

## Structured Sensory Therapy (SITCAP-ART) for Traumatized Adjudicated Adolescents in Residential Treatment

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## Abstract

This randomized controlled study assessed the efficacy of a structured group therapy for traumatized, adjudicated adolescents in residential treatment. Youth were randomly assigned to a trauma intervention (SITCAP-ART) or to a waitlist/comparison group. The intervention included both sensory and cognitive/behavioral components. Standardized trauma and mental health measures were used. Study participants demonstrated statistically significant reductions in trauma symptoms, depression, rule breaking behaviors, aggressive behaviors and other mental health problems.

In recent years descriptive research evidence suggests that trauma and posttraumatic stress disorder (PTSD) is a significant psychological and emotional dysfunction manifest among populations in residential treatment organizations. Between 24 percent and 51 percent of male juvenile offenders exhibited symptoms of PTSD (Berton & Stabb, 1996, Burton, Foy, Bwanausi, Johnson & Moore, 1994). Similarly, 49 percent of female juvenile offenders demonstrated symptoms of PTSD (Cauffman, Feldman, Waterman, & Steiner, 1998). Foy et al indicate that the prevalence of post-traumatic stress disorder among adolescents is a function of the maltreatment, abuse, neglect and violence to which they are exposed (Foy, Madvig, Pynoos, & Camilleri, 1996). In 2001, the National Clearinghouse on Child Abuse and Neglect documented that almost one million children were identified by state child protective service agencies to be victims of child abuse and neglect. "More than half of child victims (57 percent) suffered neglect; 2 percent suffered medical neglect; 19 percent were physically abused; 10 percent were sexually abused; and 7 percent were psychologically maltreated" (National Clearinghouse on Child Abuse and Neglect Information, 2001, p.2).

For many of these maltreated children and adolescents, the trauma that maltreatment produces has a significant impact on their emotional, behavioral and cognitive functioning (Massachusetts Citizens for Children, 2001). As a result of the emotional, behavioral and cognitive deficits influenced by trauma, many children and adolescents develop dysfunctional coping mechanisms that may take the form of oppositional, defiant and aggressive behavior (Jacobs, 2005). Van Dalen (2001) suggests that many untreated traumatized children and adolescents demonstrate drug and alcoholic dependency as well as repeated delinquent behavior leading to adult criminal behavior.

Cognitive/behavioral therapies have been in widespread use to treat children and adolescents who have been traumatized. In fact, cognitive/behavioral therapy has been recommended as the "best practice" approach by the International Society for Traumatic Stress (Ovaert, Cashel, & Sewell, 2003) and American Academy of Child and Adolescent Psychiatry (AACAP, 1998). However, because of the cognitive distortions and deficits produced by traumatic events, it may be more difficult and potentially less effective to treat children and adolescents using only cognitive/behavioral therapy. It is the authors' belief that the effectiveness of cognitive/behavioral therapy may be enhanced with the inclusion of sensory-based activities.

Therapeutic events and terror produce arousal that a neurophysiological response to trauma. Therefore, a traumatized child or adolescent's predominant processing of the trauma will be in the mid and limbic areas of the brain, which deal with non-verbal information (Perry, 2006). Trauma is processed to a lesser extent in the neocortex area of the brain that involves reasoning, linear thinking, analysis, the ability to make sense of the experience.

The child or adolescent who remains or is frozen in a state of arousal due to past or current trauma has difficulty using cognitive processes. This happens when the stress hormones released during arousal impact the part of the brain responsible for these processes. For example, in an aroused state, it is difficult to process information, make sense out of one's trauma experience, and identify and verbally express one's emotions. Memory and the ability to attend, focus and retain information are also diminished. These cognitive deficiencies suggest the need for non-cognitive approaches to help children overcome or minimize the learning, emotional and behavioral problems deriving from the traumatic arousal.

Memory has two functions - implicit and explicit. Explicit memory sometimes referred to as declarative memory refers to primary cognitive processes. In explicit memory children and adolescents have access to language and can use words to describe what they are thinking and feeling. Explicit memory allows children and adolescents to process information, to reason, to make sense of their experience. These cognitive processes facilitate coping with traumatic arousal.

Sensory-based therapeutic activities are necessary to assist with the processing of the implicit memories of trauma and to restore more effective emotional functioning. When more effective emotional functioning is restored, cognitive/behavioral therapeutic activities can more effectively develop clearer thinking and positive coping strategies. The *Structured Sensory Intervention for Traumatized Children, Adolescents and Parents – At-risk Adjudicated Treatment Program* (SITCAP-ART), structured trauma treatment approach, which is the focus of this article, utilizes a series of drawing tasks and treatment specific questions that target the major sensations which are experienced in a traumatic event (e.g., terror, fear, worry, powerlessness). The premise of SITCAP-ART is that traumatic memories are experienced at a sensory level and must be reactivated in a safe environment in order to be moderated and tolerated with a sense of power and feeling of safety.

