Effects of an Intervention Within a Sport Context on the Prosocial Behavior and Antisocial Behavior of Adolescents with Disruptive Behavior Disorders

Alexis McKenney and John Dattilo

A single-subject, multiple baseline across behaviors design was used to assess the effects of an intervention conducted within a sport context on prosocial behaviors (encouraging, helping, and conflict resolving) and antisocial behaviors (physical and verbal aggression) of five adolescents with disruptive behavior disorders. Results of the effects of the intervention were mixed. Level changes were observed immediately following initiation of the intervention for the behaviors of encouraging and helping, and higher mean values were maintained during intervention and follow-up for encouraging and conflict resolving. However, replication of effects was not observed across behaviors, prosocial behaviors decelerated during the intervention, and there was a lack of maintenance of the behaviors. In addition, the intervention did not appear to influence antisocial behaviors. Limitations and recommendations for research and practice are discussed.

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1 Appreciation is extended to the five individuals who agreed to participate in this study, the professionals at the facility in which this study was conducted, as well as members of the first author’s dissertation committee, Douglas Kleiber, John Hoge, Tom Clees, Jimmy Calloway, and Layli Phillips for their help on this project.
Introduction

Adolescence is a time when one faces physical, psychological, and social maturation (Hendry, 1983). According to Forehand (1990), for some adolescents this time can be one of emotional extremes. These extremes may cause some adolescents to experience mental, emotional, and behavioral problems. According to the Center for Mental Health Services (1997), approximately one in 20 youth may experience a problem that severely disrupts their ability to function.

Of the mental health problems identified among children and adolescents, disruptive behavior disorders are the most frequently diagnosed (Fisher, 1997). Adolescents with disruptive behavior disorders often behave in a manner considered to be antisocial; that is, they violate the rights of others (Swarthnot, 1988). It has been argued that these adolescents demonstrate antisocial behaviors because they lack the capacity to make moral judgments (Arbuthnot & Gordon, 1986; Blakeney & Blakeney, 1991; Smetana, 1990; Swarthnot, 1988). However, the study of moral judgment necessitates examining that which is not directly observable, that is, a person’s intentions.

To avoid complications that surface from not having direct access to a person’s intentions, many researchers focus on prosocial behaviors (Shields & Bredemeier, 1995). Prosocial behaviors, such as helping others or offering compliments and encouragement, are directly observable and involve actions performed voluntarily that are meant to benefit others (Eisenberg & Mussen, 1989; Franzoi, 1996). By emphasizing prosocial behaviors, the analysis shifts from the cognitive processes that are inaccessible (moral judgments) to those that are observable (prosocial behaviors). Adolescents with disruptive behavior disorders lack skills needed to demonstrate prosocial behavior and, instead, demonstrate antisocial behaviors, such as acts of physical aggression directed toward another person, that violate the rights of others (Swarthnot, 1988). Social learning theory can be used to assist in the understanding of morality and the manifestation of prosocial and antisocial behaviors.

Social Learning Theory and Prosocial Behavior

Social learning theory addresses the process by which a person’s social behavior is learned and maintained (Bandura, 1977). According to Bandura, most social behavior is learned by observing others and the consequences generated as a result of the observed behavior. Bandura referred to this process as observational learning, and asserted that observational learning occurs when an individual has the capacity to acquire skills through observing a model’s behavior.

Social learning theory espouses that prosocial and antisocial behaviors can be influenced by observational learning (Toner, 1991). A person who observes another individual behaving prosocially is more apt to behave in a prosocial manner (Rushton, 1982); however, adolescents with disruptive behavior disorders are exposed to prosocial behaviors less often than adolescents without disruptive behavior disorders (Goldstein & McGinnis, 1997). Goldstein and McGinnis argued that as children age, their need to have friends develops as does their level of antisocial and, perhaps, violent behavior. These children often choose friends with similar propensities for performing antisocial behaviors. Once antisocial behaviors are learned and frequently demonstrated, a cycle of aggression may begin, thus decreasing opportunities for learning and using prosocial behaviors. Because of increased exposure to opportunities to perform antisocial behaviors, by adolescence, opportunities to acquire prosocial alternative ways of dealing with others are far less frequent (Goldstein & McGinnis).

Relevance of Leisure and Sport

One of the many tasks faced during adolescence is the learning of prosocial behavior
Leisure activities present one forum in which adolescents can learn prosocial behaviors. It is the social nature of leisure that relates it to morality and the learning of prosocial behavior (Leming). Through participation in leisure activities a person comes to understand the self (Fain, 1991) and the social world in which she or he lives (Leming). Brightbill (1960) contended that leisure activities offer opportunities to make choices between right and wrong and according to Calloway (1995), these leisure activities allow individuals to explore appropriate ways of thinking and dealing with life. Sport is one leisure context in which guidance can be given to promote prosocial behavior and discourage antisocial behavior.

Proponents of sport as a means for developing prosocial behavior contend that sport has the potential to shape an individual’s actions (Gough, 1997), thus sport can contribute to the learning of prosocial behaviors. According to Kleiber and Roberts (1987), “…organized sports provide a forum for the teaching of responsibility, cooperation, subordination of self to the greater good, and the shaping of motivation and achievement behaviors” (p. 203). Arnold (1994) contended that “…sport is inherently concerned with the moral” (p. 87) because it embodies freedom and equality, freedom because of the choice to participate and equality because of the choice to abide by certain rules. Mannell and Kleiber (1997) suggested that sports potentially contribute to the ability to work with other people aiming to achieve similar goals.

