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Re-Envisioning School-Based Counseling: Sports-Based Group Therapy for Elementary School Students Exposed to Trauma

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Abstract

Mixed-methods were used to investigate treatment outcomes for youth enrolled in an innovative sports-based group therapy intervention. Chart review was conducted for 65 youth, aged 5 to 13 years over one academic year at an elementary school serving high-needs youth in an urban district. Analysis revealed symptom reduction for 72% of participants. For a subset of students ($n = 34$) with available Child and Adolescent Needs and Strengths (CANS) Assessments, the average number of adverse experiences was 2.74 (*SD*: 2.11). Qualitative coding of progress notes and discharge summaries was used to assess symptom presentation and treatment outcomes. This sports-based group therapy intervention promotes access to services while minimizing stigma.

Keywords

group therapy, sports-based therapy, trauma, chart review, symptom reduction, school counseling

By the age of 18, more than one in five youth in the United States have experienced severe impairment from a mental health disorder at some point in their lifetime (Merikangas et al., 2010). However, only one third of these youth receive mental health services, most commonly for attention-deficit/hyperactivity disorder (ADHD; Merikangas et al., 2011). More than half of the youth who access mental health services see clinicians in school settings, though the availability and quality of services can vary widely (Carey & Dimmitt, 2012; Green et al., 2013). Recent attention to the large caseloads of school guidance counselors, social workers, and other mental health providers begs for innovative solutions. In this article, we describe research on one such innovative group therapy approach, Chalk Talk®, that uses sport in delivery of care for trauma-exposed youth. This therapy approach is designed to incorporate the core components of the Attachment, Regulation, and Competency (ARC; Hodgdon et al., 2013; Kinniburgh et al., 2005) conceptual framework, and to do so via the mechanism of sport. Because this approach has been found to be effective in residential settings with youth who have high severity of symptoms (D'Andrea et al., 2013), we investigate both the level of treatment needs among students in a public school setting and the implementation of sports-based group therapy as an approach for delivery of school-based mental health.

Theoretical Framework

Chalk Talk incorporates the core components of the ARC (Hodgdon et al., 2013; Kinniburgh et al., 2005) conceptual framework. The ARC framework is responsive to the needs of children who have experienced complex trauma. For many children, complex trauma disrupts their ability to form and maintain strong positive relationships and self-regulate in response to distress. Further, it diminishes their self-efficacy. The ARC framework has been found to be successful for youth in foster care and in residential settings (D'Andrea et al., 2013); thus, it is hypothesized to be effective with children in school settings, including those who are in the foster care system and/or have faced various experiences of trauma (including complex trauma). The original intervention, on which Chalk Talk is based, was designed to be delivered through a dialectical behavior therapy (DBT; Linehan & Heard, 1992) curriculum to teach

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children and adolescents tools for self-regulation and goal achievement, specifically using "physical activity to regulate stress, and to be mindful of affects that influence behavior" (D'Andrea et al., 2013, p. 740). Chalk Talk sessions similarly deliver the same DBT (Linehan, 2014) components focusing on emotion regulation and distress tolerance, and do so in a team sports setting. The attention to teamwork in the sport setting underscores the importance of building relationships, both depending on teammates for support and also offering that support to others. Through attention to the ARC components, and through treatment delivery that emphasizes DBT principles, the group therapy is designed to address youth mental health disorders and promote well-being that may be jeopardized by exposure to adversity and trauma.

Prevalence of Mental Illness in Youth

Population-based studies over the last two decades describe prevalence, sequence, and service use related to youth mental health. The National Comorbidity Replication Study found that half of all lifetime cases of mental illness begin by the age of 14 years (Kessler et al., 2005). Further examination of this national cohort of adolescents found the median age of onset to be school age: 6 years old for anxiety disorders, 11 years old for behavioral disorders (i.e., ADHD, oppositional defiant disorder [ODD], and conduct disorder [CD]), and 13 years old for mood disorders (i.e., depression and bipolar; Merikangas et al., 2010). Furthermore, by the age of 18 years, 14.3% of youth have met the criteria for a mood disorder, 8.7% for ADHD, and 5% for post-traumatic stress disorder (PTSD; Merikangas et al., 2010). Comorbid diagnoses are common. Forty percent of adolescents who met the criteria for one class of *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association [APA], 1994) disorder also met the criteria of at least one additional class of disorder (Merikangas et al., 2010). Child and adolescent mental health is a major concern, and childhood trauma has been a focus of examination in attempting to identity causal mechanisms of psychological illness and distress. Developing school-based interventions for implementation during these critical years is essential for mitigating mental health disorders.

Prevalence of Childhood Adversity and Trauma

Analysis of a nationally representative survey of adolescents found that experiences of childhood adversity were associated with 28.2% of all onsets of psychiatric disorders (McLaughlin et al., 2012). The association was most pronounced for behavioral disorders (defined as ADHD, ODD, and CD), with a prevalence rate of 40.7% for onset of a behavioral psychiatric disorder associated with an experience of childhood adversity. Initially conceptualized by Felitti et al. (1998), adverse childhood experiences (ACEs), or potentially traumatic events, can significantly contribute to and exacerbate mental health concerns. The original ACE scale included these seven experiences: psychological, physical, or sexual abuse, parental divorce, witnessing domestic violence, or living with a household member with substance abuse, mental illness, or who was ever incarcerated (Felitti et al., 1998). Some researchers have expanded the original list of ACEs to include potentially traumatic experiences such as community violence, parent separation or divorce, poverty, and discrimination (Mersky et al., 2017), whereas other researchers have also examined these types of experiences separately or in various groupings and simply referred to them as trauma. Trauma has been described variously as the experience of an event or series of events that overwhelms a person's ability to cope (Herman, 1997), or more narrowly in the *DSM* as "exposure to actual or threatened death, serious injury, or sexual violence" (APA, 2013, p. 271). For the purposes of this study, we use the language of ACEs to compare our results with other research on ACEs and use the more current and inclusive listing of adverse experiences.