The purpose of this article is to report on a controlled research study to demonstrate the efficacy of a structured group therapy for adjudicated youth in residential treatment - *Structured Sensory Intervention for Traumatized Children, Adolescents and Parents – At-risk Adjudicated Treatment Program* (SITCAP-ART). The facility that participated in the study was the Multi-County Juvenile Attention Center, Ohio in collaboration with Northeast Ohio Behavioral Health, North Canton and Cuyahoga Falls, Ohio.

## **TRAUMA INTERVENTION PROGRAM**

SITCAP-ART is a modification of *Structured Sensory Intervention for Traumatized Children, Adolescents and Parents (SITCAP)*, (Jacobs & Steele, 2003). The SITCAP-ART model is a comprehensive treatment approach designed to diminish the terror that exposed individuals experience and facilitate feelings of safety. When trauma

reactions are normalized, the distinction between trauma and grief is emphasized. This structured protocol provides a session-by-session, situation-specific (e.g., school vs. agency) guide to intervention. It is appropriate for individuals who have experienced violent or non-violent trauma and is age-specific (preschoolers, 6 to 12 year olds, adolescents, and adults). Focusing on themes such as ‘hurt and ‘worry’ that accompany both violent and non-violent types of trauma enhances the generalizability of the model. The parent component encourages a supportive caretaker response and addresses past and present traumas in the parent’s life (Steele & Raider, 2001). SITCAP-ART is designed specifically for adjudicated youth integrates cognitive strategies with “sensory” and “implicit” strategies. SITCAP-ART is designed to achieve the successful cognitive re-ordering of traumatic experiences in ways that move adjudicated adolescents from victim to survivor thinking and in ways that allow them to become more resilient to future traumas. With increased cognitive functioning resulting from sensory based processing, the adolescent has a greater chance of benefiting from intervention that addresses the maladaptive coping behaviors characteristic of adolescents who have experienced long-term trauma reactions.

### **The Program: Sessions**

The program consists of 10-11 sessions, depending upon the progress made with each session. Seven of the sessions are group sessions and it is recommended that each group is comprised of no more than six participants. In the study all groups consisted of six adolescents. In addition, there is one individual debriefing session, one individual processing session and one parent/adolescent session. Each group session is scheduled for one hour and fifteen minutes.

The goals of SITCAP-ART are:

- Stabilization (return to previous level of functioning or prevention of further dysfunction);
- Identification of PTSD reactions;
- The opportunity to revisit the trauma in the supportive, reassuring presence of an adult (professional) who understands the value of providing this opportunity;
- An opportunity to find relief from trauma-induced terror, worry, hurt, anger, revenge, accountability, powerlessness, and the need for safety;
- An opportunity to re-establish a positive “connectedness” to the adult world;
- Normalization of current and future reactions;
- Support of the heroic efforts to become a survivor rather than a victim of their experience;
- When appropriate, assistance for parents in resolving those reactions triggered by their child’s traumatization;
- Replacement of the traumatic sensory experience with positive sensory experiences;
- Identification of additional needs and recognition of the role parents can take to help meet those needs;
- The provisioning of parents with ways to respond to their traumatized child’s reactions.

## **The Initial Session: Education**

In this program, education is critical to recovery and it is also the first step in creating a sense of empowerment and safety for participants. Structuring statements, which provide the program facilitator with specific wording, are used at intake, and clearly identify how the process works, what will be expected, and what outcome can be anticipated. The time devoted to “structuring” the process helps to reduce anxiety. It also helps victims to make an informed consent. All too often interveners simply move directly into treatment without addressing the implications for the client. The client is not prepared to really confirm, “Yes, this is what I want.” SITCAP-ART uses specific resource materials for this educational component to ensure the adolescent has some sense of what he is about to experience as well as learn.

It is also of value to mention that, participants consistently report in final session surveys that the trauma educational component, that is included in all TLC trauma programs, has been extremely helpful and encouraging to them.

A key reason for this, observed by Ms. Jacqueline Jacobs, is that many of the adjudicated youth come to the SITCAP-ART program with a belief that they lack intelligence because of the historical difficulty they tend to have with their academic progress. Many of these juvenile offenders also have a belief, because of the long-term nature of their trauma reactions, that they have a mental illness which they have no chance of escaping. Without the understanding of the role that trauma has played in their learning and cognitive abilities, these adolescents are left to adopt these negative beliefs that can have a devastating impact on their self-esteem and sense of motivation.

Therefore, because of the importance of both the adolescent and parent understanding the connection between their trauma experience and learning and cognitive abilities, the SITCAP-ART program contains, in addition to the trauma education provided as part of the program, a simple and brief presentation which educates both the adolescent and the parents on the psychophysiology of trauma (i.e. brain and the survival response), and how it relates to the symptoms experienced as a result of the traumatic exposure. Once the participants understand the link between the trauma experience and the difficulty they are experiencing with concentration, memory and learning, as well as other symptoms such as insomnia, fear and anger, they tend to feel more hopeful about their abilities and more confident that they can overcome their trauma reactions and regain a sense of well being.