Sport participation may provide opportunities for adolescents with disruptive behavior disorders to learn prosocial behaviors; however, participation in sports in and of itself does not always guarantee such development. For example, Staub (1978) suggested that competition involved in sport may focus attention on the self, thereby decreasing sensitivity to the needs of others. An example of how sport participation alone does not assure the learning of prosocial behaviors are provided by Sherif, Harvey, Hood, and Sherif (1987). In their classic “robbers cave” study, Sherif et al. (1987) found that competition might be associated with antisocial behavior. After observing two groups of eleven-year-old boys attending a summer camp in a remote area, Sherif et al. reported that as a result of participating in a variety of competitive sports activities, within two weeks, behaviors occurred such as verbal insults, overturning beds, and taking property. It was not until the authors sought to reduce negative reactions and group goals were achieved that antisocial behaviors diminished.

Based on the study conducted by Sherif et al. (1987), it can be argued that the presentation of a leisure experience, such as those associated with sport, while not guaranteeing the learning of prosocial behavior, does provide opportunities for learning prosocial behavior. In other words, although sport may present opportunities for personal growth and development, the simple presentation of a sport does not assure learning of prosocial behavior. Consequently, opportunities must be present for learning prosocial behavior in addition to learning sport skills.

Studies have demonstrated how, within a sport context, goal directed intervention strategies might promote prosocial behavior (Giebink & McKenzie, 1985; Sharpe, Brown, & Crider, 1995). Giebink and McKenzie monitored four boys during 22 physical education class softball games and found that behavioral strategies (praise, modeling, and a point system) were effective in increasing three prosocial behaviors: (a) complimenting teammates, (b) playing fair, and (c) accepting consequences. In another study, Sharpe et al. examined effects of a curriculum in which the prosocial behaviors of leadership and conflict-resolution were emphasized during elementary school physical education classes with 88 students. Using a multiple baseline across classes design, the authors found an increase in both targeted behaviors as well as an increase in time devoted to activity participation and a decrease in off-task behavior.
Purpose of the Study

Although studies have revealed positive results associated with interventions designed to promote prosocial behavior of children and adolescents, in general (Giebink & McKenzie, 1985; Sharpe et al., 1995), no studies have examined effects of prosocial behavior instruction occurring within a sport context on the prosocial behavior of adolescents with disruptive behavior disorders. The purpose of this study was to examine effects of a prosocial behaviors intervention on the prosocial behavior (encouraging, helping, and conflict resolving) of adolescents with disruptive behavior disorders during basketball scrimmages. As a secondary analysis, effects of the intervention on antisocial (verbal and physical aggression) were examined. Research questions and associated hypotheses are presented below:

1. What are the effects of a prosocial behaviors intervention provided during basketball instruction on the prosocial behaviors of adolescents with disruptive behavior disorders during basketball games?

H1: Participants with disruptive behavior disorders who attend a prosocial behaviors intervention during basketball instruction (3 X wk, 30 min sessions) will demonstrate an increase in frequency of instances of encouragement made to other participants during 20 minute basketball games when compared to baseline behavior.

H2: Participants with disruptive behavior disorders who attend a prosocial behaviors intervention during basketball instruction (3 X wk, 30 min sessions) will demonstrate an increase in frequency of helping behaviors made to other participants during 20 minute basketball games when compared to baseline behavior.

H3: Participants with disruptive behavior disorders who attend a prosocial behaviors intervention during basketball instruction (3 X wk, 30 min sessions) will demonstrate an increase in frequency of resolving conflicts with other participants during 20 minute basketball games when compared to baseline behavior.

2. What are the effects of a prosocial behaviors intervention provided during basketball instruction on the antisocial behaviors of adolescents with disruptive behavior disorders during basketball games?

H1: Participants with disruptive behavior disorders who attend a prosocial behaviors intervention during basketball instruction (3 X wk, 30 min sessions) will demonstrate a decrease in frequency of physically aggressive behaviors toward other participants during 20 minute basketball games when compared to baseline behavior.

H2: Participants with disruptive behavior disorders who attend a prosocial behaviors intervention during basketball instruction (3 X wk, 30 min sessions) will demonstrate a decrease in frequency of verbally aggressive behaviors toward other participants during 20 minute basketball games when compared to baseline behavior.

Methods

Participants

Participants were five adolescent males (ages 13–17) receiving psychiatric treatment services at a long-term treatment facility in the southeastern United States. A pool of participants was identified through personal interaction with the facility residents and consultation with the allied therapy coordinator, two psychotherapists, and administrative staff. Participants were selected based on the following criteria: (a) diagnosed with a disruptive behavior disorder or identified as demonstrating behavioral problems, (b) identified by agency staff as having difficulty cooperating with peers and staff in recreational activities, (c) between the ages of 13 and 17, (d) consent of the family (or legal guardian, if applicable) and the participant, and (e) an expressed inter-
est in participating in each aspect of the study, regardless of individual basketball skill levels. To assure confidentiality, aliases are used for all participants.

Edward. Edward was a 13 year-old Anglo-American male diagnosed with attention-deficit/hyperactivity disorder, bipolar disorder, and adjustment with disturbance of conduct. In addition, Edward was reported as demonstrating symptoms of oppositional defiant disorder as evidenced by his difficulty following rules. Prior to being admitted to the facility, Edward was hospitalized after physically abusing and sexually molesting his sister.