Experiences of childhood adversity are quite common. National samples suggest that half of all children have experienced at least one potentially traumatic experience in their lifetime (Bethell et al., 2017). Based on results of the 2016 National Survey of Children's Health (NSCH) and using a slightly modified version of ACEs, Bethell et al. (2017) found that 27.5% children aged 6 to 11 years have experienced parental separation or divorce, 9.3% have experienced household substance abuse, 9.2% have had a parent or guardian incarcerated, 8.6% live with a family member with a mental illness, 6.1% have witnessed domestic violence, 3.7% have witnessed community violence, and 2.9% have lost a parent or guardian to death. While the NSCH survey did not assess childhood experiences of abuse or neglect, Finkelhor et al. (2009) examined data from the National Survey of Children's Exposure to Violence (NatSCEV) and found that 12.8% of 10- to 13-year-olds self-reported experiencing psychological or emotional abuse at some point in their lifetime, 10.5% reported physical abuse, 2.5% reported neglect, and 0.2% reported sexual abuse by a known adult. An analysis of the 2016 cohort of the NSCH found that these experiences of adversity disproportionately affect youth of color (Sacks & Murphey, 2018), whose families may endure ongoing racism, poverty, mass incarceration, and compromised access to a living wage, affordable housing in safe neighborhoods, and accessible and cost-effective health care and child care.

Currently, on any given day, nearly 450,000 U.S. children are in the foster care system (U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau, 2018). By the age of 18 years,

between 5% and 6% of U.S. children have experienced foster care at some point in their lives (Wildeman & Emanuel, 2014). More than one in seven Native American children (15.4%) and one in nine African American children (11.5%) experience foster care by the age of 18 years. Children and adolescents who have experienced repeated or ongoing adversities are at heightened risk for mental health symptomology (McLaughlin et al., 2012).

For children who develop clinical levels of mental health symptomology, unaddressed needs are likely to cause more distress and impairment over time (Kushner, 2016; Lenz & Lancaster, 2016; Ray et al., 2016; Zalaquett & Chatters-Smith, 2016). Mental health challenges are associated with reduced academic achievement (Currie & Stabile, 2009), high school dropout (Dupéré et al., 2018; Porche et al. 2011), and juvenile justice involvement (Teplin et al., 2013). Anxiety, mood, and impulse control disorders are associated with higher rates of risk behavior (e.g., substance use and risky sexual behavior), intimate partner and family violence, physical health conditions (e.g., obesity, cardiovascular disease, diabetes), and premature death (National Prevention Council, 2014). Individuals with mental health concerns are overrepresented in foster care (Turney & Wildeman, 2016), criminal justice (Torrey et al., 2014), and homeless populations (U.S. Department of Housing and Urban Development, 2017). In 2016, suicide was the second leading cause of death of children and youth aged 10 to 24 years (Center for Disease Control & National Center for Injury Prevention and Control, n.d.). Results of the 2019 Youth Risk Behavior Survey, a nationally representative survey of high school youth, found that 18.8% of youth reported seriously considering suicide in the past year, 15.7% had made a plan, and 8.9% had attempted suicide in the past year (Ivey-Stephenson et al., 2020). Early and effective intervention is critical for the well-being of our students.

Childhood Mental Health Services Use

When youth access mental health treatment, attendance and therapy completion rates remain a major concern for mental health professionals (Armbruster & Kazdin, 1994). In a review of the literature, Gopalan et al. (2010) reported that even after setting up an initial intake appointment, 28% to 62% of children and their families did not show up for the appointment. The authors found that youth in low-income, urban settings who attended therapy averaged only three to four sessions. Barriers to therapy attendance and completion included scheduling and transportation challenges, waiting lists, out-of-pocket costs, poor therapeutic alliances, and unmet expectations for therapy. In addition, children with persistent oppositional and/or aggressive behavior and their families were more likely to drop out of treatment prematurely than other children and families (Gopalan et al., 2010).

Delivering mental health services in schools can mitigate many of the barriers youth face in attending and completing treatment. School-based services remove scheduling and transportation challenges for families. Youth referred to mental health services in schools are significantly more likely to follow through with treatment than those referred to community-based services. In one study of 300 youth referred for mental health services, 80% of those referred to in-school services followed up for treatment, while only 40% of those referred to community-based services did the same (Husky et al., 2011). In addition, once youth receive mental health services in school, their families are more likely to seek additional community-based supports (Tegethoff et al., 2014). Recent federal legislation has called on schools to attend to mental health concerns (Mental Health Awareness and Improvement Act, 2013; Patient Protection and Affordable Care Act [ACA], 2010; Safe Schools Improvement Act, 2013; Strengthening America's Schools Act, 2013). Many school districts can seek reimbursement for mental health services provided to Medicaid-eligible students in the school setting, potentially increasing schools' capacities and resources to provide mental health services.

However, schools are largely understaffed with mental health professionals (e.g., school counselors, school psychologists, and school social workers). While the National Associations for School Psychologists, School Social Workers, and School Counselors all suggest ratios effective for meeting student needs, these ratios are rarely met. For example, the National Association of School Psychologists (NASP, 2017) recommends a ratio of one psychologist per every 1,000 students and up to two if more comprehensive services are required; however, they also note that recent studies found the ratio was 1:1,381. In addition, the National Association of School Counselors recommends one counselor to every 250 students; however, in 2014 to 2015, the national ratio was 1:482. Similarly, the School Social Work Association of America (SSWAA, 2013) recommends one school social worker to every 250 students, and recent data suggest an existing ratio 1:782 for elementary school and 1:938 for middle school (Bastian et al., 2019). Schools typically have some combination of mental health workers from these three disciplines, who may be assigned to a school building or to multiple buildings within a district, with research estimating a combined ratio of these positions to students as 1:259 for elementary school students, 1:238 for middle school students, and 1:183 for high school students (Bastian et al., 2019). This is a stark contrast to the five in 10 students who have experienced potentially traumatic events and the two in 10 students who may need mental health services. Less than one in five districts have any policies about these ratios (Brener & Demissie, 2018).

A number of evidence-based methods exist for the treatment of childhood mental health disorders (for a review, see

Chorpita et al., 2011). Symptoms of anxiety, depression, PTSD, ADHD, and behavioral disorders can all be alleviated with effective treatment. Successful school-based mental services have been shown to improve students' academic performance, attendance, and graduation rates, while reducing suspension and truancy (reviewed in Carey & Dimmitt, 2012). Consequently, increasing students' access to evidence-based and culturally competent services in schools is a priority.