Participants also learn to recognize the link between their trauma experiences and delinquent behavior (aggression, defiance, substance abuse, and truancy). In addition, during this short, 10 to 11 week session program, most participants learn that they can begin to feel better with proper intervention. With many of the adjudicated participants, this knowledge and understanding play a role in improving an adolescent’s sense of hope and sense of self and the willingness of many participants to be more cooperative and open to additional therapeutic interventions which are often needed to assist with the relearning of more appropriate and healthy behavior patterns.



### **The Second Session: Debriefing**

Each adolescent is scheduled for one-hour trauma debriefing session prior to beginning the group sessions. Debriefing is not recommended in a group setting so adolescents can identify those experiences they do not want others to know about yet they learn how these can be dealt with “anonymously” in a group setting. The debriefing session is a critical first step in helping to reduce the adolescent’s trauma reactions as well as anxiety about the group process. It is therefore, important that the adolescent has your undivided attention.

This is an abbreviated debriefing session, which provides the adolescent with an opportunity to confidentially revisit their trauma in the supportive, reassuring presence of an adult. It alleviates the need for the adolescent to reveal difficult details in the group sessions as well as helps to normalize the adolescent’s experiences. It also becomes an opportunity through the use of specific questions to redirect the adolescent’s understanding of the impact that this experience has had on their life and how this intervention process will help bring the adolescent relief from the trauma specific symptoms.

### **Sessions Three – Eight: Focus on Themes, Not Behavior**

SITCAP-ART focuses on major experiences, sensations or themes of trauma throughout the process shifting the adolescent from victim thinking to survivor thinking. This process, therefore, does not direct itself to attempting to treat behavior, but rather the sensory experiences of trauma that fuel and drive the adolescent’s behavior. To accomplish this the intervener must remain in role of the witness versus clinician. To be a witness, the intervener must be involved in the adolescent’s telling of their experience by being curious about all that happened. To engage this “witness” role, the intervener must be very concrete and literal in response to all the elements of the experience, its details and the visual representations provide by the adolescent. If the intervener attempts to make sense of the adolescents’ emotional status by analyzing “why” they will not be able to experience the trauma as they are experiencing it. They will not “know it” as the adolescent knows it, and the adolescent will not experience the intervener as a witness, as someone who is with them in their experience. They will sense that they are alone and will withdraw to protect themselves. Part of becoming a witness is seeing how the victim now views themselves and the world around them following the trauma. To see what the victim sees is to understand and know what will be helpful. Because trauma is a sensory experience the memory is often stored symbolically. Images – how they look at themselves and the world around them – defines what the trauma was like. A brief example might be the traditional therapeutic role of a therapist analyzing how a youngster is thinking or feeling instead of simply asking, “Of all the things that are going on in your life right now what is your biggest worry?” For some adolescents what the therapist might think may be a major concern related to the incidents the adolescent has been exposed to, may be completely different from what the adolescent is experiencing as a result of their exposure.

## **Drawing**

Drawing is a major component of SITCAP-ART. The experience of trauma is stored in implicit memory and is transcribed into iconic representations/visualizations. Iconic symbolization is the process of giving our experience a visual identity. Images are created to contain all the elements of that experience - what happened, our emotional reactions to it, the horror and terror of the experience. The trauma experience therefore is more easily communicated through imagery. “When a terrifying incident such as trauma is experienced and does not fit into a contextual memory, a new memory or dissociation is established” (van der Kolk, 1996, p. 287). When memory cannot be linked linguistically in a contextual framework, it remains at a symbolic level for which there are no words to describe it. To retrieve that memory so it can be encoded, given a language, and then integrated into consciousness, it must be retrieved and externalized in its symbolic perceptual (iconic) form (Steele, 2003).

In order to access this experience we must therefore use "sensory" interventions that allow adolescents the opportunity to actually make us witnesses to their experiences, to present us with their "iconic" representations, to give us the opportunity to see what they are now seeing as they look at themselves and the world around them following their exposure to a traumatic experience. In this sense “a picture is worth a thousand words”. Drawings provide a representation of those “iconic” symbols that implicitly define what that experience was like for the adolescent, how that adolescent now views themselves and those around them. Drawing becomes a vehicle for communicating and externalizing what that experience was like.

- Drawing is a psychomotor activity. Because trauma is a sensory experience, not a cognitive experience, intervention is necessary to trigger those sensory memories. Drawing triggers those sensory memories when it is trauma focused. It provides a safe vehicle to communicate what children, adolescents, and even adults, often have few words to describe.
- Drawing engages the adolescents in the active involvement with their own healing. It takes them from passive to an active, directed, controlled externalization of that trauma and its reactions.
- Drawing provides a symbolic representation of the trauma experience in a format that is now external, concrete, and therefore manageable. The paper acts as a container of that trauma.
- Drawing provides a visual focus on details that encourage the client via trauma-specific questions, to tell his story, to give it a language so it can be reordered in a way that is manageable.
- Drawing also provides for the diminishing of reactivity (anxiety) to trauma memories through repeated visual re-exposure in a medium that is perceived and felt by the client to be safe.