Ryan. Ryan was a 14 year-old Anglo-American male diagnosed with oppositional defiant disorder, attention-deficit/hyperactivity disorder, and substance abuse. Psychosocial difficulties included demonstration of limited frustration tolerance and anger management skills, polysubstance abuse, experience of multiple losses and changes in primary caretakers, and living with a father who abuses drugs. In addition, Ryan had a history of school suspensions for fighting and aggression and criminal activity (3 burglaries).

Larry. Larry was a 14 year-old Anglo-American male diagnosed with the following disorders: recurrent and severe major depressive disorder with psychotic features, attention-deficit/hyperactivity disorder, and bipolar disorder. Larry reported he has “ADD (attention-deficit disorder) and explosive behavior.” Larry’s family reported that he has a history of explosive behavior resulting in difficulties with the legal system and school, and that he has demonstrated agitation, irritability, an inability to concentrate, and a history of auditory and visual hallucinations.

Terry. Terry was a 14 year-old Anglo-American male diagnosed with the following disorders: posttraumatic stress disorder, attention-deficit/hyperactivity disorder, and oppositional defiant disorder. Terry’s family reported that Terry demonstrated defiant and aggressive behavior at home and has performed poorly in school, in particular, since the death of his brother in 1997. Terry witnessed the death of his brother that resulted from a bicycle accident. He reported that he has had difficulty falling asleep, and was troubled by thoughts about the accident.

Kevin. Kevin was a 16 year-old African-American male diagnosed with major depressive disorder and oppositional defiant disorder. Kevin was referred to the facility from a children’s home after demonstrating a consistent decline in behavior. According to Kevin’s psychiatrist, Kevin was raised in a dysfunctional family with some suspicion of physical abuse and sexual abuse. Kevin was removed from his family residence and taken into state custody at age seven and has resided in foster homes and facilities until admitted to the facility.

Setting, Personnel, and Equipment

The instructional setting was a residential psychiatric treatment facility for children and adolescents (ages 4–17), located in the southeastern United States. The instructor of the intervention and basketball skills instruction was the first author, a Certified Therapeutic Recreation Specialist (CTRS). A Group Advisor (an employee whose primary responsibility involved supervising a designated group of adolescent residents) attended each session. Equipment used for the intervention included basketballs, a greaseboard, and markers. Data collection equipment included a 8 mm Sony™ video recorder, one Telemike™ microphone, two tripods, and VHS videotapes.

Experimental Design

A multiple baseline across behaviors single-subject design was used to assess effects of an intervention provided during basketball instruction on participants’ prosocial behaviors during basketball games. Although the purpose of this study was to examine effects of an intervention on participants’ prosocial behaviors, as a secondary analysis, effects on antisocial behaviors were examined, as well. Each target behavior was measured concurrently under the same conditions until a stable baseline trend and level was established.
Independent Variable

Each week (3 X wk) for five and one-half weeks (16 30-minute sessions), the first author implemented one of three units of instruction on a prosocial behavior (encouraging, helping, and resolving conflicts) developed based on guidelines by Goldstein, Sprafkin, Gershaw, and Klein (1980). The first unit of instruction (encouraging) lasted four days, and the second (helping) and third (resolving conflicts) units of instruction lasted six days.

For each unit of instruction, participants were provided with prosocial behavior cards that outlined the steps for demonstrating behaviors. For example, if “helping” was the behavior, steps included: (a) deciding if the other person might need or want your help, (b) thinking of ways you could be helpful, (c) asking the other person if he needs and wants your help, and (d) helping the other person. One or two of the role-play activities planned for each prosocial behavior were used during each session. For example, if “encouraging” was the behavior, two role-play activities included: (a) main actor shakes hands with another participant, and (b) main actor pats participants on the back.

Most sessions were presented in a six-phase format and lasted approximately 30 minutes: (a) presenting an overview of the prosocial behavior, (b) demonstrating the prosocial behavior, (c) discussing the demonstrated prosocial behavior, (d) organizing a role-play, (e) beginning the role-play, and (f) inviting feedback. Presenting an overview of the prosocial behavior involved introducing and eliciting discussion prior to showing the demonstration of the behavior. Demonstrating the prosocial behavior involved having the instructor present a demonstration of the behavior using the behavioral steps outlined on the prosocial behavior cards. Discussing the demonstrated prosocial behavior involved having the instructor invite discussion on the demonstrated behavior by asking questions such as, “What do you do in situations where you have to help another person while playing basketball?” Organizing the role-play activity involved assigning roles, rehearsing what participants say and do during the role-play activity, and providing final instructions. Beginning the role-play activity involved having the instructor stand near a poster board with the steps written on it and pointing to each step as it was enacted and having the instructor provide needed instruction when the role play activity strayed markedly from the behavioral steps. Finally, the instructor inviting feedback following the role-play activity involved having the instructor ask questions to debrief the activity such as, “In the role of helper, how did helping the other person off the floor feel?” Sessions that included a video-viewing component instead of a role-play activity involved presenting an overview of the observed behavior, discussing the observed behavior, and inviting feedback. Reinforcement of the intervention was not provided during data collection. Data collection took place immediately following the implementation of the intervention.

