTC session. These objectives are listed in Appendix B. Our review of the literature indicates that the PTSD RTC goals are comparable to fundamental goals that researchers recommend underlie any treatment of PTSD including that with adolescent offenders (Gil, 1996; Matsakis, 1994; McMackin, Leisen, Sattler, Krinsley, & Riggs, 2002). In addition, the PTSD RTC is supported by research that stresses the importance of treatment being trauma-focused and directed toward treating the participants' specific PTSD-related symptoms (Cohen, 1998). To prevent participating females from relapsing, the PTSD RTC includes skill-building exercises and techniques to help females control their PTSD symptoms as well as after-care plans for each participant. Research on effective interventions with offenders supports the use of strategies to prevent relapses in the population (Gendreau, 1996). Based on our recommendations, the project leaders incorporated more opportunities for participants to engage in experiential learning such as role playing within the PTSD RTC group setting. We also suggested that after care plans include structured follow-



up with participants perhaps in the form of booster sessions for the females following treatment, however this has not been implemented.

The curriculum also outlines criteria for PTSD RTC group leaders. Our review of the curriculum found that the experiential, educational, and supervisory criteria regarding PTSD RTC group leaders are supported by research regarding effective treatment interventions with offenders by Andrews (2001), Gendreau (1996), and Gendreau and Andrews (1999). The requirement that group leaders have clinical supervision is also supported by this research and is appropriate in the PTSD RTC groups given the complexities of assessing and treating PTSD (Andrews, 2001; Gendreau, 1996; Gendreau & Andrews, 1999).

Our review also indicated that the treatment approach underlying the PTSD RTC is sound. Although the PTSD RTC utilizes multiple approaches (e.g., behavioral, multimodal, anxiety management), the primary treatment approach utilized in the curriculum is cognitive behavioral. Cognitive behavioral approaches have been shown to be effective in treating adults with PTSD (Foa & Meadows, 1997; Van Etten & Taylor, 1998) and also in preliminary studies with children with PTSD (Cohen, 1998; March, Amaya-Jackson, Murray, & Schulte, 1998), as well as in work with juvenile delinquents (Granello & Hanna, 2003; Leschied, 2000; McMackin et al., 2002) and offenders (Gendreau, 1996).

Overall, the PTSD RTC met standards outlined in the research. However, we offered several recommendations to strengthen the curriculum. The most critical of the recommendations focused on admissions and assessment processes and are based on research about effective

interventions with offenders (Andrews & Dowden, 1999; Andrews, Zinger, Hoge, Bonta, Gendreau, & Cullen, 1990; Hoge, 2002; Hoge & Andrews, 2002) and research about assessing and treating PTSD (Chamberlain & Moore, 2002; Keane, Weathers, & Foa, 2000; Matsakis, 1994; Newman, 2002). These recommendations are highlighted below.

- To identify participants who are appropriate for the PTSD RTC groups, require that the clinical supervisor (e.g., a psychologist/psychiatrist) conduct a formalized diagnostic assessment with the females.
- Conduct pre-group counseling or an assessment with the females prior to their participation in group to ensure that they are prepared for and appropriate for the group experience (e.g., they are stable and ready to participate).
- Adopt a semi-structured interview for PTSD with documented reliability and validity or work to establish the reliability and validity of the PTSD interview the PTSD RTC currently employs.
- Utilize multiple assessment instruments to detect other mental health issues and assess risk and protective factors related to PTSD and future delinquent/antisocial activities. An instrument such as the Youth Level of Service/Case Management Inventory (Hoge & Andrews, 2002) could be used for this purpose. In addition, the project leaders should also consider measuring responsivity factors (e.g., personality, motivation, learning style, reading ability, and motivation for treatment) that may impact the participants' responses to treatment.

As part of the process evaluation, we also visited 11 treatment sites at 5 facilities and conducted interviews with 24 key staff members. We conducted interviews with individuals at the facilities who fill a variety of roles including those who work directly with the groups as PTSD RTC group leaders (e.g. Counselors and Caseworkers, Unit Directors, Clinical Directors, and PTSD Gender Specific Services Coordinators). In addition, we spoke with individuals who are knowledgeable about but may not have facilitated the groups, including psychiatrists and psychologists, a Chief Administrator, a Program Developer, and a Director of Treatment. While the facilities differ somewhat in terms of size and setting, they were generally similar in terms of the type of staff members involved in the project and the length of time the sites had been participating in the project (~3 ½ years).

