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11-2018

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Susan C. Davies

University of Dayton, sdavies1@udayton.edu

Elana R. Bernstein

University of Dayton, ebernstein1@udayton.edu

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### eCommons Citation

Davies, Susan C. and Bernstein, Elana R., "Persistent Social-Emotional Symptoms Following a Concussion: Recommendations for School Psychology Practice" (2018). *Counselor Education and Human Services Faculty Publications*. 84.

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# **Persistent Social-Emotional Symptoms Following a Concussion: Recommendations for School Psychology Practice**

Elana R. Bernstein and Susan C. Davies, University of Dayton

## **ABSTRACT**

Concussions can result in a constellation of physical, cognitive, and social–emotional symptoms, most of which resolve within 1 to 2 weeks following the injury. In some instances, social–emotional difficulties following concussion persist, causing ongoing distress and psychosocial impairments. It is important that school psychologists understand the nature of these symptoms, as well as ways in which they can support students who are recovering from concussions. As part of a collaborative concussion team, school psychologists can provide valuable insight into the complex interaction of symptoms that may present following a concussion. This article summarizes the existing literature on persistent social–emotional effects of concussions and provides recommendations for school psychologists with regard to consultation, assessment, and intervention for this underserved population of students.

## **INTRODUCTION**

Traumatic brain injuries (TBIs), including concussions, are a leading cause of disability in the United States, resulting in a significant public health issue (Centers for Disease Control and Prevention [CDC], 2017). Concussions can result from a number of youth-oriented activities, including bicycle riding, athletics, motor vehicle accidents, and falls (CDC, 2017). School personnel must therefore understand TBIs and concussions—the common causes, symptoms, long-term consequences, and necessary accommodations and interventions—to support affected youth in the school setting.

TBIs exist on a continuum of severity, from mild to severe. This article will focus on concussions, a type of mild TBI. Concussions may result in a range of physical, cognitive/academic, and social–emotional symptoms. Most individuals are aware of the physical (i.e., headaches, lethargy, sensitivity to light) and cognitive/academic (i.e., memory difficulties, executive functioning deficits; Graff & Caperell, 2016) symptoms, but the social–emotional impacts (i.e., anxiety, depression, social withdrawal) of concussion are less understood (Dreer, Crowley, Cash, O’Neill, & Cox, 2017). Social–emotional symptoms following concussion can persist, even once the physical and cognitive symptoms of the concussion allay (Moser, 2007), which typically occurs 1 to 2 weeks postinjury (Babcock et al., 2013). A fairly substantial set of literature exists on the interrelationship of factors that may cause some individuals’ social–emotional symptoms to persist or result in a mental health diagnosis following a TBI (see Dreer et al., 2017; Graff & Caperell, 2016; Grubenhoff et al., 2016). However, this area of research has yet to be fully explored, including how it is addressed by school psychologists. School professionals, including psychologists, who encounter students who have sustained a concussion and experience persistent social–emotional symptoms, must be equipped to address these issues.

The purpose of this article is to (a) summarize the state of the literature regarding the social–emotional symptoms associated with concussions, including those that persist and result in prolonged recovery; (b) present a conceptual framework for understanding the multidirectional relationship between concussion and social–emotional symptoms; and (c) provide a set of recommendations for school

psychologists to provide supports and services for students experiencing social–emotional difficulties following a concussion.

## **CONCUSSIONS**

A concussion is defined as an injury that results in the disruption of normal brain functioning, caused by a direct hit, jolt, or bump to the head or a hit to another part of the body that caused rapid acceleration or deceleration of the head and neck (CDC, 2013; Faure, 2010).

