Treatment Efficacy for Conduct Disorder: What is the Best Method of Treatment?

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By

Stephanie Carpenter

WASHINGTON STATE UNIVERSITY – SPOKANE, WA

College of Nursing

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To the Faculty of Washington State University:

The members of the Committee appointed to examine the master’s project of

STEPHANIE CARPENTER find it satisfactory and recommend that it be accepted.

Chair

[Signatures]
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Treatment Efficacy for Conduct Disorder: What is the Best Method of Treatment?

By Stephanie Carpenter, RN

Washington State University

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Chair: Lorna Schumann

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Abstract

Purpose: To identify efficacious methods of treating conduct disorder through an examination of current peer-reviewed, research based literature comparing the different treatment methods for conduct disorder and the barriers to its treatment.

Conclusions: Access to trained providers, educators, and judicial personnel continues to make treating conduct disorder a challenge. There are studies that have shown that treating conduct disorder using combination therapies such as Multisystem Therapy (MST) and medications is effective in managing the signs and symptoms of the disorder.

Implications for Practice: More research is required to examine the long-term outcomes regarding the various methods of treatment. A standardized treatment modality is recommended to include a multisystem therapy approach and pharmacotherapy. Having a standard for treatment provides those caring for children diagnosed with conduct disorder a foundation to work from.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>THEORETICAL FRAMEWORK</td>
<td>1</td>
</tr>
<tr>
<td>LITERATURE REVIEW</td>
<td></td>
</tr>
<tr>
<td>Pathophysiology of Conduct Disorder</td>
<td>3</td>
</tr>
<tr>
<td>Pharmacologic Treatment for Conduct Disorder</td>
<td>5</td>
</tr>
<tr>
<td>Non-Pharmacologic Treatment for Conduct Disorder</td>
<td>7</td>
</tr>
<tr>
<td>Barriers to Treatment</td>
<td>12</td>
</tr>
<tr>
<td>SIGNIFICANCE TO NURSE PRACTITIONERS</td>
<td>12</td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>13</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>14</td>
</tr>
</tbody>
</table>
**Introduction**

The American Psychiatric Association’s (APA), DSM-IV-TR (2000) defines conduct disorder (CD) as “a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated.” CD affects 1-10% of the general population. Studies have shown a higher prevalence of conduct disorder in boys 2% to 16%, than girls 1% to 9% (Antai-Otong, 2008). There are four primary behavioral groups of conduct disorder. The first is aggressive, threatening behavior that results in a threat or actual harm to an individual or animal. The second type is not aggressive toward life; however property is often damaged or lost. The third group is fraught with deceit or theft. The final group centers on serious societal rule violations, such as truancy in the school aged population. Conduct Disorder has two subtypes either childhood-onset, less than 10 years of age or adolescent-onset which is age 10-18 years.

The etiology of conduct disorder is unknown. It is believed to develop from a combination of genetic pre-disposition and environmental factors. Those that develop CD prior to age 10 are more likely to develop antisocial personality disorder as an adult, than those that develop CD during adolescence (“Options for managing conduct disorder,” 2011).

The purpose of this paper is to identify the pathophysiology of conduct disorder, the treatment methods, and the barriers to treatment.

**Theoretical Framework**

Behavioral theories were used to guide this article. There are multiple behavioral theorists. Each of them offers insight into how behavior is learned and guided by the environmental stimuli the person encounters.
According to Skinner (1953) there are two types of behavior. The first is respondent behavior, which occurs when a known, specific stimulus causes a response. Children that come from homes with inconsistent and/or harsh parenting styles often lack attachment to caregivers. Due to the lack of attachment children with CD act out in unacceptable ways for attention (Keiley, 2002). The second is operant behavior, which is behavior that elicits a response or reinforcement from the person or environment. Since the child with conduct disorder often has little to no consistency in their life, behaviors are done to get a response. Rotter (1954) felt that the cognitive process was also linked to the manifested behavior(s) due to the person’s expectations that if a behavior is done then a response either positive or negative will follow. Children and adolescents demonstrate Skinner’s operant conditioning by responding with a maladaptive behavior, say fire setting, when they experience a stimulus, such as a threat of being kicked out of school for misconduct. The behavior is reinforced each time that the child receives attention for these behaviors.