Overall, we found that the facilities were able to implement the PTSD RTC as intended. Nearly all of the group leaders we interviewed met the educational and experiential criteria outlined in the PTSD RTC, and all of the sites met the supervisory criteria for conducting groups, although clinicians' levels of involvement with the PTSD RTC groups differed among sites. We also found that all of the facilities were adhering to the criteria outlined in the PTSD RTC for initially identifying females for potential participation in the PTSD group. Group leaders also indicated that they use the PTSD RTC as intended when they conduct the PTSD groups. That is, they did not report altering the content of the curriculum in any way.

The interviews and site visits also revealed a high level of dedication to the PTSD RTC among facility staff. Staff members reported making the PTSD RTC groups a priority, often over other activities and treatment programs if necessary and with the full agreement of the female

participants. This indicates that both facility staff and the females recognized the benefit of the PTSD RTC. In addition, all of the facilities indicated they inform all of their staff about PTSD and the PTSD RTC, regardless of whether they are directly involved with conducting the groups. This indicates that supervisory staff feels that it is important for staff members at all levels in the facility to be informed about the impact of PTSD on their clients. Although not the primary purpose of the curriculum, respondents also indicated that staff training and the presence of the groups had resulted in significant positive changes in the ways that staff interact with the females indicating that the PTSD RTC, when implemented as intended, had the potential to effect (at least anecdotally) organizational change.

Based on such positive feedback and observed enthusiasm for the PTSD RTC among treatment site staff, we were surprised at the challenges that revealed themselves as we implemented the outcomes portion of the evaluation. For example, facilities were running groups with less frequency than anticipated, there were fewer females eligible for the study than anticipated, and females were staying in the facilities for shorter periods than anticipated. The facilities were carrying out the treatment to the best of their abilities, but not to the extent necessary to conduct the outcomes evaluation study as intended.

Our experiences in attempting to conduct the outcomes portion of the evaluation actually translated into additional lessons learned for our process evaluation, which should be taken into consideration before attempting to evaluate the program's effectiveness in the future.

Over the course of the project and now, in retrospect, we were able to identify deficits that contributed to program and treatment level challenges and corresponding evaluation challenges

that are reflected in the outcomes portion of the evaluation. Clearly, these challenges negatively impacted our ability to gather data to assess the effectiveness of the PTSD RTC. However, the challenges revealed through this study speak to larger, interrelated issues at multiple levels within the juvenile justice system that affect the ability of the system to address the needs of the juvenile offender population. Here we discuss process evaluation findings related to program design, program implementation, and evaluability.

### Program Design

Developers of the PTSD RTC consulted the literature and explored previous efforts to treat PTSD in this population as they developed the program. At the time that they were developing the program, research exploring the extent and nature of the link between PTSD and delinquent behavior in females was limited. However, the developers reviewed this literature to develop their program theory and to design the treatment intervention. The goals and objectives of the PTSD RTC are clear and follow the logic of the program's theoretical underpinnings; however, program implementation challenges make it difficult to achieve them.

### Program Implementation

Initial process evaluation findings indicated that facility staff felt they had the capacity and resources to implement the PTSD RTC as designed. Indeed, staff members had completed the PTSD RTC training and were prepared to deliver the treatment to the females. However, as the evaluation progressed, it became apparent that the facilities lacked some of the resources needed to conduct the groups. For example, staff turnover among trained facilitators in the early stages of the evaluation meant that facilities did not run as many groups as intended.

In addition, facilities were frequently conducting groups with females outside of the program's target population. That is, staff ran groups with females who did not have a delinquent classification. Because the PTSD RTC is intended to impact the link between PTSD and delinquency, only females classified as delinquent should have been involved in this treatment. That is not to say that females classified as dependent do not suffer from PTSD and are not engaged in delinquent activities, but they are not the intended target population for this intervention.