### **Prevalence**

The true prevalence rates for concussions are difficult to capture due to inconsistent injury reporting; many individuals never seek treatment for concussions (Leo & McCrea, 2016). Compared to adults, youth ages 5–18 are at increased risk for TBIs and prolonged recovery. In 2009, approximately 250,000 children were treated in U.S. emergency departments for sports- and recreation-related injuries that included a diagnosis of a concussion (Gilchrist, Thomas, Xu, McGuire, & Coronado, 2011). Between 2001 and 2012, the number of children below the age of 19 who sought treatment in the emergency department for TBI (including concussion), alone or in combination with other injuries, more than doubled (CDC, 2017). Children up to age 4 and adolescents ages 15–19 are at the greatest risk for sustaining a concussion (CDC, 2017), largely due to falls in preschool-age children and motor vehicle accidents among older adolescents.

### **Common Causes and Classification**

Injuries to the brain may be the result of a number of incidents. Leading causes of TBI, per percent of emergency department visits, include falls (47%), intentional self-harm (33%), being struck by or against an object (15%), and motor vehicle crashes (14%; Taylor, Bell, Breiding, & Xu, 2017).

TBIs are evaluated on a continuum as mild, moderate, or severe, based on initial postinjury scores on the Glasgow Coma Scale (CDC, 2015), which evaluates factors such as the degree of altered consciousness and postinjury amnesia. The severity rating reflects functioning immediately following injury, not the long-term functional effects, which may be directly influenced by the accommodations and modifications implemented (McKee & Daneshvar, 2015). Consequently, individuals with the same classification of TBI may experience a very different set of symptoms and outcomes.

To exemplify this, consider “Grant,” a seventh grader who sustained a concussion after a bicycle accident in his neighborhood. Grant’s initial postinjury score on the Glasgow Coma Scale was 13, classifying his TBI as mild. When provided with appropriate accommodations and modifications (i.e., cognitive rest, reduced homework, temporary removal from athletic activities, and opportunities to rest in the nurse’s office with dimmed light), Grant’s recovery was swift; he was symptom-free and back to full cognitive and physical activities within 2 weeks.

Next, consider “Tracy,” a 10th grader who sustained a concussion during a recent lacrosse game. Although the school adequately followed a return-to-play protocol for Tracy’s participation on the lacrosse team, no specific accommodations were provided for her return to the classroom. Tracy, an honors student who rarely misses an assignment, was back in school 2 days after the injury. Without any accommodations or modifications, she returned home after school exhausted from the cognitive demands of the school day. She fell asleep in the late afternoon, disrupting her nighttime sleep; she

missed several homework assignments, and fell behind in her honors English and history classes. This resulted in increased levels of stress and anxiety. Tracy was not permitted to attend lacrosse practice, which isolated her from her close friends; she reported feeling restless and unable to “burn off the stress.” Despite her desire to return to her team and hang out with friends, she also expressed new fears of reinjuring herself in a game and did not want to let her team down. Taken together, the outcomes of Tracy’s mildly classified concussion could result in a prolonged recovery, marked by persistent symptoms and ongoing difficulties.

## **CONSEQUENCES OF CONCUSSIONS**

Symptoms associated with concussion vary in presentation and severity; some symptoms are apparent to onlookers, and others are subtle or hidden (Davies et al., 2014). The severity of symptoms is based on a number of factors, including the specifics of the injury (location in the brain, age at injury, presence of prior illness or mental health diagnoses, trauma incurred) and the response and provision of support by surrounding caregivers (Jantz & Coulter, 2007). It is important to understand that these symptoms interact and influence the onset and occurrence of each other. For example, chronic headaches can result in attentional difficulties, which can impact school performance and, in turn, may cause additional stress-induced headaches and other somatic or emotional symptoms. The presentation of symptoms is cyclical and, without proper intervention, may continue for extended periods of time. School psychologists and related professionals can best serve affected students by possessing knowledge of the following symptoms and associated factors.

### **Physical Symptoms**

Physical symptoms following a concussion vary depending on what part of the brain is injured and may include headaches (mild to severe), sleep disturbance, impaired motor abilities (limited strength, poor balance), sensory deficits (double vision, taste/smell disruption), and, in severe injuries, seizures (Jantz & Coulter, 2007). Physical symptoms have social–emotional ramifications. Headaches often occur suddenly and with little warning; they may result in difficulties concentrating in the classroom, irritability, and even withdrawal from or conflict with friends (Jantz & Coulter, 2007).