Literature Review

Search Strategies

Cited sources published in English and written primarily in the United States of America were used for this paper. Data bases searched include Cumulative Index to Nursing and Allied Health Literature (CINAHL), EBSCOhost Academic Search Premier, PubMed (a service of the U.S. National Library of Medicine and the National Institutes of health), and Medline via EBSCOhost. Search terms used were: Conduct disorder, treatment, and therapy, conduct disorder boot camp, medications for conduct disorder, risperidone for conduct disorder, clonidine for conduct disorder, antidepressant use for conduct disorder, depakote for conduct disorder, disruptive behavioral disorder, behavioral disorder, and behavioral theory in CD. Fifty -two
articles were reviewed, of those 31 articles were organized into 4 sections: Pathophysiology (4), pharmacologic treatment for Conduct disorder (5), non-pharmacologic treatment of Conduct disorder (12), and barriers to treatment (10).

**Pathophysiology of Conduct Disorder**

The American Psychiatric Association (APA, 2000) defines CD as a persistent behavioral disorder in which the basic rights of others are violated. It is a persistent pattern of behavior that either violates the basic rights of others or major age-appropriate societal norms. The diagnosis of CD is given, if there are three or more criterion met in the last 12 months, with at least one criterion present in the past 6 months.

There are four main groupings in CD with multiple criterions under each. The first group is aggressive behavior that results in the threat of harm or actual harm to another such as bullying or fighting at school. The second grouping is not violent, but causes a loss of property. An example of this would be fire setting. The third grouping involves lying and/or theft. This may be manifested as a child/adolescent that goes out at night and breaks into the neighbors’ house and steals property. The final grouping involves serious rule violations. This may be demonstrated by truancy in school or staying out all night.

In addition to the four main groupings, there are two sub-types of the disorder. The first is childhood onset, which includes children less than age 10 years. Children diagnosed with CD are more likely to develop antisocial personality disorder in adulthood. The second subtype is adolescent onset CD, for ages 10 -18 years that previously did not demonstrate any of the behaviors defined in the DSM-IV-TR (APA, 2000). According to Antai-Ontong (2008), CD has lifetime prevalence in boys of 12% and in girls of 7.1%, in the general population.
The disorder is also further defined by its level of severity. There are three levels of severity defined in the DSM-IV-TR which are “mild, moderate, and severe.” The DSM-IV-TR defines “mild” CD, as patients elicit only a few of the criterion to make the diagnosis. “Moderate” CD patients have more conduct problems which affect others. “Severe” CD patients have excessive behavioral issues which cause substantial harm to others such as weapon use, breaking into homes and forced sexual encounters (APA, 2000).

The pathogenesis of CD is multifaceted. Genetic, familial, and psychosocial factors have been implicated. Antai-Ontong (2008) wrote that researchers believe that those with CD “may inherit hypothalamic-pituitary-adrenal axis activity that requires greater stimulation to achieve optimal arousal.” This means that the patients with CD engage in behaviors to elicit this stimulation. Neurotransmitters such as norepinephrine, dopamine, and serotonin are believed to play a critical role in CD. According to Comings et al. (2000), patients with CD share genes involved in ADHD. The dopamine genes involved in CD are DRD1, DRD2, and DRD5. The serotonin gene is HTR2A. The noradrenergic genes identified are DBH, ADRA2A, ADRA2C, NET, and COMT.

Children/adolescents with certain risk factors or a combination of the risk factors are more likely to develop CD. Risk factors include: children living in poverty, a family history of psychiatric disorders and/or substance use/abuse disorders. Inconsistent, permissive, and/or harsh parenting styles, multiple caregivers, parental marital discord, and a parental history of child abuse. CD is not only attributed to the genetic makeup of the individual, but also the way the family members have learned or not learned to parent and cope with stressful situations. The family often does not have the appropriate tools such as, adaptive coping mechanisms, to be able to effectively parent the child. Without a strong, positive, and consistent role model the children
learn maladaptive coping mechanisms, such as aggression, violence, and truancy. Children with CD often struggle with peer relationships. Those diagnosed with childhood-onset have more challenges with peer attachment than those patients diagnosed as an adolescent. This is thought to be because the adolescent subtype patients had 10+ years to develop attachments (Townsend, 2012).

**Pharmacologic Treatment for Conduct Disorder**

Pharmacological treatment for CD has been controversial. One literature review article by Tscheremissine and Lieving, (2006) explored the efficacy of CD treatment with the use of antipsychotics, antidepressants, mood stabilizers, antiepileptic drugs, stimulants, and adrenergic drugs. They found that all of these medication classifications decreased behavior symptoms of CD to some degree.