## **Details**

Obtaining details is another very important component of the SITCAP-ART process as it helps to make sense of the experience. Trauma specific questions have been designed to help in the telling of the story and the provision of those details that allow

intervener witnesses to better understand what the experience has been like for the adolescent. For the victim, details can provide a sense of control as well as sense of relief. For the intervener, details can point the way to helping the adolescent find relief. The structure of SITCAP-ART keeps the intervener and adolescent focused on details as a way of being able to later “see” the experience differently, to cognitively reframe it in a way that is manageable. Details also can provide information that helps to make sense out of what happened and may still be happening with the adolescent.

### **Trauma-specific Questions**

Questions are directed to trauma themes and focus on trauma sensations, and are also directed to the details of the trauma incident itself. Following are some examples:

- “What do you remember seeing or hearing?” relates to the overall sensory imploding of detailed components of the trauma.
- “Do you sometimes think about what happened even when you don’t want to?” deals with intrusive thoughts.
- “Do certain sounds, sights, smells, etc., sometimes suddenly remind you of what happened?” refers to startle reactions.
- “What would you like to see happen to the person (or thing) that caused this to happen?” deals with anger and revenge.
- “Do you sometimes think it should have been you instead?” is an accountability (survivor guilt) question.

Multiple questions are asked because the specific trauma reference may be worry, not anger, or revenge. The adolescent’s trauma reference may be about the hurt experienced at a sensory level not the physical level. It may be accountability for some, fear for others. SITCAP-ART encourages the systematic presentation of all questions and attention to all themes to give the victim the opportunity to make the intervener a witness to the adolescent’s specific trauma reference.

### **Cognitive Reframing**

Cognitive reframing is scripted in SITCAP-ART to insure that the victim is provided a “survivors” way of making sense of their trauma experiences. The goal is to help move participants from “victim thinking” to “survivor thinking” which leads to empowerment, choice, and active involvement in their own healing process and a renewed sense of safety and hope.

Activities also assist in supporting the reframing of the experience in ways that are more manageable for them. Therapies that engage “explicit” cognitive processes are likely to be ineffective when traumatized adolescents are in the state of intense fear or terror. Steele (2003) Stein & Kendall (2004) and others now agree that adolescents must re-experience a sense of safety from and control (regulation) over those reactions induced by trauma before they can actually engage those explicit processes which are needed for cognitive restructuring-the reordering of the experience in a way they can now manage; in a way that this memory now becomes a resource versus a memory to be avoided.



For example, “Your experience has left you worried about what might happen next, this is certainly normal, but keep in mind, no storm comes to stay forever, your worry will in time also leave.”

### **Parent, Foster Parent, Guardian, Primary Caregiver and Therapist Involvement**

Parents, foster parents, guardians, primary caregivers and therapists generally underestimate the impact trauma has on adolescents. Learning about trauma helps them to more adequately respond to the adolescent. Education is also helpful for primary caregivers who themselves have been traumatized. Education is an essential, necessary component to help them become aware of how their own unresolved traumas block their abilities to allow the adolescent to feel safe with them. Primary caregivers with their own history often discover that the adolescent’s experience threatens to bring all the terror of their own experience back to life. Unknowingly, they reject their adolescent’s cry for help or minimize the adolescent’s terror in hopes of avoiding their own fears and anxieties. It is important for the primary youth workers and clinicians in these settings to also have the same education and an understanding of trauma to avoid the same issues facing primary caregivers. This is a primary reason why the SITCAP-ART program is structured for the trauma specialist or clinician as it is for the adolescent.

### **Method**

The research was conducted at the Multi-County Attention Center in Ohio. The therapist was Margaret De Lillo-Storey, a staff member of Northeast Ohio Behavioral Health Center. Ms. Storey was trained in SITCAP-ART and certified by the Trauma and Loss Institute, which was the developer of the treatment model. To assure that each therapy session was conducted in compliance with the SITCAP-ART Model, Ms. Storey completed a Fidelity of Treatment Checklist (FTC). Analysis of the checklists indicated 98.5 percent Fidelity with the manualized treatment model. The Multi-County Attention Center clinical staff identified youth with documented multiple trauma exposure were recruited to participate in the research study. Two thirds of research participants were between 16 and 17 years of age. Eleven were male and nine were female. Most were white (85 percent). There was one Hispanic participant. The most frequently reported problems that contributed to placement in residential facility were behavior problems at home, criminal behavior, alcohol/substance abuse, behavior problems at school, and attachment problems. The most frequently documented trauma exposure were psychological maltreatment, physical maltreatment, sexual maltreatment, domestic violence, neglect, traumatic loss, and separation. Three quarters of research participants experienced multiple trauma. Fifty-five percent of the research participants have been assessed to have PTSD and twenty percent traumatic or complicated grief. Youth and parents/guardians participated in an educational session in order to provide complete information about the SITCAP-ART trauma treatment program. Participation was voluntary requiring approval of both youth and parent/guardians. Both youth and their parents/guardians signed informed consent forms approved by Wayne State University Human Investigation Committee.