Method

Treatment Intervention: A Sports-Based Group Therapy Approach

Doc Wayne, a Boston-based nonprofit organization, provides sports-based group therapy services to youth aged 5 to 18 years. Services are provided in both school and community settings. Chalk Talk is Doc Wayne's evidence-based and billable group therapy program and is a school-based iteration of their sports-based trauma treatment intervention, *Do the Good*, originally developed for adolescents in residential care (D'Andrea et al., 2013). Groups of six to 12 students convene weekly with their "coaches," who are trained mental health clinicians, to engage in a rotation of sports over the course of treatment. Sports include soccer, basketball, flag football, and indoor rowing. Sports are intentionally rotated so that students will have the experience of both liking and disliking activities, as well as excelling and having difficulty with the sports, to encourage perspective taking and empathy. The clinician coaches have strong sports backgrounds, many with sports psychology training. As with any goal-oriented therapy approach, the clinician completes process notes for sessions, documenting therapeutic goals, client concerns, symptoms, and regression or progress. Each therapeutic session consists of six parts: (a) a "warm-up" for students to familiarize themselves with the sport and get comfortable in their body and space for the day, (b) a "check-in" for students and coaches to share a high and low point of their week, (c) a drill or intentionally designed game to engage in the sport and in-the-moment teaching and practice of self-regulation and prosocial skills, (d) a "halftime" story focused on an athlete or celebrity, teaching an aspect of self-regulation or prosocial behavior, (e) a scrimmage for further practice and application opportunities, and finally, (f) a closing "shout out" activity, where students and coaches share compliments with one another and connect the curriculum skill with aspects of sport and life. Together, these components are designed to foster capacity for relationships (increased teamwork), improve emotional regulation (building prosocial communication skills), and increasing distress tolerance reflected in student resilience and confidence (Doc Wayne Youth Services, 2018). Specifically, the sports drill (#3), "halftime" story (#4), and scrimmage (#5) provide an opportunity to work on the DBT components of self-regulation within the context of physical activity and reflection, while the check-ins (#2) and close out (#6) focus on DBT components of goal achievement.

DBT is an evidence-based cognitive and behavioral intervention designed for use with individuals and groups in the treatment of various disorders, including depression and anxiety (Linehan & Heard, 1992). Its use in group work is aligned with the sports-based group therapy approach for this study. Modified components of DBT are used to address emotion dysregulation of youth participants by encouraging mindfulness, self-awareness of emotional reactivity, and strategies to increase tolerance of distress. Engaging in sports activities together requires following the rules, working as a team, communicating, and sharing playing time. Counseling staff are able to engage with youth through the explicit identification of these goals for youth and where they need help in setting and meeting those goals. These reflective conversations about emotions related to these activities are conducted within the group and also one-on-one if the counselor feels it will benefit the youth to have a private conversation on the sidelines. As a brief case example (some details changed for anonymity), a fifth-grade boy diagnosed with PTSD was referred to the program with the goal of improving emotional and behavioral regulation. Over the school year, he increased his frustration tolerance, as he was enthusiastic about participation in the group sports but easily frustrated when waiting for his turn to play (e.g., waiting for other players to pass the basketball), or if he was not playing well (e.g., not getting any baskets). Over time, he came to accept encouragement and support from coaches about the coping skills he was learning. He improved his ability to play with peers without as many outbursts and was even able to give encouragement to teammates. Intervention targets in this example were self-awareness of emotional reactivity and strategies to increase tolerance of distress.

Given the shortage of school-based mental health professionals and critical need for school-based mental health services for students, we examine outcomes of this innovative student mental health delivery model in a school-based setting. Previous research has shown the promise of Chalk Talk in residential settings (D'Andrea et al., 2013); thus, we began our investigation by documenting the range and scope of identification of ACEs, or trauma experiences, and of mental health diagnoses. Then, we tested for potential change in symptom severity that might be associated with the program, by first examining quantitative assessments of the enrolled youth, and second by analyzing therapy notes to better understand progress and barriers to progress from the therapist's viewpoint. The ability of Doc Wayne to bill students' private health insurance and Medicaid plans significantly reduces the cost to schools. If effectively integrated

into educational settings, this model would provide an innovative solution for schools and communities seeking to provide effective mental health care to their students. Through deidentified chart review, we investigated the following research questions:

Research Question 1: What is the range of childhood adversity experiences for students in alternative educational settings?
Research Question 2: What is the range of mental health symptoms identified for students in alternative school settings?
Research Question 3: What is the impact of sports-based group therapy on those symptoms?
Research Question 4: What coping strategies or skills do students acquire over the course of sports-based group therapy treatment?

Setting and Sample

This analysis included chart review of 65 students (53 boys) who participated in the Chalk Talk therapy program at an urban alternative K–5 elementary school during the 2016 to 2017 school year. In this sample, more than 90% of students were identified for special education, one in five students were identified as English language learners, and almost eight in 10 students as economically disadvantaged. In contrast, almost six in 10 students in the city where the study was conducted, and just more than three in 10 students in the state where the study took place, were classified as economically disadvantaged (masked for confidentiality). Students were accepted into the therapy program on a rolling basis, with the goal of enrolling all students as a schoolwide effort. Sixty-five percent of the sample began therapy in September 2016 and 80% had begun by the end of November 2016. As a deidentified chart review, this study was deemed exempt by the Institutional Review Board at Boston University.

Demographics of the sample, as extracted from each student's initial intake form, are reported in Table 1. The average age of students is 8.23 years (SD = 1.63), with a range of 5 to 13 years. More than half (55.4%) of the sample identified as Black or African American, 18.5% as Hispanic/Latino, and the remainder identified as White or multiracial. Less than 5% (4.6%) had missing race and ethnicity data. The average number of mental health diagnoses was 1.28. Nearly three fourths (72.3%) of students had one diagnosis, 23.1% had two diagnoses, and 4.6% had three diagnoses.