Dependent Variables

The dependent variables for this study included prosocial behaviors of encouraging, helping, and conflict resolving, and antisocial behaviors of physical aggression and verbal aggression. Based on a review of behaviors described by Goldstein et al. (1980), behaviors that are observable and can be demonstrated by individuals playing basketball were chosen as dependent variables. The order in which the dependent variables were presented was chosen based on the level of difficulty involved in learning each behavior, with “encouraging” being the easiest. Encouraging involves offering a verbal expression or physical gesture of praise to another person. Helping is the act of giving assistance to another person (Berube, 1982). Resolving a conflict involves communicating with another person(s) when confronted with a problem or disagreement resulting in a solved problem or reached agreement. Aggression is the “... exhibition of deliberate actions towards other people or objects, with
some intention to destroy or injure the target” (Lochman & Lenhart, 1993, p. 785). Physical aggression may be demonstrated when a person hits, pinches, spits, scratches, shoves, or pulls the hair of another person. Verbal aggression is a form of verbal abuse involving the use of condemning comments or insults directed at other people.

**Experimental Procedures**

A multiple baseline design across behaviors included: baseline, an intervention, and follow-up. Baseline was established when each participant demonstrated stability in the dependent measures. Stability was determined by calculating mean level of data points and determining whether 80% fell within 20% of the mean value (Dattilo, Gast, & Schleien, 1993). Stability of trend was estimated via split-middle method by dividing data points within intervention conditions into halves, calculating mode for each half, and plotting a line between modal points found for each half (Tawney & Gast, 1984). A follow-up condition lasted five weeks.

**Data Collection**

Participant behaviors were videotaped during the 20-minute basketball scrimmages. Using a frequency counting procedure, prosocial and antisocial behaviors were recorded during competitive situations (3 X week) across all behaviors.

Observers included the first author (primary observer) and a CTRS (secondary observer) trained to use the Behavioral Observation Form. Three videotaped sessions were reviewed several times by the first author to establish a standard for recording behaviors. Training included viewing three videotaped sessions of participants involved in a basketball scrimmage prior to the study and recording each time a prosocial or antisocial behavior was observed. The secondary observer repeatedly viewed the videotape and followed the recording procedures until, using a gross method of agreement, 100% agreement with the established standard was achieved on three consecutive sessions. Gross method of agreement recording requires an observer to record target behaviors that occur during the session, and the number of events tallied at the end of the observation (Tawney & Gast, 1984). To assess observer agreement, a randomly chosen videotape was observed by the primary observer and the secondary observer for least once during any condition and at least 20% of the sessions. Mean agreement scores were calculated for encouraging (91%), helping (98%), resolving conflicts (100%), physical aggression (83%), and verbal aggression (87%). Because agreement scores ranged from 83% to 100% for each dependent measure, retraining of the observer was not needed.

**Social Validity**

The process of making objective measurement socially relevant is referred to as social validation (Wolf, 1978). Social validation occurred by evaluating the study on three levels: (a) social significance of study, (b) social appropriateness of procedures, and (c) social importance of effects. To examine significance of the program, a description of the intervention was reviewed and critiqued by the Clinical Program Director, Allied Therapy Coordinator, and a panel of professionals. Several open-ended questions were asked to elicit opinions and suggestions regarding significance of the program (see Table 1). Appropriateness of procedures was evaluated every two weeks throughout the intervention by asking each participant five open-ended questions to elicit their opinions and suggestions regarding their satisfaction with the program, and appropriateness of the program (e.g., “What do you like most about the prosocial behavior instruction [activities]?”). This information was used to modify the program as needed. Social importance of effects of the overall program was obtained from results of a questionnaire administered on the first and last days of the program to each participant’s psychosocial therapist, the allied therapy coordinator, teacher, and at least one family member (e.g.,
Table 1.
Social Significance Questionnaire

1. Are there any areas that should receive more emphasis in the prosocial behaviors intervention (i.e., are there areas which are not addressed and should be, or areas that are not emphasized enough)? If yes, what are they?

2. Are the activities age-appropriate? If no, which ones are not age-appropriate? Please give the title of the activity(ies), and suggestions for improvement.

3. Is the information presented in each session relevant to adolescents with behavior disorders? If no, which ones are not relevant and should be deleted or modified? Please give the title of the activity(ies), and suggestions for improvement.

4. Is the language and length of the intervention appropriate for adolescents with behavior disorders? If no, how should it be changed or modified?

5. What is your overall impression of the intervention as a professional in psychiatry or recreation and leisure?

6. What areas of the intervention need improvement? Please be specific.

7. What areas of the intervention are good and right on target? Please be specific.

8. Please make any overall comments and suggestions regarding this intervention.

“Do you think ____ will benefit from the program?”). Based on a scale from 0 (not at all) to 3 (very much), responses were favorable.

Data Analysis

The total number of prosocial behaviors demonstrated each day was plotted on a separate graph for visual analysis. As a secondary analysis, each antisocial behavior was plotted on separate graphs for visual analysis. Data were examined to determine changes in level, changes in trend and trend stability, and whether changes were replicated across behaviors. Level of change was examined by visually inspecting data to determine if a change occurred from the last point in baseline condition to the first point in intervention condition and calculating a mean level. In addition to analysis of data across behaviors, data were analyzed in relation to each participant’s demonstration of prosocial behaviors (see Table 2).