The group of research participants completed three instruments. The instruments were the Trauma Symptom Checklist for Children (TSCC-A) (Briere, 1996), the Youth Self Report (YSR) (Achenbach & Rescoria, 2001), and the Child and Adolescent Questionnaire (CAQ) developed by the authors (Steele & Raider 2001). In addition, the youth therapist, utilizing the Youth's clinical case record completed clinical data form that gathered information on demographics, trauma exposure, and severity of symptoms, services utilization, and limited information about domestic environment.

Research participants were randomly assigned to two groups. The first group began immediate group treatment utilizing the SITCAP-ART program. The second group was the comparison/control group that remained on the waitlist for treatment and received the SITCAP-ART program identical to the treatment group when the treatment group had completed treatment (approximately ten weeks). Youth assigned to the comparison/control waitlist group were contacted bi-weekly by the group therapist, Ms. De Lillo-Storey in order to monitor any changes, escalations, and/or life event which required immediate intervention. Upon completion of the SITCAP-ART program, the treatment group completed the CAQ, TSCC and the YSR. The waitlist group completed these instruments as well at that time. After the waitlist group completed the SITCAP-ART program, they completed the CAQ, TSCC and YSR.

### Measures

The Trauma Symptom Checklist for Children (TSCC-A) is a standardized self-report measure of post-traumatic and related symptoms for children 8 to 16 years of age. The instrument can be used with children as young as 7 and adolescent as old as 17 (Briere, 1996). The instrument was developed to assess symptoms of children who have experienced traumatic events, not to assess the DSM-IV-TR (American Psychiatric Association, 2000) construct of PTSD specifically (National Child Traumatic Stress Network, 2007). The version of the instrument utilized in this study evaluates children's responses in five symptom domains: anxiety, depression, anger, post-traumatic stress, and dissociation. Dissociation has two subscales overt dissociation and fantasy. The five scales all demonstrate high internal consistency reliability ( $\alpha = .82 - .87$ ). A convergent validity study (Evans, et. al., 1994) correlating the TSCC and the Child Depression Inventory (CDI) demonstrated a moderate correlation of .68 with the TSCC depression scale. The TSCC was also correlated with the revised Children's Manifest Anxiety Scale (RCMAS) correlations were moderate range from .51 - .63.

The Youth Self Report (YSR) is a standardized self-report measure that assesses problem behaviors in two summary domains: internalizing and externalizing (Achenbach, and Rescoria, 2001). These summary domains are comprised of eight symptom scales: anxious/depressed, withdrawal/depressed, somatic complaints, social problems, thought problems, attention problems, rule breaking behavior, and aggressive behavior. The YSR is designed to assess problem behaviors of children and adolescents 11 to 18 years of age. The YSR is a parallel instrument to the Child Behavior Checklist (CBCL). The YSR is one of the most widely used instruments in research that measures child and adolescent problem behaviors. Test/retest reliability is high ( $\alpha = .87$ ), internal consistency is very high ( $\alpha = .95$ ). Construct validity when used in conjunction with the CBCL is high ( $\alpha = .85 - .89$ ).

The Child and Adolescent Questionnaire (CAQ) (Steele & Raider, 2001) is a self-report measure of post-traumatic stress symptoms as specified in the DSM-IV (APA, 1994). The CAQ was developed by Steele and Raider and is a modification of the Child PTSD Reaction Index (Frederick, Pynoos & Nader, 1992). The CAQ consists of 35 Likert-type questions comprising three scales. Scale I is the re-experiencing of the traumatic event, Scale II is avoidance of stimuli associated with the traumatic event, and Scale III is symptoms of increased arousal due to the traumatic event. In previous research (Steele & Raider, 2001), internal consistency reliability was assessed at intake, termination and three-month follow-up utilizing Cronbach's alpha. Reliability of the re-experience traumatic event scale of the CAQ was high  $\alpha = .82$  at intake,  $\alpha = .86$  upon completion of intervention and  $\alpha = .87$  at three month follow-up. Reliability of the avoidance scale of the CAQ was high at  $\alpha = .78$  at intake,  $\alpha = .80$  upon completion of the intervention, and  $\alpha = .82$  at three month follow-up. Reliability of the arousal scale of the CAQ was moderate at  $\alpha = .73$  at intake,  $\alpha = .75$  upon completion of the intervention, and  $\alpha = .76$  at three-month follow-up.

Raider and Steele utilizing data from the study under discussion as well as data from another controlled study assessing the efficacy of SITCAP-ART with adjudicated youth in a community setting in Georgia, correlated TSCC-A scores with CAQ.