Using the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; APA, 2013) categories, clinician-identified or physician-provided diagnoses were coded as (1) Trauma and Stressor-Related; (2) Neurodevelopmental; (3) Disruptive, Impulsive, and Conduct; (4) Depressive; or (5) Anxiety Disorders. Diagnoses of the sample are shown in Table 2. The percentage of the sample with each type of disorder is reported; however, because some students have multiple types of disorders, the sum is greater than 100%. Sixty percent of the sample was diagnosed with a Trauma and Stressor-Related Disorder (specifically, PTSD or Adjustment Disorder) and nearly half (49.23%) of the sample was diagnosed with a Neurodevelopmental Disorder (i.e., ADHD or Autism Spectrum Disorder).

Table 1. Demographic Characteristics of Students in the Sample (n = 65).

Characteristic	Number of students	M (SD), %
Age	65	8.23 (1.63)
Gender		
Boy	53	81.5%
Girl	12	18.5%
Race/Ethnicity		
Black or African American	36	55.4%
Hispanic or Latino	12	18.5%
White	9	13.9%
Multiracial	5	7.7%
Missing data	3	4.6%
Number of diagnoses		
1	47	72.3%
2	15	23.1%
3	3	4.6%

Table 2. Prevalence of Diagnosed Mental Health Disorders in the Sample.

Diagnoses	N	Percentage[a]
Trauma and Stressor-Related Disorders	39	60.0
Post-traumatic Stress Disorder	16	24.6
Adjustment Disorder	23	35.4
Neurodevelopmental Disorders	32	49.2
Attention Deficit/Hyperactivity Disorder	30	46.2
Autism Spectrum Disorder	2	3.1
Disruptive, Impulse Control, and Conduct Disorders	5	7.7
Oppositional Defiant Disorder	3	4.6
Intermittent Explosive Disorder	2	3.1
Depressive Disorders	4	6.2
Major Depressive Disorder	1	1.5
Disruptive Mood Dysregulation Disorder	2	3.1
Unspecified Mood (affective) Disorder	1	1.5
Anxiety Disorders	3	4.6
Generalized Anxiety Disorder	2	3.1
Separation Anxiety Disorder	1	1.5

[a]Sums to greater than 100% because some students have more than one diagnosis.

Method and Measures

This chart review study analyzed students' deidentified case notes. Case notes consisted of a case summary sheet, progress notes written after each therapy session, and a discharge note written at the conclusion of services to summarize the student's progress notes over time (most often written at the end of the school year). Thirty-four of the students' case notes also included a completed Child and Adolescent Needs and Strengths (CANS) Assessment(s) (Praed Foundation, 1999–2016). While the groups of students with and without CANS Assessments did not significantly differ with regard to gender, age, or race and ethnicity, students with CANS Assessments were more likely to have a Neurodevelopmental diagnosis than those without CANS Assessments (64.7% versus 32.3%, χ^2 (1) = 6.831, p = .009). In addition, students with CANS Assessments were less likely to have a Trauma and Stressor-Related diagnosis than those without a CANS Assessment (44.1% versus 77.4%, χ^2 (1) = 7.493, p = .006).

Session attendance. The number of total scheduled sessions and attended sessions was counted for each student. Scheduled sessions included both sessions with a completed progress note and those marked as a "Client No Show" or "Cancelled by Client." Therapy sessions were not scheduled over school vacations, and clinician cancelations were not included in the number of scheduled sessions (this happened once for each student when all the clinicians attended a professional development conference). Next, the total number of attended sessions (as indicated by a completed progress note) was counted. On average, students attended 24.3 (ranging from 3 to 57; *SD* = 14.2) sessions over the course of the school year. The number of scheduled sessions ranged from 3 to 68 with an average of 32.2 (*SD* = 17.0). The wide range of scheduled sessions is due to the fact that as an alternative school, students transitioned in and out of the school throughout the school year. An attendance rate was calculated for each student by dividing the number of attended sessions by the number of scheduled sessions. The average attendance rate was 74.4% (*SD* = 15.1) and ranged from 33.3% to 100%.

Exposure to adversity. The CANS is a multipurpose assessment designed to facilitate communication and treatment planning in child and youth services (Praed Foundation, 1999–2016). The CANS is currently used in child services in all 50 states (John Praed Foundation, 2015) and in some states (including the state in which this study took place) is a requirement for children receiving state-funded services (masked for confidentiality). Assessments are completed by clinicians at intake, discharge, and regular intervals during treatment (Praed Foundation, 1999–2016). At intake, a parent or guardian is asked to meet with the clinician to complete the assessment and is interviewed about significant history. Clinicians provide written comments and updates for each of the seven subscales at each assessment timepoint: Life Domain Functioning, Child Behavioral/Emotional Needs, Child Risk Behaviors, Cultural Considerations, Transition to Adulthood, Child Strengths, and Caregiver Resources and Needs (Massachusetts CANS Assessment, n.d.). The clinician also writes diagnostic comments and provides an overall summary in narrative form. Organizations are reimbursed for the completion of the initial CANS but not any of the required follow-up assessments. The most recent version of each student's CANS Assessment included all the previously completed summaries, making it the most comprehensive version. Consequently, the most recent CANS Assessment was extracted for each student with an available assessment.

The seven subscale summaries, diagnosis comments, and overall summary of each student's most recent CANS were read and categorically coded for reported childhood adversities. Specifically, evidence of the following experiences were coded dichotomously (0 = *no*, 1 = *yes*): physical abuse, sexual abuse, psychological abuse, neglect, household substance abuse, household mental illness, domestic violence, incarceration of a family member, parental separation/divorce, homelessness, traumatic loss, foster care, protective services involvement, and community violence (we include additional adversities beyond those originally named by Felitti et al., 1998, to account for the wide range of trauma experiences of this sample). The questions used to code these reported adversities are shared in Table 3. An affirmative answer to any one of the questions listed with an adversity resulted in a coding of 1 for the category. Explicit mention of the adversity (e.g., the student experienced neglect) was also coded as 1. Parental separation or divorce was only coded 1 if these experiences were specifically mentioned; single-parent homes without the mention of separation or divorce were coded as 0. If the assessment indicated that a parent declined to answer a question, it was coded as 0 (this was noted in one instance).