Moreover, as noted in Figure 2, four of the females at the treatment sites were released from the facilities prior to completing treatment and another three *may* have been released prior to completing treatment. That is, these females participated in some of the treatment, but were released from the facility "unexpectedly" prior to completing the PTSD RTC group. It was difficult for us to ascertain the exact number of females for whom this was true, because facilities were frequently unable to provide us with information about the exact dates that females entered and exited the facility or started and ended the PTSD RTC groups. Regardless, the early release of females from treatment is a matter for concern because the groups build on one another and research states that participants in the treatment groups tend to "get worse" (i.e., experience more symptoms as they process and discuss their trauma) before they "get better" (i.e., experience fewer symptoms as they learn to manage them) (Hegeman & Wohl, 2000). In addition, facilities removed two females from the PTSD RTC groups before the end of group due to behavioral issues. This raises questions about who the facilities are enrolling in the groups (i.e., did they enroll females who were not capable of participating in treatment either because of

behavioral issues or because of their length of placement?), and what factors determine females' length of time in placement.

These challenges represent deficits in coordination and control within the facilities. Other than the PTSD RTC group leaders, it was unclear whom, if anyone was responsible for monitoring program implementation and who could have addressed issues that interfered with the program. These issues made it very challenging to conduct the consent process and collect data, but more importantly, they represent potential stumbling blocks to program implementation.

#### Evaluability

As noted above, the initiation of PTSD RTC groups within the facilities seemed unpredictable even for the staff conducting groups and left us with the feeling that we were trying to evaluate a moving target. The unpredictability of groups made it difficult for us to accurately determine the number of potential evaluation participants even as the evaluation progressed. Moreover, it was challenging to conduct the consent process with females in these conditions and to collect baseline data.

In addition, facilities often lacked information necessary for us to proceed with the consent process. There were several cases where someone other than a parent was the legal guardian for a female. In such cases, our Institutional Review Board requires us to secure a copy of the court order documenting guardianship if a legal guardian provides consent for a minor female to participate in the study. Often facilities indicated that they do not have copies of these orders in

their records. This is an example of information that should have been available to enroll as many females as possible in a study.

The challenges we encountered as we carried out the study were often exacerbated by the lack of coordinating individuals within the facilities. At many of the sites, our only contact was with the PTSD RTC group facilitators. While most facilitators were quite helpful, they were limited in their ability to predict and control challenges to group implementation and in the evaluation, such as obtaining documentation of guardianship or answering questions regarding females' release dates. Moreover, staff turnover in these positions occurred frequently and often left us with no knowledgeable person to turn to at the facilities for information about the PTSD RTC groups. Unfortunately, there were also times when group facilitators were simply unresponsive to our repeated requests for information. At these times, it would have been helpful to have another person, perhaps someone in a supervisory position, identified to address these issues and assist the group facilitators as needed. The study would also have benefited from having a coordinating body at the state level that could hold sites accountable and provide support as needed. Although the PTSD Demonstration Site seems the logical body to fill this role, it is not clear that this group has the ability to hold the facilities accountable with regard to program implementation let alone participation in the evaluation.



## Recommendations and Conclusions

Our outcome findings regarding the effectiveness of the PTSD RTC are promising but only suggestive and lack generality, due to the limited sample size. The process evaluation produced several findings that must be considered for the sake of program integrity and because of the potential negative consequences for the broader juvenile justice system. These findings should be addressed before conducting future research. Below, we discuss the overall conclusions from the evaluation, broader implications of our findings, and provide recommendations for additional work.

**Our review of the program curriculum indicated that the PTSD RTC is a well-developed guide to treating PTSD in female juvenile offenders that includes many practices that are supported by research** (Zajac & Puzanchera, 2004). Our informal review of the training for PTSD RTC facilitators found that it is also well-designed and thorough. Facilitators were able to conduct groups without straying from the PTSD RTC guidelines, they were very enthusiastic about groups, and are dedicated to the treatment. However, facilities were challenged in their efforts to carry out the groups as intended or to the extent needed to conduct the evaluation.

Although our review showed the PTSD RTC to be a strong curriculum, several challenges must be addressed before facilities can implement the curriculum as intended and before researchers may further evaluate the intervention's effectiveness.