**CORRELATION OF CHILD AND ADOLESCENT QUESTIONNAIRE (CAQ) AND TRAUMA SYMPTOM CHECKLIST FOR CHILDREN-A (TSCC-A) CLINICAL SCALES** N = 44

	<b>TSCC Total</b>	<b>Anxiety</b>	<b>Depression</b>	<b>Anger</b>	<b>Post-Traumatic Stress</b>	<b>Dissociation</b>	<b>Dissociation Overt</b>	<b>Dissociation Fantasy</b>
<b>Re-experiencing</b>								
Pearson r	0.650**	0.654**	0.600**	0.275	0.659**	0.572**	0.524**	0.535**
<b>Avoidance</b>								
Pearson r	0.634**	0.595**	0.577**	0.408**	0.520**	0.591**	0.578**	0.465**
<b>Arousal</b>								
Pearson r	0.677**	0.593**	0.880**	0.534**	0.572**	0.593**	0.571**	0.490**
<b>CAQ Total</b>								
Pearson r	0.671**	0.595**	0.633**	0.404**	0.594**	0.602**	0.589**	0.474**

\*\*  $p < 0.01$

Correlation of the CAQ total score with TSCC-A total score was good ( $r = .671$ ,  $p = < 0.1$ ) and demonstrated statistical significance. Similarly the CAQ total score correlated with the TSCC individual scales produced correlations which were good and all statistically significant except for anxiety which had a low correlation ( $r = .404$ ,  $p < 0.01$ ). CAQ scale scores were also correlated with the TSCC scale scores. Correlations were good and statistically significant ( $p < 0.01$ ). However, the re-experiencing scale of the CAQ demonstrated a low correlation with the TSCC anger scale ( $r = .275$ ,  $p = < 0.05$ ). The strongest correlations were achieved in comparing the re-experiencing of traumatic events scale of the CAQ and the TSCC anxiety scale ( $r = .654$ ,  $p = < 0.01$ ), depression scale ( $r = .600$ ,  $p = < 0.01$ ), and the post-traumatic stress scale ( $r = .659$ ,  $p < 0.01$ ). Generally, it may be concluded that the Child and Adolescent Questionnaire (CAQ) demonstrated acceptable convergent validity with the Trauma Symptom Checklist for Children-A (TSCC-A).

## Results

### Trauma Symptom Checklist for Children (TSCC-A)

Table I and Table II reflects paired t-tests for the seven scales of the TSCC. Table I reflects results of changes in scales from pre-test to post-test for the Control Group. The Control Group did not demonstrate statistically significant changes ( $p = < .05$ ).

Table II reflects results of changes in the seven scales. The TSCC from pre-test to post-test for the Treatment Group (1<sup>st</sup> Treatment Group and Waitlist Crossover). The Treatment Group demonstrated statistically significant reduction for symptoms in the anxiety, anger, dissociation, dissociation overt scales ( $p = < .05$ ). A very impressive reduction in symptoms in the post-traumatic stress scale was achieved ( $p = < .01$ ).

TABLE I – TRAUMA SYMPTOM CHECKLIST FOR CHILDREN (TSCC)

Paired t-test N = 9

CONTROL GROUP (WAITLIST)

Scale	Mean Pre-Test	Mean Post-Test	Mean Difference	t	Sig (12 tailed)
Anxiety	16.00	12.44	3.57	1.242	0.249
Depression	14.89	12.11	2.78	1.927	0.090
Anger	16.33	14.00	2.33	1.373	0.207

Post-Traumatic Stress	20.78	15.78	5.00	1.917	0.092
Dissociation	18.11	15.56	2.56	0.890	0.400
Dissociation Overt	12.22	11.22	1.00	0.524	0.614
Dissociation Fantasy	5.89	4.33	1.56	1.346	0.215

TABLE II – TRAUMA SYMPTOM CHECKLIST FOR CHILDREN (TSCC)  
Paired t-test N = 20  
TREATMENT GROUP (1<sup>ST</sup> TREATMENT AND WAITLIST CROSSOVER)

Scale	Mean Pre-Test	Mean Post-Test	Mean Difference	t	Sig (2 tailed)
Anxiety	10.30	7.50	2.8	2.525	0.021 *
Depression	11.25	9.00	2.25	1.779	0.091
Anger	13.60	10.05	3.55	2.406	0.026 *
Post-Traumatic Stress	13.85	10.30	3.55	2.891	0.009 **
Dissociation	13.00	9.35	3.65	2.265	0.035 *
Dissociation Overt	9.75	6.70	3.05	2.877	0.010 *
Dissociation Fantasy	3.25	2.65	0.600	0.993	0.333

\*  $p < .05$

\*\*  $p < .01$

#### Child and Adolescent Questionnaire (CAQ)

Table III and Table IV reflect paired t-tests for the three trauma scales in the CAQ. Table III reflects results of pre-test and post-test comparisons for the Control Group. Changes from pre-test to post-test for all scales did not achieve statistical significance ( $p < .05$ ).



Table IV reflects results of the pre-test to post-test comparisons for the Treatment Group. The Treatment Group demonstrated very substantial reductions in trauma symptoms for all three scales. The re-experiencing and avoidance scales demonstrated highly statistically significant reductions in symptoms ( $p = <.01$ ).