Analysis

We utilized a sequential mixed-methods design (Morse, 2003), first completing descriptive and inferential quantitative analyses and then qualitative content analysis (Hsieh & Shannon, 2005). Results from initial testing for change in symptoms guided our decisions about the focus of our coding of the therapy notes, so that we could better understand how change in symptom scores was reflected in the student's reported thoughts and observed behaviors as recorded by the therapist. Results of quantitative and qualitative analyses are integrated by research question. Logistic regression models were fit using SPSS Version 24 to determine whether the attendance rate, displays of physical aggression, experiences of adversity, or any demographic

Table 3. Questions Used to Code Reported Adversities.

Reported adversity	Coding questions
Physical abuse	Did a parent or other adult in the household . . . • Often or very often push, grab, shove, or slap the student? • Often or very often hit the student so hard that he or she had marks or was injured?
Sexual abuse	Did an adult or person at least 5 years older than the student ever . . . • Touch or fondle the student in a sexual way? • Have the student touch his or her body in a sexual way? • Attempt oral, anal, or vaginal intercourse with the student? • Actually have oral, anal, or vaginal intercourse with the student?
Psychological abuse	Did a parent or other adult in the household . . . • Often or very often swear at, insult, or put the student down? • Often or very often act in a way that made the student afraid that he or she would be physically hurt?
Neglect	Did this student experience neglect?
Household substance abuse	Did/does the student live with anyone who was a problem drinker or alcoholic? Did/does the student live with anyone who used street drugs?
Household mental illness	Has a household member been depressed or mentally ill? Has a household member attempted suicide?
Domestic violence	Was the student's mother (or stepmother) treated violently? Was the student's mother . . . • Sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her? • Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard? • Ever repeatedly hit over at least a few minutes? • Ever threatened with, or hurt by, a knife or gun?
Incarceration of a family member	Was there criminal behavior in the student's household? Did a household member go to prison?
Parental separation or divorce	Were the student's parents separated or divorced?
Homelessness	Has the student experienced a period of homelessness in the past? Is the student currently homeless?
Traumatic loss	Has the student experienced traumatic and unexpected death of a parent or close family member?
Foster care	Has the student been placed in foster care in the past? Is the student currently in foster care?
Protective services	Has the student had some involvement with child protective services?
Community violence	Has the student been a witness to, or victim of, community violence?

variables increased the odds of symptom reduction. When considering associations with reported adversities, only results that were significant at the $p < .001$ level are reported because of the amount of missing CANS Assessment data. When investigating associations with diagnoses, both specific diagnoses and diagnosis categories were tested.

Symptom presentation, symptom reduction, and treatment outcomes. Each student's first progress note, last progress note, and discharge summary were extracted for analysis. Ten students were missing discharge summaries; because discharge summaries were the clinician's summary of the student's progress notes over time, all progress notes were extracted for qualitative analysis to determine symptom presentation and treatment outcomes for these 10 students. Each student's extracted notes were also read and analyzed to determine whether the student displayed physical aggression (one facet of symptom presentation) and/or a reported reduction in symptoms over the course of treatment. Both physical aggression and symptom reduction were coded dichotomously (0 = *no*; 1 = *yes*) for quantitative analysis.

In addition, qualitative analysis of the first progress note and discharge summaries was conducted to analyze students' symptom presentations and treatment outcomes. Each initial progress note had six to eight sentences describing the student's participation in the session and response to group therapy. Each discharge note had a six- to eight-sentence narrative describing the student's overall progress with the treatment. For students without a discharge summary, all progress notes were coded. Two coders independently conducted conventional content analysis (Hsieh & Shannon, 2005), first reading the data multiple times and then reading word by word to create codes inductively from the data. After independent initial coding, the two coders met, discussed their codes, and created a visual diagram to cluster similar codes and identify unique codes. Next, the two coders worked together to develop common codes and themes that they both agreed represented the data. After completing our qualitative analysis, we examined codes

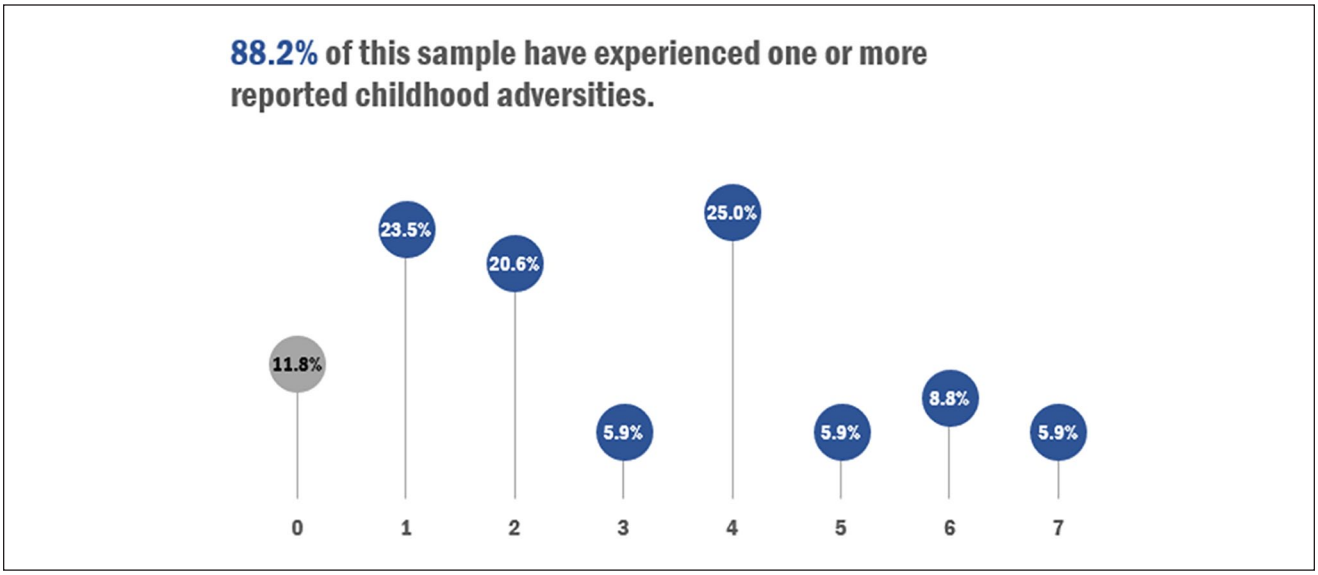

Figure 1. Symptom presentation: Prevalence and presentation.

from the set of 55 discharge notes and the set of 10 complete progress note cases to determine whether either was unduly weighting the qualitative themes. The themes held in each set of data. Evidence is presented from the entire data set.