**Project leaders must gain a thorough and accurate understanding of the classification status of females in placement (i.e., Are they dependent, delinquent, or dependent and delinquent?). They should examine how the proportion of delinquent and dependent females has changed in recent years, the reasons for the changes, and how the proportion may change in years to come. This information must be considered by project leaders as they determine treatment needs for these populations and how best to meet these needs using the PTSD RTC model either as-is or in some appropriately modified form.**

Currently, because the PTSD RTC is supposed to interrupt the presumed link between trauma and delinquent behaviors, only females classified as delinquent are to participate in the PTSD RTC groups. However, reports from facilities about the increase in the number of females classified as dependent (and the reported decrease in females classified as delinquent) who are in their care raise questions that may be of interest to the project leaders and future researchers. The following questions should be considered in deciding whether dependent females should be included in the PTSD RTC groups.

- What are the statistics for females' classification status (e.g., delinquent, dependent, or delinquent/dependent)?
- Has the proportion of delinquent to dependent classifications changed in recent years?
- Is it a matter of classification or is it that juvenile females' rates of delinquency are declining?

A report from the National Center for Juvenile Justice (2006) seems to contradict the trend reported by facilities in this study. The report states that nationally, "Between 1985 and 2002, the overall delinquency caseload for females increased 92% compared with a 29% increase for

males” (p. 160). Moreover, this report notes that in the same time period “the number of cases in which the youth was adjudicated delinquent rose 85% and most of these resulted in residential placement or formal placement” (pp. 173-174). Also, “the number of adjudicated cases in which the youth was ordered to residential placement increased 44% from 1985 to 2002” (p. 175). In addition, 18% of females who were adjudicated delinquent were ordered to a residential placement facility.

Statistics for Pennsylvania also show that the number of juvenile court delinquency dispositions involving females increased more than that of males from 1997 to 2003. Delinquency dispositions involving females increased 22% during this period while the increase for males was only 6% (Zawacki, 2005). Project leaders and/or future researchers could investigate these figures for Pennsylvania further to assess whether the proportion of delinquent to dependent female juvenile offenders in placement has shifted over the years and to what extent. It could be that the reported increase in dependent females in residential treatment facilities only holds true for the relatively small number of facilities participating in this study and may not represent the populations of facilities across the state. If a more thorough, statewide investigation shows that the proportion of females classified as delinquents has shifted, project leaders and/or researchers will need to understand the reasons behind this shift and consider what this means for the PTSD RTC and for providing treatment to females in general.

For example, if females classified as delinquent are being placed somewhere other than residential treatment centers, project leaders may ask the following questions:

- What factors influence decisions regarding whether or not a female is ordered to residential placement?
- What is happening with delinquent females if they are not in residential placements?
- Do PTSD project leaders agree with the decisions not to order females classified as delinquent to residential treatment centers? If not, what can be done?
- Are there opportunities to provide the PTSD RTC groups to female juvenile offenders in other settings, if they are not entering residential treatment?
- Could the PTSD Demonstration Site train staff in these other settings?
- How would the treatment need to be altered to serve female juvenile offenders in these other settings?

Alternatively, if residential treatment facilities report an increase in the proportion of dependent females, PTSD project leaders and/or researchers should investigate this population more closely to determine whether they are suitable for participation in PTSD RTC groups. For example, they will need to determine if dependent females who display PTSD symptoms to the extent that they would be eligible to participate in the PTSD RTC groups also have a history of engaging in delinquent behavior, even if they were not charged by the police for these behaviors. If so, and if this can be documented (i.e., that the female displays PTSD symptoms and has a history of engaging in delinquent behavior), then these females could participate in this treatment and could be enrolled in the study, thus increasing the study sample. In future studies regarding the effect

of treatment, researchers should assess if any differences exist between females classified as delinquent and those who are only classified as dependent.

**Once it is determined which females should participate in the PTSD RTC groups, the project leaders and facilities must ensure that females can participate fully in the treatment – in other words, females must remain in placement long enough to complete all of the PTSD RTC sessions.**

A serious challenge that we faced as we carried out the study was that many females were released from the facilities earlier than the facility staff expected. This contributed to the small size of our sample, but it also has broader implications for the juvenile justice system at several levels overall raises questions about the ability of facilities to treat females effectively.