TABLE III – CHILD AND ADOLESCENT QUESTIONNAIRE (CAQ)  
Paired t-test N = 9  
CONTROL GROUP

Scale	Mean Pre-Test	Mean Post-Test	Mean Difference	t	Sig (2 tailed)
Re-experiencing Traumatic Event	38.11	34.89	3.22	0.619	0.553
Avoidance of Stimuli of Traumatic Event	39.22	39.22	0.00	0.000	1.000
Symptoms of Arousal Due to Traumatic Event	33.67	30.56	3.11	0.695	0.506

TABLE IV – CHILD AND ADOLESCENT QUESTIONNAIRE (CAQ)  
Paired t-test N = 20  
TREATMENT GROUP (1ST TREATMENT GROUP AND CROSSOVER WAITLIST)

Scale	Mean Pre-Test	Mean Post-Test	Mean Difference	t	Sig (2 tailed)
Re-experiencing Traumatic Event	31.75	21.25	10.500	5.214	0.000**
Avoidance of Stimuli of Traumatic Event	36.90	22.05	14.850	5.732	0.000**
Symptoms of Arousal Due to Traumatic Event	28.95	20.5	8.450	4.413	0.000**

\*\*  $p = < .01$

## Youth Self Report (YSR)

Table V and Table VI reflects paired t-tests for changes in syndrome scales on the YSR. Table V reflects results of the pre-test to post-test comparisons for the Control Group. The Control Group did not demonstrate any statistically significant changes in symptoms in syndrome scales.

Table VI reflects results of pre-test and post-test comparisons for the Treatment Group, which includes the original Treatment Group as well as the waitlist group. (N = 19). As specified in the crossover protocol, the waitlist group received treatment after the original Treatment Group completed the SITCAP-ART interventions.

The anxious/depressed, withdrawn/depressed, thought problems, behavior, internalizing behavior, externalizing behavior and total problems scales reflected reductions in symptoms and achieved statistical significance ( $p = .05$ ). The rule breaking and aggressive behavior scales demonstrated impressive reductions in symptoms and achieved statistical significance at the  $p = <.01$  level.

The somatic complaints and social problems scales reflected a reduction in symptoms but did not achieve statistical significance. The very impressive reductions in the rule breaking and aggressive behavior scales are of particular importance for residential treatment settings.

**TABLE V - YOUTH SELF REPORT (YSR) SYNDROME SCALES**  
N = 19 Paired t-test  
CONTROL GROUP (WAITLIST)

<b>Scale</b>	<b>Mean Pre-Test</b>	<b>Mean Post-Test</b>	<b>Mean Difference</b>	<b>t</b>	<b>Sig (2 tailed)</b>
Anxious/Depressed	11.111	12.333	-1.222	-1.178	0.273
Withdrawn/Depressed	8.778	6.889	1.889	2.089	0.070
Somatic Complaints	10.333	8.889	1.444	0.945	0.372
Social Problems	7.556	9.000	-1.444	-1.050	0.324
Thought Problems	10.111	10.000	0.111	0.144	0.889
Attention Problems	12.111	10.222	1.889	2.163	0.062
Rule Breaking Behavior	16.556	15.333	1.222	0.627	0.548
Aggressive Behavior	17.333	15.889	1.444	1.127	0.292

Internalizing Behavior	27.111	28.111	-1.000	-0.597	0.567
Externalizing Behavior	34.889	31.222	3.667	1.043	0.327
Total Problems	97.000	96.667	0.333	0.055	0.958

TABLE VI – YOUTH SELF REPORT (YSR) SYNDROME SCALES  
N = 19 Paired t-test  
TREATMENT GROUP (1<sup>ST</sup> TREATMENT AND WAITLIST TREATMENT)

Scale	Mean Pre-Test	Mean Post-Test	Mean Difference	t	Sig (2 tailed)
Anxious/Depressed	10.737	7.263	3.474	2.257	0.037*
Withdrawn/Depressed	7.316	5.105	2.210	2.356	0.030*
Somatic Complaints	7.579	5.263	2.312	1.959	0.066
Social Problems	7.842	5.842	2.000	1.688	0.109
Thought Problems	9.947	7.053	2.894	2.475	0.023*
Attention Problems	9.105	6.421	2.684	2.539	0.021*
Rule Breaking Behavior	16.000	9.579	6.421	3.182	0.005**
Aggressive Behavior	16.842	11.000	5.842	3.092	0.006**
Internalizing Behavior	25.579	17.632	7.947	2.396	0.028*
Externalizing Behavior	32.737	20.579	12.158	3.195	0.005**
Total Problems	92.263	63.526	28.737	2.741	0.013*

\* Sig > .05

\*\* Sig > .01

### Dropouts

There were five study participants who dropped out of the research study in the early sessions of the group therapy. Dropouts were similar in demographics to those who completed the program. Pre-test scores on the CAQ and the TSCC were lower on

average than the pre-test scores of those who completed the program. It may be hypothesized that dropouts may have been experiencing fewer trauma symptoms than those who completed the SITCAP-ART program.