### **Sleep**

The CDC (2017) classifies sleep symptoms as a distinct category, which includes sleeping more or less than usual or having difficulties falling asleep. Sleep disturbances are common following concussion and may have significant consequences for school functioning—maintaining energy for learning is difficult on little sleep. Additionally, sleep difficulties are also a common symptom of various mental health problems, including depression (Becker, Cusick, Sidol, Epstein, & Tamm, 2017). It is important for practitioners to assess students’ sleep quality and recognize its implications on daily functioning and school performance.

### **Cognitive/Academic**

Concussions can affect a number of cognitive and academic areas of functioning that are critical for classroom performance. Following a TBI, students may struggle with memory, concentration, processing information, and problem-solving (Jantz & Coulter, 2007). Executive functioning deficits are common following a TBI, affecting 18–36% of those with TBI (Sesma, Slomine, Ding, & McCarthy, 2008). These include difficulties following multistep directions, planning for long-term assignments and projects,

impulsive or rigid thinking/behavior, and poor follow-through (Jantz, Davies, & Bigler, 2014). Interestingly, cognitive and academic symptoms may also directly influence a student's social-emotional functioning, particularly in students for whom these difficulties are new. Students may not attribute new executive functioning difficulties to their recent concussion; frustration may arise, which may in turn influence mood, stress level, and behavior.

### **Social-Emotional**

TBI can result in an array of social and emotional difficulties, including anxiety, depression, irritability, isolation and posttraumatic stress (Max et al., 2011; Sady, Vaughan, & Gioia, 2014). Some students who sustain concussions experience social withdrawal and loneliness. One study reported higher rates of internalizing problems among young children and more externalizing behaviors in adolescents (Poggi et al., 2003). A survey of adolescents found that, in addition to loneliness and anxiety, significant correlations existed between experiencing a TBI and self-reported depression and perceived quality of life (Di Battista, Godfrey, Soo, Catroppa, & Anderson, 2014). Social-emotional symptoms following a concussion have been reported to be the most concerning by parents and teachers (Trenchard, Rust, & Bunton, 2013) and often persist even once physical and cognitive symptoms subside (Lewandowski & Rieger, 2009). It is also important to recognize that head injuries sustained by youth may be the result of a traumatic event (i.e., car accident or physical fight); thus, the traumatic experience is inextricably intertwined with the student's social-emotional recovery.

### **Exacerbating Factors**

Regarding social-emotional symptoms following a concussion, there is likely a set of exacerbating factors that contribute to recovery resistance. Students who sustain concussions often feel overwhelmed by an accumulation of missed schoolwork. This is often coupled with well-intentioned but overly restrictive postconcussion rest protocols. Return-to-play protocols are critically important following a concussion to reduce the likelihood of reinjury (McCrary et al., 2017). Return-to-learn protocols are not as clearly articulated and can result in recovering students returning to school without appropriate support (Davies, 2016). Recommendations for students who return to school while still symptomatic typically include a period of cognitive and physical rest (i.e., reduced schoolwork, limited technology use, refraining from physical education class), which may initially require some missed school. A gradual return to school should be paired with reduced cognitive demands so as to not provoke symptoms. However, when caregivers completely restrict activities, reduce social interactions, and prohibit technology use, they may unintentionally frustrate and further isolate students. Feelings of sadness and loneliness can be due to the functional limitations of the injury sustained; however, in combination with overrestrictions and limitations, students may experience these symptoms in excess.