RESULTS

Prosocial Behaviors

Encouragement. During baseline, participants showed a stable, slightly decelerating trend in the number of occurrences of encouraging. After five sessions, data were deemed stable because 80% (4 of 5) of data points fell within 20% of the mean of 8. During intervention an immediate level change was observed. Number of occurrences of encouraging changed from 6 on the last day of baseline to 61 the first day of intervention. A consistent deceleration in frequency of occurrences of encouragement was noted from the first (61) to the eleventh day of the intervention (13). The number of occurrences accelerated from 13 on the 11th day of the intervention to 65 on the 14th day, then decelerated, again, to 20 on the 20th day, and accelerated to 50 on the final day. Data were deemed unstable during the intervention because only 25% (4 out of 16) of data points fell within 20% of the mean of 38. From the last day of intervention (50) to the first day of follow-up (33) a level change was observed. Data decelerated from 33 to 11 by the 3rd day of follow-up, then accelerated to 17 on the 4th day of follow-up before decelerating to 3 the final day. Data were deemed unstable during the intervention because only 25% (4 out of 16) of data points fell within 20% of the mean of 38. Whereas the mean was 38 for the intervention, the mean during follow-up was 19 (see Table 2 and Figure 1).

Helping. During baseline, participants showed a stable level and trend in the number of occurrences of helping. After nine sessions,
Table 2.
Individual Participant Mean Scores for Prosocial Behaviors

<table>
<thead>
<tr>
<th>Participant</th>
<th>Baseline</th>
<th>Intervention</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryan</td>
<td>3.4</td>
<td>15.75</td>
<td>5.0</td>
</tr>
<tr>
<td>Kevin</td>
<td>3.0</td>
<td>8.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Edward</td>
<td>1.6</td>
<td>7.75</td>
<td>9.8</td>
</tr>
<tr>
<td>Larry</td>
<td>1.6</td>
<td>6.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Terry</td>
<td>1.6</td>
<td>5.5</td>
<td>3.2</td>
</tr>
</tbody>
</table>

data were deemed stable because 88% of data points fell within 20% of the mean of 1.33. An immediate level change was observed following initiation of the intervention. Number of occurrences of helping changed from 1 on the last day of baseline to 9 the first day of intervention. A consistent decelerating trend was observed from the third day of intervention (10) to the final day of intervention (0). Data were deemed unstable during the intervention because only 25% (3 out of 12) of the data points fell within 20% of the mean of 5.5 (see Table 3 and Figure 1).

During follow-up, frequency of occurrences of helping was zero-celerating. Frequency of occurrences increased from 0 on the 1st day to 4 on the 2nd day, then decreased from 4 on the 2nd day to 1 on the 3rd day. Frequency of occurrences increased to 5 on the 4th day before decreasing to 0 on the final day. Data were deemed unstable because only 20% (1 out of 5) of data points fell within 20% of the mean of 1.17 calculated during follow-up (see Table 3).

Resolving Conflicts. During baseline, participants showed a stable level and zero-celerating trend in number of occurrences of resolving conflicts. After 15 sessions, data were deemed stable because 100% of data points fell within 20% of the mean of .3. During the 1st three days of the intervention a total of five conflicts occurred without resolution. During the 4th day a response was noted; 5 conflicts occurred (all were resolved). From the 4th day through the follow-up condition, 88% of conflicts were resolved. A zero-celerating trend was noted and data were deemed unstable because 0% (0 out of 4) of data points fell within 20% of the mean value of 41.5%. During follow-up, insufficient data were collected to determine a trend and stability. The two days when conflicts occurred, 80% and 66% of conflicts were resolved. Compared to 14.5% during baseline, and 41.5% during intervention, a mean of 73% was calculated during follow-up (see Table 3 and Figure 1).

Multiple Baseline. According to Tawney and Gast (1984), when using a multiple baseline across behaviors design each target behavior is observed continuously until a stable baseline is established. Once a stable baseline was evident in this study, the researcher introduced the intervention to the first behavior and continued the intervention until improvement was demonstrated in the first behavior, "encouraging." Once improvement was demonstrated for encouraging, the researcher applied the intervention to the second behavior, "helping." Finally, when improvement was demonstrated for helping, the researcher applied the intervention to the third behavior, "conflict resolving." This replication of phases was conducted to determine if changes in level and trend occurred across behaviors. For the behaviors, encouraging and helping, an immediate level change was observed from baseline to the intervention; however, an immediate level change was not replicated for conflict resolving. A change in percentage of conflicts resolved increased after the 3rd day of interven-
Table 3.
Summary of Mean Scores Between Conditions for Prosocial Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Baseline Mean</th>
<th>Baseline Trend</th>
<th>Baseline Stability</th>
<th>Baseline Change</th>
<th>Intervention Mean</th>
<th>Intervention Trend</th>
<th>Intervention Stability</th>
<th>Follow-up Mean</th>
<th>Follow-up Trend</th>
<th>Follow-up Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encouraging</td>
<td>8</td>
<td>\</td>
<td>80%</td>
<td>Yes</td>
<td>38</td>
<td>V</td>
<td>25%</td>
<td>19</td>
<td>\</td>
<td>80%</td>
</tr>
<tr>
<td>Helping</td>
<td>1.33</td>
<td>—</td>
<td>88%</td>
<td>Yes</td>
<td>5.5</td>
<td>\</td>
<td>25%</td>
<td>1.17</td>
<td>—</td>
<td>20%</td>
</tr>
<tr>
<td>Conflict Resolving</td>
<td>14.5%</td>
<td>—</td>
<td>100%</td>
<td>No</td>
<td>41.5%</td>
<td>—</td>
<td>0%</td>
<td>73%</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Note: — = zero-celerating trend; \ = decelerating trend; V = variable trend; * = insufficient data.