When using antipsychotics in children it is important to keep in mind that a thorough psychiatric and physical evaluation needs to be done to diagnose CD. Youths should be monitored while on therapy to determine the medications effectiveness and side effects. Monotherapy is preferred when using antipsychotics. Evidence has shown that using antipsychotics decreases the amount of active dopamine and serotonin, which in turn elicits a calming effect. The article also recommended using atypical antipsychotics over typicals due to their decreased side effect profile. The meta-analysis of a 6-week study of 1,118 children between the ages of 5 and 12 years determined that risperidone (Risperdal) reduced conduct problems such as aggression (Tscheremissine & Lieving, 2006).

Croonenbergh et al. (2005) conducted a multiple site, one year open-labeled study. The sample included children and adolescents (n=504) aged 5-14 years that had disruptive behaviors. Seventy-three percent complete the study (n=368). The Nisonger Child Behavior Rating Form
Conduct Problem Scale (N-CBRF) was done prior to the start of the study, at weeks one and three, and at months 1, 3, 6, 9, 12. The questionnaire asks the rater if within the last month the child has: accepted redirection, expressed ideas clearly, followed the rules, shared with or helped others, resisted provocation, was tolerant, initiated positive interactions, and participated in group activities (Aman et. al, 1995). Risperidone was administered during the treatment time with no more 0.06mg/kg/day being administered. The trial deemed that risperidone was tolerated well, with minimal side effects. The N-CBRF demonstrated significant improvements during the one-year trial. The most significant improvements were in social interaction settings. The mean N-CBRF score at baseline was 32.9. At twelve months the mean was 15.2. This resulted in a mean change of -17.7 in disruptive behaviors.

Mood stabilizers and antiepileptic drugs are frequently used in psychiatric disorders involving behavior problems. According to Tscheremissine and Lieving (2006), there is conflicting evidence of Lithium’s efficacy in treating behavioral problems. Masi et al (2009) conducted a retrospective study on children (n=60), ages 8-17 years (mean age 14.4), beginning as inpatients for 2-3 weeks. There were 46 males and 14 females in the study that examined the effectiveness of Lithium in combination with an antipsychotic or as monotherapy in decreasing aggressive behaviors. At the end of the study 29 out of 60 patients were classified as responders. Nineteen children were on Lithium, plus an antipsychotic and 10 were on Lithium alone. The pharmacotherapy was considered effective, ie.“responder,” if all of the following criterion were met on three consecutive follow-up visits throughout a 12- month period after discharge. The criterion were: > or = to 50% decrease in Modified Overt Aggression Scale (MOAS) total score. The MOAS has four categories all of which the evaluator can rate someone 0-4. The lowest value means no sign and four is the most severe. The categories include: verbal aggression,
aggression against property, auto aggression, and physical aggression (Wolkenfelf & Murrill, 1988). Clinical Global Impression-Improvement (CGI-I) score of 1-2 ('very much improved or much improved') and a Global Impression-Severity (CGI-S) score of < or = to 3. The CGI-I is a single item recorded during follow-up, which rates the amount of change in behavior. A one is very much improved and a seven is much worse. The CGI-S is also a single item. The clinician rates the severity of the illness from 1 (normal) to 7 (severely ill) (Acherbach & Edelbrock, 1991). Twenty-nine out of the 60 subjects were “responders to therapy.”

Saxena et al., (2010) studied the effectiveness of Divalproex Sodium-ER (DVPX ER) in behavior disorders. The study included children (n=40) ages 7-18 years old. There were 14 females and 26 males. The study was conducted on an outpatient basis. All children initially took the CGI-S test. To be included in the study the children needed a CGI-S score of 3 or higher, maximum score is 7 (Guy, 1976). There were two groups, each with children (n=20) that were randomized into either the experimental group or the control group. The experimental group received an average daily dose of 250-1500 mg of DVPX ER daily. The control group did not receive DVPX ER. Over the 12-week period those in the experimental group had a total of eight visits by psychiatry. During each visit they were given both the CGI-S and CGI-I tests. The final average CGI-S score in the 16 remaining experimental subjects decreased from greater than 3 to between 2.75-1.94; p=0.003 demonstrating improvement in decreasing behavioral symptoms with the use of DVPX ER. The control group did not take the CGI-S again after the initial visit.