The most immediate consequence of the early/unexpected release of females from the facilities is that they may leave the facilities before completing treatment. This could have serious implications for the females, because research indicates that talking about their trauma may cause females to “get worse” before they “get better” (Hegeman & Wohl, 2000). Although our very limited results did not find that females experienced an increase in PTSD symptoms through the course of their participation in the PTSD RTC groups, the potential for this to occur should be taken into consideration and every effort should be made to only enroll females who can stay in the facilities for the duration of the group.

In addition to the potential harm that may be done to females, there are other system level consequences related to the unexpected release of females. At the facility level, it is not only irresponsible to engage females in treatment that they may be unable to complete, it is an inefficient use of resources. For example, it is a waste of staff members' time to conduct groups that do not run for their intended duration, not to mention the time that staff spend learning how to conduct the treatment. At the level of the justice system in general, one could assume that, if there is a link between PTSD symptoms and delinquency and if the PTSD RTC proves to be effective, releasing females from facilities before addressing these issues may mean that a female remains on a delinquent path that eventually leads her back into contact with the justice system. Thus, a failure to keep females in placement long enough to complete treatment may result in her never leaving the system for very long.

Before researchers study the PTSD RTC further, the project and/or facilities must be able to maintain females in placement long enough to complete treatment and the necessary study components. Females' unexpected departure from the facilities decreased our sample size by as many as a dozen females at the treatment sites and by three times as many females at the comparison sites. For future research to evaluate the effectiveness of the PTSD RTC, females must remain in the facilities long enough to complete both pre- and post-assessments.

We are in the process of investigating factors that determine females' lengths of stay in facilities. We will be surveying facilities that are currently utilizing the PTSD RTC to explore issues such as,

- Who/what body decides how long females remain in placement?
- What factors are considered in these decisions?
- What influence do facilities have on decisions regarding females' lengths of stay?

Through this survey, we intend to identify where the system may be preventing facilities from carrying out the PTSD RTC groups as intended and preventing females from participating in treatment fully. PTSD project leaders may use this information to address system-wide issues that are obstacles to implementing and evaluating the PTSD RTC. We will summarize the survey results and submit them to PCCD and the PTSD project leaders as an addendum to this report.

**If the PTSD RTC is to succeed, and if that success is to be measured in a meaningful way, it is necessary to support facilities so they can carry out the treatment as intended and participate in evaluation activities. A central body must be responsible for providing this support and for holding facilities accountable.**

Regardless of whether the PTSD project leaders choose to partner with researchers to further study the PTSD RTC, it is essential that issues related to program implementation, group enrollment, and females' length of stay in the facilities be addressed at a program level if the PTSD RTC is to be implemented efficiently and with integrity across facilities. Moreover, there

is a need for an entity to offer support and guidance to facilities and to also hold facilities accountable for implementing the treatment as intended. To address these issues there is a need for a coordinating/controlling body at a statewide level as well as coordinating point person within each facility.

The Demonstration Site is the logical group to conduct such oversight at the state level as they already engage in these activities when they coordinate PTSD RTC trainings, organize PTSD related conferences, and monitor group implementation at the various facilities to some extent. However, it is unclear how the Demonstration Site holds facilities accountable if they find that the facilities are not conducting groups as intended. Moreover, in the case of the evaluation study, although the Demonstration Site required facilities to participate in the study as a condition of receiving the PTSD RTC training, we found that the quality and level of their participation varied greatly. For the program and future research to run more smoothly, there must be a state level entity in place that can:

- Assess the capacity of facilities to implement the PTSD RTC groups, including identifying and engaging someone in a supervisory position within the facility who can act as a contact person.
- Monitor the implementation of groups on an ongoing basis.
- Provide ongoing training and support to facilities so that they can implement the PTSD RTC groups as intended, including assessing potential participants and dealing with issues of females' unexpected release from the facilities, and overcome any challenges they may face.
- Provide support to the researchers to help them coordinate with the facilities.



- Hold facilities accountable if they fail to conduct PTSD RTC groups as intended and/or participate fully in the evaluation.

It is our sincere hope that the PTSD project leaders and the Pennsylvania Commission on Crime and Delinquency consider the findings and recommendations we have provided in this report.

We believe that the PTSD RTC is a strong curriculum with great potential. By addressing the issues that were revealed through this study, the PTSD project leaders will increase the likelihood that facilities will be able to implement the PTSD RTC as intended thereby allowing researchers to conduct the thorough evaluation that the program deserves.

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