Table 4.
Summary of Mean Scores and Trends Across Conditions for Antisocial Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Baseline Mean</th>
<th>Baseline Trend</th>
<th>Level Change</th>
<th>P-I Mean</th>
<th>P-I Trend</th>
<th>P-I Stability</th>
<th>P-II Mean</th>
<th>P-II Trend</th>
<th>P-II Stability</th>
<th>P-III Mean</th>
<th>P-III Trend</th>
<th>P-III Stability</th>
<th>Follow-up Mean</th>
<th>Follow-up Trend</th>
<th>Follow-up Stability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Aggression</td>
<td>3.8</td>
<td>—</td>
<td>No</td>
<td>2.63</td>
<td>—</td>
<td>0%</td>
<td>2.9</td>
<td>/</td>
<td>40%</td>
<td>4.66</td>
<td>—</td>
<td>33%</td>
<td>4.0</td>
<td>—</td>
<td>60%</td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>1.4</td>
<td>/</td>
<td>Yes</td>
<td>1.34</td>
<td>/</td>
<td>0%</td>
<td>1.5</td>
<td>—</td>
<td>40%</td>
<td>.8</td>
<td>—</td>
<td>31%</td>
<td>.8</td>
<td>—</td>
<td>40%</td>
</tr>
</tbody>
</table>

Note: P-I = Phase I; P-II = Phase II; P-3 = Phase III; / = accelerating trend; — = zero-celerating.
FIGURE 1. FREQUENCY OF OCCURRENCES OF BEHAVIOR FOR ENCOURAGING AND HELPING AND PERCENTAGE OF CONFLICTS RESOLVED

Antisocial Behaviors

Physical Aggression. A stable baseline was not sought for antisocial behaviors; rather, the performance and stability of the behavior of encouraging determined the length of baseline. A stable baseline was not sought for antisocial behaviors because the intervention was designed to influence prosocial behaviors specifically. A zero-celerating trend for baseline was observed and a mean score of 3.8 was calculated (see Table 4). Data were analyzed separately for Phase I (encouraging), Phase II (encouraging and helping), and Phase III (encouraging, helping and conflict resolving; see Figure 2). No level change was observed in frequency of occurrences of physical aggression from baseline to intervention for Phase I and follow-up, and a negative level change was observed from Phase I to Phase II, and Phase II to Phase III.

Trend data were deemed variable during Phase I because 0% (0 out of 4) of data points fell within 20% of a mean of 3.8. Trend data were deemed variable during Phase II because only 40% (4 out of 10) of data points fell within 20% of a mean of 2.9. During Phase III, trend data were deemed variable because only 33% (6 out of 16) of data points fell within 20% of the calculated mean of 4.66. During follow-up, trend data were deemed variable because only 60% (3 out of 5) of the data points fell within 20% of the mean of 4.0. Compared to a mean of 3.8 for baseline, 2.63 for Phase I, 2.9 for Phase II, and 4.66 for Phase III, a mean score of 4.0 was calculated for follow-up (see Table 4).

FIGURE 2. FREQUENCY OF OCCURRENCES OF PHYSICAL AGGRESSION
Verbal Aggression. During baseline, an accelerating trend in frequency of occurrences of verbal aggression was observed and a mean score of 1.4 was calculated (see Table 4). Data were analyzed separately for Phase I (encouraging), Phase II (encouraging and helping), and Phase III (encouraging, helping and conflict resolving; see Figure 3). An immediate level change in frequency of occurrences of verbal aggression was observed from baseline to intervention and for Phase I, Phase I to Phase II, and Phase II to Phase III, and no apparent level change was observed from Phase III to follow-up. A slightly accelerating trend in the frequency of occurrences of verbal aggression was observed for baseline and Phase I, and no trend in frequency of occurrences of verbal aggression was observed during Phase II, Phase III, and follow-up.

Trend data were deemed variable during baseline because 0% (0 out of 5) of data points fell within a mean of 1.4 during baseline (see Table 4), during Phase I because 0% (0 out of 4) fell within the mean of 1.34, during Phase II because only 40% (2 out of 5) of data points fell within the mean of 1.5, during Phase III because only 31% (5 out of 16) of data points fell within 20% of the mean of 1.46, and during follow-up because only 40% (2 out of 5) of the data points fell within 20% of the mean of .8. Compared to a mean of 1.4 for baseline, 1.34 for Phase I, 1.5 for Phase II, and 1.46 for Phase III, a mean of .8 was calculated for follow-up (see Table 4).

Social Validity Questionnaires

Responses to social significance questionnaire were positive. Examples of responses included: (a) no areas of the intervention should receive more emphasis, and (b) intervention activities are age-appropriate. The appropriateness of procedures was evaluated every 2 weeks by asking participants’ questions about their opinions of the intervention. Based on responses to the questionnaire administered after the first two weeks of the intervention, the intervention was modified to include a video-viewing component. The social importance questionnaire produced favorable responses ranging from a score of 0 (not at all) to a score of 3 (very much). Although mean scores were slightly lower during post-test for three of the four questions, all mean scores were scored between the answers of “yes” and “very much.”
Discussion

Results indicated that an intervention within a sport context might have had a limited effect on prosocial behavior of adolescents with disruptive behavior disorders; however, it did not appear to influence their antisocial behavior. Implications of findings are discussed in relation to prosocial and antisocial behavior and adolescents with disruptive behavior disorders.