### **PERSISTENT SYMPTOMS OF CONCUSSION**

Whereas most symptoms of mild TBI subside within 1 to 3 weeks following injury (Eisenberg, Meehan, & Mannix, 2013), an estimated 15–30% of children who sustain a concussion continue to report symptoms at 3 months postinjury. This collective of persistent symptoms is often referred to as postconcussion syndrome, which is difficult to measure even in well-controlled studies (Panayiotou, Jackson, & Crowe, 2010). Although a formal diagnosis of postconcussion syndrome is debated in the research literature, no controversy exists regarding the persistence of symptoms in a subset of concussed individuals. Part of the difficulty is in how postconcussive symptoms are assessed and reported, which is often done

subjectively by individuals up to a year following the brain injury. It is unclear, however, if these complaints occur with greater frequency than they would without injury (Panayiotou et al., 2010). Furthermore, there is a well-established link between the severity of the TBI and poor outcomes related to cognitive and physical symptoms; however, this same linear relationship is not consistently observed with persistent social–emotional symptoms (Noggle & Pierson, 2010). Poor social–emotional outcomes following concussion may be the result of secondary adjustment problems (i.e., functional limitations resulting from postconcussion restrictions), among other factors (i.e., age at injury, preinjury diagnoses; Trenchard, et al., 2013).

Research suggests that noninjury psychological factors play a role in delayed symptom reduction (Silverberg & Iverson, 2011), particularly in social–emotional symptomology associated with TBI and concussion. For example, individuals with a history of anxiety or depression are at greater risk for developing persistent postconcussive symptoms. Hixson, Allen, Williams, and McLeod (2017) reviewed published studies to examine whether state anxiety (presently reported), trait anxiety (personality characteristics that result in a broad perception of threat), or anxiety sensitivity (personality trait that results in physiological, psychological, and social factors being perceived as threatening to self) predicted greater postconcussion symptoms in post-TBI patients. Their review of studies provided moderate evidence that anxiety sensitivity is associated with postconcussion symptoms. Interestingly, their findings suggest that preinjury symptoms of depression predicted increased state anxiety, which can be reduced with improved social support postinjury.

Prolonged postconcussion symptoms can have a negative long-term effect on students' developmental or academic trajectories, particularly when caregivers fail to recognize them or intervene. Grubenhoff et al. (2016) examined the psychological factors associated with persistent postconcussion symptoms in children. Pre- and postinjury inventories were administered to children 8–18 years old with previous concussions and their parents. Their findings suggest that postconcussive symptoms lasting more than 1 month increase the risk of ongoing somatization and anxiety symptoms in children. Children in their sample with delayed symptom resolution scored higher on scales measuring anxiety and somatization in comparison with children with early symptom resolution.

## **A CONCEPTUAL FRAMEWORK FOR UNDERSTANDING THE SOCIAL–EMOTIONAL IMPACT OF CONCUSSION**

Persistent social–emotional symptoms following a concussion likely arise from a complex interaction of physical symptoms and environmental factors. Outcomes are likely the result of an interaction of preinjury diagnoses, risk factors, and genetic predisposition with the severity of injury and the quality of postinjury response and recovery. It is not yet fully clear what puts an individual at greater risk for social–emotional recovery resistance following concussion. Consider again the previous case example of Tracy. A genetic predisposition to anxiety and moderate separation anxiety reported during her preschool years may result in higher rates of postconcussion anxiety. This may take the form of sensitized fears with varied sources, including fear of reinjury, performance-based fears of being perceived as weak, or fear of losing affiliation with a sports team or group of peers (Broshek, De Marco, & Freeman, 2015).

Although considerable research has examined the interaction of pre- and postinjury variables in persistent social–emotional symptoms following a TBI, none have firmly landed on a causal model of effect. Rather, multiple studies (i.e., Grubenhoff et al., 2016; Panayiotou et al., 2010; Pjanic et al., 2013;

Trenchard et al., 2013) have examined a range of mediator and moderator variables and their relationship to persistent social–emotional symptoms associated with TBI. Moderator variables are those that impact the strength of a relationship between two other variables; mediator variables attempt to explain the relationship between two other variables (see Baron & Kenny, 1986, for an original discussion). Moreover, moderators explain under what conditions a particular effect or relationship is observed; mediators explain how or why an effect or relationship occurs. In the case of concussion resulting in persistent social–emotional symptoms beyond expected recovery, a moderating variable might be an individual’s predisposition to or previous occurrence of anxiety or depression; a mediating variable may be the availability of social support or the restrictions placed on a student during the recovery period.