Results

Exposure to Adversity

For the 34 students with CANS Assessment data (52.3% of the sample), the average number of reported adversities experienced was 2.76 (SD = 2.10). Figure 1 illustrates the distribution of the total number of reported adversities. The most common adversities were protective service involvement (41.2%) and household substance use (38.2%). Just less than 30% (29.4%) of the students had experienced or were currently in foster care and 26.5% of students had experienced neglect. More than one in five (23.5%) students had experienced physical abuse. More than one in nine (11.8%) students had experienced homelessness. In this sample, students diagnosed with PTSD were significantly more likely than other students to have experienced physical abuse (58.3% versus 4.5%, χ^2 (1) = 12.485, $p <$ .001) and foster care (66.7% versus 9.1%, χ^2 (1) = 12.398, $p <$ .001). Table 4 summarizes students' reported exposure to specific adversities.

Symptom Presentation

Approximately one third (33.9%) of the sample displayed physical aggression (described below) within the course of treatment. Six themes of symptom presentation emerged from the data. Students presented with attentional difficulties, relational challenges, physical and verbal aggression, self-harm behaviors, low self-esteem, and withdrawn affect. Many students presented with symptoms across multiple categories.

Some students presented with attentional difficulties, often in combination with other symptoms. When describing attentional difficulties, clinicians often indicated that students struggled to focus or control impulses. These students interrupted others; had difficulty sitting or standing still for the *Check-in*, *Halftime*, or *Shout-out* portions of the session; and/or appeared to be daydreaming. Relational challenges were described with more nuance. Clinicians described students having difficulty making friends, engaging in positive interactions with peers, cooperating with others, and/or displaying prosocial skills. One student was described as being "influenced by peers' behaviors at times, and engaging in name-calling or bullying behaviors" (which were also a common concern identified in Doc Wayne's clinical practice with this population), while another was reported to be "secluding himself from the larger group and having difficulty sharing with teammates." Relational challenges with adults were also described. For example, one student was reported as displaying "disrespectful behaviors such as negative commentary when coaches or others were speaking, name calling, and refusing to engage with staff." Many students presented with physical and verbal aggression, which was also described as "dysregulation." Clinicians most often reported that students became physically and verbally aggressive toward peers, including hitting, punching, and kicking, but one student was reported to throw folding chairs, and another would punch padding in the gymnasium. Many times, physical and verbal aggression was reported without a target, making it unclear whether clinicians were

Table 4. Reported Exposure to Specific Adversities ($n = 34$).

Adversity	*n*	Percentage
Protective services	14	41.2
Household substance abuse	13	38.2
Foster care	10	29.4
Household mental illness	10	29.4
Neglect	9	26.5
Physical abuse	8	23.5
Parental separation/Divorce	6	17.6
Domestic violence	6	17.6
Traumatic loss	4	11.8
Homelessness	4	11.8
Sexual abuse	3	8.8
Community violence	3	8.8
Incarceration of a family member	2	5.9
Psychological abuse	2	5.9

also targets. Although physical and verbal aggression were often reported together, some students were only reported to have displayed verbal aggression. These students would yell, use inappropriate language, and name call, especially when they were frustrated. A few students also presented with self-harm behaviors. These including "hitting himself" and "hitting/kicking cement walls, digging his nails into his skin, and hitting his head on the wall." Many students were reported to have low self-esteem. This was almost always reported as low self-esteem, self-worth, or self-confidence or that the student would benefit from improvements in these areas. Finally, some students presented with withdrawn affect. These students were reported to have low mood and/or low energy and sometimes refused to participate in the activity, removed themselves from the activity, or sat alone.

Symptom Reduction

Descriptive statistics demonstrated that 72.3% ($n = 47$) of the sample showed a clinician-reported reduction in symptoms over the course of treatment. For 16.9% ($n = 11$) of the sample, symptom reduction was unclear. For these students, progress and discharge notes were written in an ambiguous fashion, or some severe behaviors were remediated while others surfaced. Finally, for 10.8% ($n = 7$) of the sample, clinicians did not report a reduction in symptoms. According to progress notes and discharge summaries, these students' symptoms appeared to have remained at the same level ($n = 6$) or gotten worse ($n = 1$).

Qualitative Findings for Treatment Outcomes

Clinicians reported several gains for students over the course of treatment. Six themes of treatment outcomes emerged from the data. We present the themes in relation to the ARC framework (Blaustein & Kinniburgh, 2018).

Attachment

Theme 1: Gains in prosocial skills and relationships. Over the course of treatment, many students made gains in prosocial skills and relationships. One clinician described a student as having "significantly improved with regards to his prosocial interactions with others, giving high fives to coaches and peers, and praising peers for their skills/success during group activities/drills and scrimmages." A number of students were reported to have developed positive relationships with peers and/or coaches in the group. One clinician reported that a student had developed the ability to "communicate effectively and respectfully with his team," while another was able to remain "optimistic/positive with peers even if they miss a shot or make a mistake."

Theme 2: Gains in perspective taking, compassion, and empathy. Student gains in perspective taking, compassion, and empathy were also reported. A clinician described a student as having "increased awareness of others and [having] made a large improvement with regards to empathy and perspective taking." Another student was described as having "increased compassion for others and would often apologize without prompting when she boasted about winning to peers." Other students were reported to have become increasingly inclusive of their peers. Finally, students' increased encouragement of their peers during activities and after setbacks provided further evidence of gains in perspective taking, compassion, and empathy.

Regulation

Theme 3: Gains in strategies to regulate emotions. Many students were reported to have made gains in emotional regulation strategies. These strategies included verbalizing needs, deep breathing, taking space, and/or talking to an adult. One student was described as having "increased her ability to vocalize her needs and seek support from coaches." Another was "better able to control her impulses, seek support, and utilize effective coping skills such as taking space rather than to fight." Clinicians also reported students' increased ability to regulate their emotions in response to situations that were personally difficult. For example, one clinician wrote, "He is better able to utilize coping skills and manage emotions related to losing or disruptive peers."