Non-Pharmacologic Treatment for Conduct Disorder

Multisystem Therapy (MST) has been utilized for over 30 years; it involves the family, pt, and community such as schools, neighborhoods, and friends. Treatment modalities used
include “cognitive behavioral therapy, behavior management training, family therapies, and community psychology.” (Multisystem Therapy [MST], 2011). The focus is on behavior modification to decrease the incidence of violence and criminal offenses. There have been over 18 research studies done on the effectiveness of MST. MST utilizes various methods for intervention to keep the children in their homes, in school, out of trouble with the law, and to decrease the chance of them later developing drug and alcohol addiction and an adult psychiatric diagnosis. The Fast Track Prevention Project, spanning over 10 years is one such model. The program was designed to identify high-risk elementary children at the earliest age possible, which for the Fast Track Project articles stated was the first grade. In Kindergarten children with behavior problems were assessed by both the parents and the teachers using a multiple-gating screening procedure. The study enrolled 845 children from four states NC, TN, WA, and PA. The demographics of the group were 58% single-parents, 51% African American, 47% European American, and 2% other. Sixty-nine percent of the participants were boys. The participants engaged in the Promoting Alternative Thinking Strategies (PATHS) curriculum at school which is “grounded in social and emotional learning” (Channing Bete Company, 2012). Outside of the classroom the interventions were targeted toward the parents’ ability to manage the child’s disruptive behaviors. Other interventions included fostering the child’s development of social-cognitive and emotional coping skills, enhancing peer relations, improving academic skills, and reducing disruptive and rejecting classroom environments (conduct problems prevention research group [CPPRG], 2011). Children and parents participated in home visits, group skills training, and individualized services deemed important for both the success of the child and family as a whole. The results of the conduct problems prevention research group stated that “long-term intervention can prevent psychiatrically diagnosed CD in the highest risk children,
with positive effect continuing for at least 2 years after intervention ceases.” This conclusion is based on multiple studies that were conducted throughout the 10 year study.

Karnik and Steiner (2007) reviewed literature for treatments of “juvenile maladaptive aggression” they considered different levels of intervention such as prevention, social and community, family, and individual. The authors stressed the importance for parents, providers, and mental health professionals to identify children with an increased risk of developing CD and to refer them for help. This being said the professionals in the field for treating CD need to be comfortable in implementing interventions based on the child’s particular challenges. The article identified the broad use of MST and its effectiveness for reduction of behavior symptoms. Community service personnel such as police, judicial, educational, and medical provider training are major focuses for effectively reducing the prevalence and incidence of CD.

Shabat, Lyons, and Martinovich (2008) conducted a study in the state of Illinois on 457 children, ages 6-20 that were wards of the state. There were 50 different inpatient programs involved and two groups of participants. One group had a diagnosis of CD and the other did not. The purpose of the study was whether or not long-term inpatient treatment programs were effective. The measures included a CD diagnosis, mental health assessment, school attendance, discharge placement, and age and gender. Statistical analysis was done by multiple methods such as, MANCOVA, Chi-square tests, ANCOVA, and t-tests. The significant results were that young children, defined as ages 6-11 years, were more likely to perform worse in school in the CD group (p=0.30). Those diagnosed with CD were more likely to be discharged to jail (p=.053), CD participants improved their mental health and their behaviors throughout the course of treatment which on average was 9.60 months, and those not in the CD group demonstrated a worsening in their interpersonal relationships.
Hagen, Ogden, and Bjornebekk (2011) published a one-year follow-up from a randomized controlled research study that looked at the efficacy of the Parent Management Training-the Oregon model (PMTO). The PMTO is designed to improve parenting skills in five areas: “skill encouragement, monitoring, problem solving, positive involvement, and effective discipline.” There were 112 participants (90 boys and 22 girls), ages 4-12 years old, that began the program along with their families. Inclusion into the trial was obtained by the therapists’ clinical judgment using the Child Behavior Checklist (CBCL). This checklist rates both the child’s behaviors and competencies. The average child from the sample scored three standard deviations higher, than children without behavioral disturbances. Fifty-nine families were randomized into the PMTO group and fifty-three were randomized into the regular services group. The mean T score was 79.97. Of those, 95% completed the program and 75% returned for the one-year follow-up evaluation of the child’s behavior. The results indicated that after 1-year post-treatment those families in the PMTO group retained “modest” results CBCL = P < .05 from the training. The children’s behaviors were better than at the beginning of the study.