Previous research suggests a multidirectional model in which both moderator and mediator variables play a role in concussion recovery (Pjanic et al., 2013). The interplay of variables will differ from one individual to the next and may inform school-based approaches to supporting these students in the time period following concussion. The root cause of a student’s persistent social–emotional symptoms following a concussion will require a comprehensive assessment to uncover, but regardless of the source, these symptoms present a barrier to academic learning for the student.

## **RECOMMENDATIONS FOR SCHOOL PSYCHOLOGY PRACTICE**

School psychologists are well-suited to be on the front lines of this problem. Given the complex interaction of pre- and postinjury factors, key strategies include (a) effective problem-solving consultation, (b) multimethod/multisource assessments, and (c) individualized intervention development and implementation. All of these actions should occur within a team-based framework. Following are recommendations for school psychologists to best serve students with persistent post-TBI social–emotional symptoms.

### **Considerations for Consultation**

A team-based approach to consultation is recommended to support students struggling with social and emotional symptoms. This is because symptoms can fluctuate from one setting to another and throughout the course of a school day. A coordinated approach that allows for clear communication of any environmental or academic adjustments can help alleviate symptoms. This team should include the student’s parent or guardian, who can provide information from the child’s doctor and ensure the child is following the intervention plan at home. In the case of a concussion, clearly communicated information from the child’s medical team can help establish a return-to-learn plan for the student that is not overly restrictive but safeguards the student from symptom aggravation in the classroom. Thus, inclusion of the school nurse is also recommended.

If the student sustained a sports-related concussion or currently participates in school athletics, it is important to include the child’s coach or athletic trainer on the consultation team. She or he can help to communicate and coordinate the child’s return to play and report to the team any concerning symptoms or behaviors observed in the student that may persist after the concussion has healed. The coach can also help develop ways to keep a student athlete involved with the teammates during recovery. It is important that adults (i.e., parents, coaches) allow for, and facilitate, ways for student athletes to remain connected to their sport and teammates; the loss and grief of what may be a central aspect of identity can result in heightened social–emotional symptoms.

Through collaborative consultation, school psychologists should advocate for specific accommodations and modifications to the child's school day to prevent persistent social–emotional symptoms. These may include (a) a reduction of academic demands such as in-class and homework assignments, gradually increased in line with the student's recovery (teachers should be aware that mounting schoolwork can add to the student's stress level and compound feelings of anxiety and irritability); (b) partial-day attendance to start once the student is ready to return to school, gradually increasing the number of hours spent in school as symptoms improve (keep the child connected to peers if extensive absences are required); (c) temporary extended time on tests to reduce test anxiety related to memory difficulties or performance fears; (d) permission for students to take tests and quizzes in a separate, quiet place to limit distractions and reduce any related performance-based test anxiety; (e) help for the child to organize materials and assignments and provide frequent reminders—visual or oral—to reduce stress associated with concussion-related executive functioning difficulties; (teams might consider temporary implementation of the Check-in/Check-out program (Kunemund, Majeika, De La Cruz, & Wilkinson, 2017), with or without a positive reinforcement component; this daily support from a trusted adult, along with reminders of assignments and due dates, could provide both logistical and emotional support to a student in the postconcussion period); and (f) opportunities to rest in a dark space (i.e., nurse's office) to prevent headaches and allow for additional time for the brain to heal (this can also be a time for the student to practice relaxation strategies such as progressive muscle relaxation or guided imagery).

### **Considerations for Identification and Assessment**

School psychologists are encouraged to employ a multimethod/multisource assessment framework to evaluate the needs of students with persistent social–emotional symptoms following a concussion. Given the inextricable nature of concussion symptoms—physical, cognitive, and social–emotional—it is important to review the student's records to unravel the potential causes of those that persist, which will inform treatment planning. Important background information may include the student's (a) medical history, including previous brain injuries; (b) psychosocial history; (c) relevant family history; and (d) academic, attendance, and discipline records.