Behaviors of encouraging and helping initially appeared to improve as a result of the intervention. Thus, there is some support for the argument that in addition to presentation of sport skills, it can be helpful to provide specific experiences for learning prosocial behaviors (Beedy, 1992). According to Beedy, sport participation offers “...no distinct advantage for promoting personal growth in children” unless the sport facilitator intervenes with the intention of teaching prosocial behaviors that lead to personal growth (p. 161). One form of intervention is based on social learning theory, which focuses on the process by which individuals acquire social behavior (Bandura, 1977). Toner (1991) argued that prosocial behaviors can be learned by observing other people demonstrate prosocial behaviors. In this study, prosocial behaviors taught through demonstration and video-viewing included behaviors such as helping another person who has fallen or encouraging another person by complimenting him on his performance.

Behaviors of encouraging and helping appeared to improve with initiation of the intervention; however, this improvement was not maintained throughout the intervention of follow-up. This decrease may be associated with the degree to which participants internalized the norm of helping. According to Fultz and Cialdini (1991), the degree to which individuals internalize norm of helping influences continued demonstration of helping. During some sessions in which frequency of occurrences of encouraging decreased, frequency of occurrences of helping decreased as well. Perhaps when participants were providing positive feedback to each other, they were more inclined to help each other. According to Fultz and Cialdini, merely learning how to help another person is not sufficient to produce helping behavior; rather, the individual must be motivated to behave in a helping manner. Without external sources of motivation, such as words of encouragement from peers, motivation must come from within the individual.

Another possible explanation for the lack of maintained improvement of prosocial behavior may be related to feelings of separation that are manifested in attachment and withdrawal behaviors that serve as a means of protection (Bowlby, 1973). It is possible that as the study progressed, the first author developed a role as an “attachment figure” for the participants (p. 234). Bowlby contended that an attachment figure is generally an individual who responds to other people in a supportive manner. As the study progressed, participants may have begun to withdraw from the first author in response to imminent separation, thus potentially contributing to deceleration in prosocial behaviors.

Frequency of occurrences of physical aggression varied greatly throughout the study. Although a zero-celeration trend coincided with implementation of the conflict resolving component of the intervention, because the trend accelerated to its highest number (11) during follow-up, it cannot be concluded that the learning of conflict resolving skills helped to decrease physical aggression. Although frequency of occurrences of verbal aggression accelerated during baseline, a zero-celerating trend coincided with implementation of the conflict resolving component of the intervention. Because verbal aggression accelerated to 5 during follow-up, again, it cannot be concluded that learning of conflict resolving skills helped to decrease verbal aggression.

Social validity questionnaires indicated that participants were satisfied with the prosocial behavior skill development program; however, they suggested adding a video-viewing component so they could observe behaviors demonstrated during basketball scrimmages.
Participants’ interest in participating in role-plays was limited; therefore, the number of role-play activities presented was decreased and a video-viewing component was added. The process of learning prosocial behavior can occur through observational learning (Rushton, 1982; Toner, 1991). Video-viewing provided additional opportunities for participants’ to engage in observational learning. Observational learning that occurs by watching video tapes has been effective in teaching parents to assist children with developmental disabilities in self-care tasks and social play with siblings (Reamer, Brady, & Hawkins, 1998), and in teaching children with learning and behavior problems cooperative classroom behavior (Lonnecker, Brady, McPherson, & Hawkins, 1994). For this study, video-viewing provided participants with opportunities to observe prosocial behavior demonstrated by their peers as well as the instructor.

**Limitations**

Replication of data helps to examine the extent to which results can be generalized beyond intervention (Kazdin, 1982). In this study, intervention trends did not replicate across the three prosocial behaviors and, as a result, it is difficult to attribute improvements in prosocial behaviors to the intervention. According to Kazdin, if differences between original and subsequent experiments are observed, divergence in findings may be the result of factors not easily discerned without additional research. Since disparity in findings for this study may be the result of unidentified factors, caution is advised in developing and implementing similar interventions.

A limitation related to trend data occurred when changes in data during intervention for helping and encouraging coincided with changes during baseline for conflict resolving. To demonstrate unambiguous effects of an intervention each baseline must change only when the intervention is introduced and not before (Kazdin, 1982). This change may have been associated with implementation of the intervention designed to influence behavior of helping. Upon implementation of the intervention for helping, an accelerating trend in percentage of conflicts resolved was observed; however, as a decelerating trend in helping occurred, the percentage of conflicts resolved decreased to 0. Similarly, prior to initiation of the intervention designed to influence resolving conflicts, frequency of occurrences of encouraging was decelerating. Following implementation of the intervention designed to influence conflict resolving, frequency of occurrences of encouraging was accelerating. Consequently, the acceleration in encouraging that occurred upon initiation of the intervention for conflict resolving may have been related to the increase in conflicts resolved rather than the intervention.

Other limitations include decelerating trends of prosocial behavior and an absence of maintenance of initial effects. One explanation for these limitations may be related to the participants’ diagnoses. Adolescents with disruptive behavior disorders can have a preference for novel stimuli (Orris, 1969) and have displayed high initial attention to novel stimuli (DeMeyer-Gapin & Scott, 1977). Having a high preference for novel stimuli provides, in part, offers one explanation for the extreme level change of encouraging from baseline to intervention. The novelty of the intervention may have helped gain participants’ attention at the onset of the intervention; however, as the intervention progressed, novelty waned, thus, potentially contributing to a decrease in frequency of occurrences of encouraging over time.