Theme 4: Gains in participation. At the start of treatment and when new sports were introduced, it was often reported that students would sit out of activities and refuse participation, a barrier to effective treatment. The students did not yet have the skills to regulate their emotions and feelings of insecurity or vulnerability that came with trying a new sport in a group context. However, as treatment continued, gains in participation were evident in many students. One clinician described a student as "excited to play as his

confidence developed, rather than avoiding games, and also asserted himself into plays, which he had not done upon admission." Increased participation was often reported in connection to gains in relationships, improved mood, and stronger self-regulation skills. For example, one student "increased participation as she developed relationships with her peers." Finally, students also demonstrated increased participation in specific parts of the therapy approach: For example, one student "began giving shout outs at the end of groups," while another "increased the amount of time he stayed in the larger game."

Competencies

Theme 5: Gains in self-efficacy and confidence. Students also demonstrated gains in self-efficacy and confidence. Students were reported to have increased self-worth, optimism, and prosocial risk taking. One student was "better able to receive compliments/praise." Other students displayed increased confidence through their improved willingness to try new sports. For example, one clinician wrote, "Over the course of treatment, [the student] improved with regards to her self-worth and increased prosocial risk taking, as she steadily increased her engagement in new and challenging activities and games." Another was also able to remain positively engaged when others became frustrated with her:

> [The student] demonstrated improvement with regards to her self-worth and self-efficacy as she took prosocial risks such as increased effort in trying new sports (as evidenced by body posture, facial expression, verbalization). She also demonstrated these improvements, as well as resiliency as she asserted herself into games and plays and remained in the games and continued her positive attitude despite peers becoming frustrated if she dropped the ball or missed a pass.

Theme 6: Gains in leadership skills. Finally, some students also developed leadership skills over the course of treatment. One student was described as developing into a "positive leader and role model for the younger group members." Other students were recognized for encouraging and including others, modeling hard work, and checking in on teammates who were dysregulated. One clinician wrote the following:

> [The student] has taken on a leadership role within the group. This is evidenced by [the student] vocalizing his thoughts to the larger group, giving suggestions for games to coaches, and engaging his teammates. [The student] had multiple positive interactions with his teammates on a weekly basis.

Correlates of Symptom Reduction

Logistic regression analyses showed no significant differences in symptom reduction associated with subgroups of students based on gender, race/ethnicity, age at intake, or reported exposure to adversity.

Discussion

Range of Childhood Adversity Experiences

This mixed-methods study analyzed the outcomes of an innovative sports-based group therapy intervention delivered in an elementary school setting. Reported exposure to adversity, symptom presentation, mental health diagnoses, symptom reduction, and treatment outcomes were explored using deidentified chart reviews. This sample of students attending an alternative elementary school had experienced adversity at higher rates than reported for general public elementary school populations. Eighty-eight percent of students in our sample were reported to have experienced one or more of 14 adversities. Using the Modified Traumatic Events Screening Inventory for Children—Brief Form (Daviss et al., 2000; The National Center for PTSD, & Dartmouth Child Trauma Research Group, 2008) and University of California at Los Angeles (UCLA) PTSD Reaction Index (Steinberg et al., 2004), Gonzalez et al. (2016) measured exposure to adversity and PTSD symptomology in a sample of 402 elementary school students enrolled across four ethnically and linguistically diverse Title 1 elementary schools in southern California. Just more than one third (34%) of the students in that study reported exposure to one or more of the 21 possible adversities. The authors found that nearly 10% of the sample would likely meet the *DSM-IV* criteria for PTSD, and three quarters of the students exposed to at least one adversity reported moderate to severe PTSD symptoms (Gonzalez et al., 2016). In contrast, the majority of students in our study were diagnosed with a Trauma or Stressor-Related Disorder, indicating that their trauma exposure has resulted in clinical levels of symptomology and impairments at school, home, and/or in the community.

However, the rates of reported childhood adversities reported in our study are likely to be underestimated for several reasons. First, students with a Trauma and Stressor-Related diagnosis in this sample were less likely than their peers to have a CANS Assessment, meaning that their trauma histories were less likely to be captured in this analysis. Second, given the sensitive nature of childhood adversities, particularly abuse and neglect, parents are likely to underreport these. The high prevalence of a history of protective service involvement in this sample may also incline parents to withhold this sensitive information. In addition, foster parents and kinship guardians may be unaware of the child's complete history. Third, parents were not asked all the coded questions directly. As a chart analysis, reported adversities were coded based on clinicians' interviews with parents, but a standardized ACE inventory (e.g., Felitti et al., 1998) was not used during this interview. Finally, coding in

this analysis was completed conservatively. In two cases, child protective services were indicated without any further explanation; consequently, these students' experiences of adversity are most likely underreported for this analysis. As indicated in the "Method" section, traumatic loss was only coded affirmatively if the student had experienced the unexpected death of a parent or close family member. However, for many of these students who have experienced foster care, loss of and separation from parents, siblings, close relatives, pets, homes, schools, and communities may be traumatic (Office of the Children's Advocate, 2016). We also only coded parental separation and divorce if such events were specifically noted. Based on focus groups with youth in Philadelphia, Wade et al. (2014) found that parental separation and divorce was less relevant to these urban youth because many of the families in their communities were started as single-parent households. These youth cited single-parent households, rather than parental separation or divorce, as a stressor in their lives.

Range of Mental Health Symptoms

As students placed by the school district in an alternative school, students' mental health symptoms and behavior in school were beyond what the public schools can typically accommodate. Moreover, with a mean age of 8 years and all students in Grades K–5, these students are at the beginning of their educational journeys, with increased importance for effective early intervention. In addition to having to switch schools, these students face high rates of suspension at their current school. This may further traumatize them and disconnect them from school. Prior research supports these concerns. Porche et al. (2016) found that children and youth who have faced a greater number of reported adversities tended to have more mental health diagnoses, which is in turn associated with poor school engagement, retention, or having an Individualized Education Plan (IEP). In addition, as children advance through school, those who have experienced an adverse event, and particularly those who develop a substance use or conduct disorder, are at heightened risk for high school dropout (Author, 2011). Already placed on IEPs and removed from at least one school, students in this sample are highly vulnerable to poor school engagement, retention, and high school dropout making effective mental health treatment critical. In addition, for students who have already been repeatedly labeled and stigmatized, reimagining mental health services through sport allows them engage in a needed service without further criticism, labeling, and self-doubt.