A second critical source for information in the case of persistent postconcussive social–emotional symptoms is interviews with the student and, if possible, the parents. Concussions are often considered an invisible injury (Lewandowski & Rieger, 2009) because the symptoms are not always immediately noticeable by onlookers. Anxiety and depression symptoms are quite similar in this way; their internalizing nature makes them difficult to observe directly (Fiat et al., 2017). For this reason, direct observations may not be particularly helpful, whereas interviews may yield more insight into the child's current functioning as well as the sources of stress and symptoms. Topics for interview questions may include (a) details regarding the nature and occurrence of the injury; (b) physical, cognitive, and social–emotional symptoms currently experienced; (c) previous psychosocial difficulties; (d) recovery plan in place (i.e., current restrictions); and (e) factors that exacerbate and/or alleviate current symptoms. School psychologists should consider both pre- and postinjury social–emotional functioning (Grubenhoff et al., 2016) as potential sources for symptoms when interviewing student and parents.

A final component of a multimethod/multisource assessment in this area might include indirect methods, via formal rating scales. Similar to interviews, rating scales are helpful for measuring internalizing behaviors like anxiety and depression (Ebesutani, Bernstein, Nakamura, Chorpita, & Weisz,

2010). Sources of information may include the student, teachers, or parents. A broadband measure such as the Behavior Assessment System for Children—Third Edition (BASC-3; Reynolds & Kamphaus, 2015) is a good starting point to ensure all psychosocial areas are screened. Once specific areas of concern are determined, narrowband scales such as the Multidimensional Anxiety Scale for Children—Second Edition (MASC-2; March, 2013) or the Children’s Depression Inventory—Second Edition (CDI-2; Kovacs, 2010) may also be useful.

### **Considerations for Intervention**

Several intervention strategies may be helpful for persistent social–emotional symptoms following concussion, depending on which symptoms are primarily of concern (i.e., anxiety, depression, irritability). Following are several evidence-based strategies that can be applied across symptom areas. Note that students with persistent postconcussive symptoms may have difficulties in multiple areas; thus, to more effectively link assessment data with intervention planning, a case conceptualization framework is recommended. The case conceptualization approach to intervention closely follows the problem-solving framework in which school psychologists are well versed. The school psychologist, in developing a case conceptualization, formulates hypotheses regarding causal and maintaining factors of the problem and uses this information to drive intervention strategy selection and pace. It is a flexible and dynamic process that involves a comprehensive description of the identified problem, formulation and testing of inferences about the underlying causes, and development of an effective intervention (Boschen & Oei, 2008; Christner, Mennuti, & Pearson, 2009; Ularntinon, Friedberg, et al., 2016).

Selection of intervention strategies should derive directly from the student’s case conceptualization, resulting in a modular approach (see Chorpita, 2007) whereby the practitioner implements modules to target presenting concerns. Depending on the primary symptoms reported, school psychologists might consider implementation of modules in psychoeducation, relaxation training, cognitive restructuring, systematic desensitization, pleasant activity scheduling, problem-solving and conflict resolution, executive functioning skills coaching, or mindfulness-based strategies (see Merrell, 2008).

To exemplify this with Grant, perhaps he began experiencing elevated levels of anxiety following the concussion he sustained while riding his bike. Perhaps he has developed a sensitized fear to riding his bike, something he previously loved to do. He has avoided bike riding without a parent present because of fear of reinjury. He missed 1 week of school and fell behind in math due to accumulating homework assignments. He is missing his close neighborhood friends, with whom he typically rode bikes after school. An intervention plan for Grant may include modules in psychoeducation (to normalize and teach him to identify feelings), relaxation training (to support exposure-based tasks), systematic desensitization (with imaginal or in vivo exposure to fear-producing stimuli), cognitive restructuring, and executive functioning support for organization of assignments. Additionally, it is important to ensure Grant maintains his social connections, perhaps by finding alternative activities or scheduling outings with friends that do not require physical exertion.