Another limitation relates to the study’s limited duration. The intervention implemented barely exceeded five weeks because the average length of stay for a participant at the facility was three months. Although ample time to complete the intervention was provided, the relatively short duration of the intervention may have resulted in insufficient time to influence targeted behaviors. Wandzilak, Carroll and Ansorge (1985) argued that short time periods of interventions limit the possibility for lasting alterations in behavior.
To address the potential for brief care associated with acute psychiatric settings, the duration of the intervention implemented in this study could be extended in future studies if it were implemented $5 \times wk$ for 9 weeks, thus expanding the number of sessions from 15 to 45.

Recommendations for Research and Practice

One problem identified in this study related to decelerating data observed after an initial acceleration in data upon initiation of the intervention. One way for researchers and practitioners to address this problem might be to teach prosocial behaviors within the context of different sports. For this study, basketball was the only sport implemented and interest appeared to wane substantially by the final week of the intervention. Researchers and practitioners interested in implementing a similar prosocial behavior intervention might consider presenting the information within the context of sports such as, soccer, volleyball, football or softball. For example, on Monday basketball could be implemented, on Tuesday soccer, on Wednesday volleyball, on Thursday football, and on Friday softball. Provision of these additional sports may help increase participants’ interest and, thus, help to increase and maintain the frequency of occurrences of prosocial behaviors.

Another way for researchers and practitioners to decrease the probability of decelerating data after an initial acceleration in data upon initiation of the intervention might be to teach prosocial behaviors with a pre-planned systematic use of a video-viewing component. Lyons (1988) contended that videos permit recordings of performance immediately available for reflective viewing that can serve to enhance learning. Through video-viewing, participants are presented with information about the self directly and concretely while allowing for repeatable verification (Lyons). In addition, through video-viewing, participants are exposed to peers modeling prosocial behaviors in addition to the instructor modeling prosocial behaviors. To use video-viewing in a systematic manner, McGowan (1986) suggested that it be designed within the total framework of the intervention. Consequently, it is helpful if researchers and practitioners know exactly what goals they are seeking to achieve with each participant. In addition, researchers and practitioners may want to engage in careful planning that involves considering projected costs of videos and associated equipment and the amount of time necessary for implementation.

This study included an intervention designed to teach prosocial behaviors rather than decrease the demonstration of antisocial behaviors. As a result, another problem was that the frequency of antisocial behaviors did not decrease after the intervention was initiated. Because the literature supports the view that prosocial skill deficits serve as an antecedent and correlate to antisocial behaviors (Patterson, Reid, Jones, & Conger, 1975; Spence & Marzillier, 1981), a decrease in antisocial behaviors might be observed with the addition of instruction designed to decrease antisocial behaviors. It may be useful for researchers and practitioners designing interventions for individuals who demonstrate antisocial behaviors to focus on building prosocial behaviors as well as eliminating antisocial behaviors (Kazdin, 1985; Sheldon, 1983). One intervention that might be used to augment prosocial behavior skill instruction is Goldstein and Glick’s (1987) aggression replacement training. Using guidelines developed by Goldstein and Glick, instruction on aggression control that include modeling and role play activities (similar to those used to increase prosocial behaviors) could be incorporated into the program. For example, behavior skill sheets could be created that involve modeling and role play activities that teach aggression reducing techniques such as deep breathing, backward counting, and pleasant imagery (Goldstein & Glick). The behavior skill sheet would involve having each participant describe the aggression-producing situation, decide how he wants
to control his aggression, and demonstrate the aggression control technique.

Through competition, sport has the potential to increase prosocial behavior (Cooper, 1982); however, as found in the results this study, competition does not guarantee the maintenance of learned of prosocial behavior. Researchers and practitioners considering the use of a prosocial behavior intervention may want to consider whether sports in which behaviors occur are competitive or noncompetitive. According to Berndt (1981) and Kleiber and Roberts (1981), a competitive structure may reduce prosocial behaviors as well as increase antisocial behaviors. The competitive experience is often described as inter-group competition; that is, competition that occurs between groups (Shields & Bredemeier, 1995). Although inter-group competition may elicit prosocial behaviors through intra-team affiliations that provide opportunities for altruistic behavior (Cooper, 1982), inter-team competition may promote the demonstration of antisocial behavior.

In this study, the intra-team affiliations may have contributed to the demonstration of prosocial behaviors and the inter-team affiliations may have contributed to the lack of effect on antisocial behaviors. Researchers and practitioners may consider introducing participants to cooperative activities before introducing them to competitive ones (Beedy, 1992). According to Beedy, introducing participants to cooperative activities may help them to develop problem-solving skills. For example, Shields and Bredemeier (1995) suggested including group meetings to sport programs so that participants can reflect on behavioral norms they believe are important to the program, thus helping to promote a sense of community. Researchers and practitioners implementing prosocial behavior activities into sport interventions might consider including group meetings before and after sports programs to allow participants to discuss expected behaviors as well as a discussion of behaviors demonstrated during the program.

Conclusion

The intervention appeared to increase only initially prosocial behaviors. Based on the deceleration of behaviors during the intervention and the lack of maintenance of the behaviors observed during follow-up, overall positive effects of the program were not observed. Perhaps the effectiveness of interventions similar to the one implemented in this study may be enhanced if additional instruction on other sport activities and activities designed to decrease antisocial behaviors are included. Since prosocial behaviors associated with encouraging and helping increased upon initiation of the intervention, professionals working with adolescents with disruptive behavior disorders may consider developing a prosocial behavior skill development program that incorporates some elements of this intervention. However, because results of this study provide limited support for the prosocial behavior skill development program, additional studies are necessary to determine the impact of other prosocial behavior skill development programs on individuals with disruptive behavior disorders.

References


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