When addressing individualized therapy, there is less research. This is likely due to the fact that those children with CD are heavily involved in their maladapted social networks and they do not engage in individual therapy. Singh et al. (2007) conducted a study with three adolescent children (n=3), ages 13-14 years. All of them had received multiple infractions related to their misconduct. They were all at risk for being expelled from school. The method included observing fifty-eight class periods by a teacher trained in observational data collection for each student to establish as baseline. At the end of the class period the teacher trained in observational data collection and the class teacher compared notes regarding aggressive, bullying, and noncompliance behaviors. Together they had a mean overall reliability of 98%.
The children then began meeting with a therapist three times a week for four weeks for 15 minutes each time. She taught them the meditative practice of Mindfulness. The purpose of this practice is to teach those using meditation how to self-regulate their verbal and physical aggression. She did this by teaching them that instead of reacting to an emotion, they are to feel the strong emotion as it presents, such as anger, then to transfer that anger to a neutral place, which were the soles of the feet. Once the emotion was there they were to tend to their feet. Tending to their feet meant they were to pay attention to how their feet felt, while doing natural breathing. Were they experiencing any physical pain? What do their socks feel like against their skin, etc? They were to meditate on their feet for 10-15 minutes and then to slowly come back out of the meditation and go on with their daily activities. The largest positive effect was noted after the training sessions were completed and the patients were in the follow-up “practice” period. The adolescents began practicing the technique more often once they began to see the benefits such as increased ability to relax, being in better control of themselves, and sleeping better.

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</tr>
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Table 1 Participant behavior phase mean response

Table 1 demonstrates that all three of the children had a decreased number of incidents using Mindfulness as a technique to control their behaviors.
Barriers to Treatment

Conduct Disorder is very challenging to treat and it is costing our country a significant amount of money. Foster and Jones (2005) estimate that a child with conduct disorder costs society $70,000 more over a seven year period, than a child without the disorder. Little research has been done on both individual therapy and long-term inpatient treatment for CD. According to the research in order to successfully treat CD multiple methods need to be used. Using multiple methods takes a tremendous amount of resources. The Fast Track Project showed success; however the interventions and resources used spanned over the course of many years. MST programs rely on the long-term commitment of the community, children, and families, which is not always feasible. Karnick and Steiner (2007) said that “interventions are time consuming and often require large scale programs to support them.” Our countries current financial crisis does not allow for such resources to be used unless convincing evidence is presented. It is important for all those involved in treating CD to continue to present evidenced-based research for the various treatment modalities in order to obtain the funding needed for treatment of CD. There is more need for the understanding of the neurobiological component in conduct disorder. Further research in Neurobiology may lead to promising pharmacotherapy treatments.

Significance to Nurse Practitioners

Whether a Nurse Practitioner (NP) works in a psychiatric setting or not they may still encounter either children/adolescents with Conduct disorder or adults with Antisocial Personality Disorder. Both diagnoses present challenges for the NP, which may include disruptive behaviors in the examination room, manipulative behaviors, and overt non-compliance with recommended treatment. These diagnoses are not easily treated and often require a multisystem approach in
order to be effective. The NP that works with the CD patient will most likely be collaborating with other disciplines in order to treat this multifaceted diagnosis. It is important for the providers to understand the patient’s illness so that an objective view of the patient can be maintained.

Discussion

CD has been proven to significantly impact society. There have been many methods for the treatment of CD. The most efficacious method, in this literature review, for long-term reduction in behavioral discord has been by utilizing MST. Those studies that utilized the community, family, and children in the treatment of CD had a decrease in frequency of incidents and also a decrease in the severity of the behaviors. Multiple studies demonstrated that behavioral disruption was also improved by utilizing various classifications of medicine. It is important to stress to the care providers of these children that the disorder will need to be managed over many years in order for the treatments received to continue to be effective. In the studies that reviewed the effectiveness of the treatments a year or more afterward the authors found that the effectiveness of the treatment(s) was not as strong.

More research needs to be done on treatment efficacy of CD. More information is needed for medication therapy, individual therapy, inpatient programs, as well as MST type programs. Barriers need to be brought down. This can be accomplished by increased training of providers, police, judicial system, educators, family, and children. This training will however be costly. If the benefits can be proven to outweigh the costs, then those afflicted with CD and those living with a child or adolescent with the disorder may have more options for help.
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