The Impact of Delivering Therapy Through Sports

With these students experiencing considerable adversity and mental health symptomology, Doc Wayne's Chalk Talk sports-based group therapy intervention was able to reduce symptoms for nearly three quarters of the sample. Common to many socially complex interventions in community settings, there are challenges to implementing randomization and an emphasis on alternative approaches to evaluation of outcomes (Wolff, 2000). One key alternative approach emphasizes the investigation of within-person differences, in contrast to narrow focus on between-group differences (Curran & Bauer, 2011). This study is one such example of an investigation of a socially complex mental health intervention that is lacking a comparison group and that examines within-person change. However, these study results are highly unlikely to be the result of development, given the intense nature of students' exposure to adversity and mental health symptomology.

Access to, and engagement in, therapy services are often major challenges for youth in need of mental health services (Gopalan et al., 2010; Merikangas et al., 2011). While Doc Wayne's services are not typically implemented schoolwide, doing so in this high-needs alternative school setting removed barriers to access for students. In addition, the innovative sports-based nature of this program is used as an engagement strategy to gain ongoing therapy compliance from students. Qualitative analysis of students' discharge summaries suggests that students developed many positive coping strategies that should assist them with their mental health symptomology and responses to stressors in their school, homes, and community.

Attendance rates varied widely in this sample, and some students were removed from sessions by school staff due to aggressive behavior. While understandable in response to safety precautions, a more pressing concern is that some youth were denied attendance for therapy sessions as a consequence for misbehavior earlier in the school day. Attending therapy should not be used as a reward, nor should therapy be withheld as a punishment. This therapy model was highly engaging to students, which should be capitalized on for treatment compliance and the development of positive coping skills. Youth living in low-income, urban neighborhoods and youth with oppositional and aggressive behaviors are at high risk for discontinuing therapy services prematurely (Gopalan et al., 2010). With students in this sample averaging just under a 75% attendance rate and attending an average 24 therapy sessions over the course of the school year, this model facilitated consistent and ongoing treatment for the majority of the sample over the course of the school year.

Meeting Staffing Needs for Mental Health Professionals

As an institution that serves the vast majority of children and adolescents and given the connection between mental health and academic achievement, schools are critical stakeholders in providing mental health treatment (Husky et al., 2011). However, schools overwhelmingly lack the

necessary number of mental health professionals to meet student needs. In addition, these positions are some of the first to be eliminated, or least likely to be added, when budget challenges arise (Reback, 2010). No single funding source for school mental health services exists (U.S. Government Accountability Office, 2007). Consequently, schools report piecing together funding from various sources (e.g., private grants, state and federal funding) to provide mental health services to students. Each of these mechanisms has its own restrictions, limiting the types of services or which students they are offered to, further hindering schools' capacitates to provide services to all students in need of mental health care. Finally, if one source is cut or shifts its priorities, schools may have to cut mental health providers' positions and sacrifice their services to students (U.S. Government Accountability Office, 2007). Consequently, solutions and policies that build school capacities to provide mental health services are desperately needed. In this study, we document the outcomes of a therapy intervention provided by an outside agency that works in schools and hires and manages its own mental health professionals. With the ability to charge students' health insurance policies (including Medicaid for low-income families), the intervention is provided at no additional cost to families and low cost to schools, eliminating significant barriers to treatment and providing an innovative solution to the challenges of providing mental health services in schools.

This study points to the importance of subsidized health insurance for children and the utility of schools' and providers' abilities to apply for reimbursement for services provided in schools. These policies and acts of legislation should be defended, upheld, and expanded to continue to promote students' access to and receipt of critical physical and mental health services. Furthermore, Doc Wayne's services provide an example of the many associated costs of innovative school-based mental health care that are not currently reimbursed by health insurance. For example, because follow-up CANS Assessments are not reimbursed and the students in this study often required safety planning meetings with the school (another service that is not reimbursed but was critical for student and staff safety), many CANS Assessments were not able to be completed. Reimbursement for this service would allow organizations to meet this requirement, gather further data to evaluate their services and students' progress, and improve treatment outcomes. In addition, Doc Wayne currently pays for its sports equipment and travel expenses to and from schools through private grants and charitable contributions. Sustainable school-based mental health services require a secure funding stream for all the costs involved in delivering care.

While these students are receiving treatment for their individual symptoms and gaining new skills in how to be prosocial in group settings, their families and communities are likely also affected by these adversities. Poverty rates are very high among students in this sample, which likely affects stress levels within the family as well as access to safe housing, healthy and predictable meals, and quality health care. Future research and policy work should consider how comprehensive services can be provided to improve the health and well-being of families and communities. In conjunction with alleviating the symptoms of children who have already experienced adversity and mental health concerns, concurrent efforts to dismantle the systems that perpetuate racism, poverty, and educational inequality must be addressed to promote healthy childhoods for our future generations.

Limitations and Next Steps

While this study provides preliminary evidence of the effectiveness of this intervention, it is also important to highlight its limitations. This study had a small sample size ($n = 65$), with only 34 students having the CANS Assessments that were used to document reported adversities. In addition, chart review presents some limitations. Students were not observed by researchers over the course of treatment. In addition, the quality of treatment notes varied, likely in part to clinician training and caseloads. Treatment notes are also available to health insurance companies, which may affect the information that clinicians record.

Working with larger samples, future research should examine differences in treatment outcomes for subsets of students to document whether this intervention is more effective with any particular population of students. General education and community-based samples should also be investigated. Finally, examination of longitudinal academic outcomes for these students would reveal whether this treatment is able to disrupt students' risk for negative educational outcomes due to their experiences of adversity and mental health symptomology.

These initial results provide evidence of a promising and innovative intervention that addresses many barriers to students' access to, and engagement in, mental health care. It is delivered in schools, at low cost to schools, and by an organization that provides its own mental health clinicians. In addition, the intervention promotes treatment compliance by using sport as an engagement strategy and reduces stigma by delivering services in a group setting (rather than being removed from class for individual talk therapy). Finally, the group model increases the number of students served and provides opportunities for applied practice within each therapy session.

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