To monitor outcomes in the intervention, incorporate a weekly measure of symptoms to assess baseline and eventually intervention levels of functioning. Selection of this measure will depend on the nature of the primary symptoms (i.e., anxiety, depression, anger) as well as the child’s age and cognitive and developmental status. Commonly recommended forms of repeated measurement for social–emotional symptom monitoring include some type of self-reported scale given the often internalizing nature of the symptoms. For anxiety symptoms, development of a fear hierarchy to use with exposure-based

intervention strategies is currently recommended (see Beidas, Mychailyszyn, Podell, & Kendall, 2013). A fear ladder is a list or “ladder” of anxiety-provoking situations reported by the client (Chorpita & Weisz, 2008). During intervention, fears and anxieties are self-rated weekly on a scale from least distressing to most distressing. A sample fear hierarchy for Grant is provided in Figure 2. A more global measure that may be helpful for other symptom areas is the Subjective Units of Distress Scale (SUDS; Wolpe & Lazarus, 1966). SUDS ratings measure the intensity of distress experienced by an individual based on a scale from 0 to 10 and can be used for any social–emotional difficulty identified (Kiyimba & O’Reilly, 2017). SUDS ratings are commonly used to measure changes in anxiety during exposure tasks in cognitive behavioral treatments such as the Coping Cat program (Kendall & Hedtke, 2006; McNally-Keehn, Lincoln, Brown, & Chavira, 2013, as well as self-reported levels of discomfort (Kaplan, Smith, & Coons, 1995) and distress (McCullough, 2002) in children and adults.

## **CONCLUSION**

School psychologists are in a unique position to provide significantly helpful supports to youth who experience persistent social–emotional symptoms following a concussion. In fact, they may be the only support staff in a school with enough knowledge of both concussions and mental health to effectively coordinate care. This care must begin with advocacy. Persistent social–emotional symptoms that follow a concussion should be properly assessed to identify underlying causes and sources for intervention targeting. The risk in not providing services to this population of students is the potential long-term impact of unresolved symptoms. A concussion can change a child’s developmental trajectory if proper supports and services are not in place; symptoms can compound and negatively influence social relationships and academic achievement, which can, in turn, create more symptoms.

## **AUTHOR INFORMATION**

Elana Bernstein, PhD, NCSP, is a clinical faculty member in school psychology in the Department of Counselor Education and Human Services at the University of Dayton. Her research and scholarly work is focused on the implementation of evidence-based mental health services for students with anxiety in school settings. She has conducted multiple empirical studies examining effective identification and interventions for children and adolescents with anxiety in schools.

Susan C. Davies, EdD, NCSP, is an associate professor in school psychology in the Department of Counselor Education and Human Services at the University of Dayton. Her research addresses traumatic brain injuries (TBIs) in school populations, including such issues as increasing educator awareness of TBI, efficacy of specific interventions, and developing model service plans for students with TBIs. She has conducted multiple empirical studies on TBIs and concussions. She is the coauthor of *Working With Traumatic Brain Injury in Schools* (Routledge, 2014) and the sole author of *Managing Concussions in Schools* (Springer Publishing, 2016).

## **RESOURCES**

- Anxiety BC: <https://www.anxietybc.com/>
- Brain 101- The Concussion Playbook: [brain101.orcasinc.com](http://brain101.orcasinc.com)
- The Brave Program (Anxiety): <http://www.brave-online.com/>
- Center on Brain Injury Research/Training (CBIRT): <https://cbirt.org/concussion/>
- Child Mind Institute: <https://childmind.org/>

- Classroom Mental Health Toolkit for High School: <https://classroommentalhealth.org/>
- Education and prevention of concussion: <https://www.cdc.gov/HEADSUP/>
- Erika's Lighthouse (Depression): <https://www.erikalighthouse.org/schools>
- GoZen! (Anxiety): <https://www.gozen.com/>
- *Managing Concussions in Schools: A Guide to Recognition, Response, and Leadership* by Susan C. Davies (Springer Publishing)
- Practice Wise (modular evidence-based intervention materials for anxiety, depression, trauma, and coping): <https://www.practicewise.com/#about>
- Worry Wise Kids (Anxiety): <http://www.worrywisekids.org/>

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