## Discussion

The first hypothesis that the treatment group would demonstrate statistically significant reductions in trauma symptoms at the conclusion of treatment was supported. (The comparison/control group did not demonstrate statistically significant reductions in trauma at that time.) The TSCC-A demonstrated statistically significant reductions in anxiety, anger, post-traumatic stress, and dissociation. The CAQ demonstrated statistically significant reductions in the re-experiencing, avoidance and arousal scales.

These results are consistent with the findings of Ovaert et al (2003) who assert was the first controlled study to evaluate the efficacy of a structured cognitive behavioral therapy program for traumatized incarcerated youth. The researchers used a measure of post-traumatic stress PTSD-RI (Frederick, 1982) that is somewhat similar to the CAQ. They did not use the Trauma Symptom Checklist for Children.

The second hypothesis that the treatment group would demonstrate statistically significant reductions in mental health symptoms was supported (The Waitlist/Control Group did not demonstrate statistically significant reductions in mental health symptoms at that time). The Youth Self Report (YSR) demonstrated statistically significant reductions in total problems: depression, anxiety as well as withdrawn, thought problems, attention problems, rule breaking behavior, aggressive behavior, internalizing behavior, externalizing behavior. Very significant reductions were demonstrated for rule breaking behavior, aggressive behavior and externalizing behavior. Aggressive behavior and rule breaking behaviors are highly associated with at-risk adjudicated youth and are behavioral manifestations of the arousal response to trauma victimization (Ford et al, 2006). The reduction of arousal symptoms reported by the TSCC and CAQ are also supported by the YSR's reported reduction of these behavioral manifestations of arousal.

The study discussed earlier (Ovaert et al., 2003) did not demonstrate reductions in symptoms of anxiety, anger and depression. Goenjian (1997), in a study of the outcome of psychotherapy among early adolescents after trauma, similarly did not report reductions in depression after trauma treatment.

The very impressive reduction in mental health problems, especially reductions in rule breaking and aggressive behaviors of SITCAP-ART participants, suggests the hypothesis that sensory based therapeutic activities in combination with cognitive/behavioral therapy is more likely to reduce mental health symptoms among traumatized youth than cognitive/behavioral therapy alone. SITCAP-ART uses sensory-based activities, which are then followed by cognitive reframing and processing. From a neurological standpoint ART initiates intervention that address the implicit (sensory) memories of trauma and only thereafter address the explicit (cognitive) responses to traumatic exposure. For most youth trauma is initially an implicit experience (Steele & Raider, 2001; Steele, 2003; Van Dalen, 2001; Rothschild, 2000; Saigh, 1999; Perry, 1999; Michaesu and Baettig, 1996; van der Kolk, 1987), SITCAP-ART leads to emotional regulation and clearer thinking which allow the youth to better understand how

their traumatic experiences have activated their thoughts and emotions to avoid further victimization by engaging in those behaviors associated with delinquency.

Following implicit processing SITCAP-ART may influence the reintegration of implicit memories with the cognitive reframing of the implicit trauma memories, a “rewriting” or “reordering” of the experiences in ways the child/adolescent can now best manage. It may be hypothesized that the significant gains reported by the TSCC, YSR, and CAQ are the result of the sensory/cognitive integration process of the SITCAP-ART program.

Since completion of the SITCAP-ART group therapy program, therapists and staff members have anecdotally observed positive attitude and behavioral changes in the youth. They are not as negative, less aggressive, and less resistant. There have been no “repeat lock ups” reported for youth who participated in the program. The Superintendent felt so positively with regard to the outcomes of the SITCAP-ART program as to suggest providing the program for all youth in residential placement. Prior to the use of SITCAP-ART in this controlled research study the therapy was field tested in 2005. Eighty-five at-risk adjudicated adolescents in Gainesville and Jasper, Georgia participated in the field test under the supervision of the Juvenile Court. Following SITCAP-ART group therapy field test, in a descriptive satisfaction survey, 100 percent of the 85 participants reported a reduction in trauma symptoms as indicated by a comparison of pre-trauma and post-trauma PTSD scores on a scale of 1 to 10, 90 percent indicated they definitely felt better following intervention using “9” and “10” to rate that difference. One year following this field test, 85 percent of the youth had no additional “criminal” contact with the court.

The results of this study, although impressive, must be viewed as preliminary. The control group was small and the treatment group was of modest size. Further research in additional residential settings is necessary. It is clear that SITCAP-ART has demonstrated value for assisting traumatized adjudicated youth in residential settings with both trauma symptoms and mental health symptoms. “Williams (2002) and Secker, et al., (2004) reported that delinquent youths who experienced dysregulated emotions and survival or victim based information processing will be able to become responsible citizens if they are assisted in gaining the capacity to manage their emotions and think clearly (Ford, et al., 2006, p. 18).” The SITCAP-ART program demonstrated significant gains in these two critical areas.



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