

Traumatic Brain Injury: A Snapshot of School Psychology Program Content

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Introduction

- During the 2019-2020 school year, ~25,000 students, aged 6 to 21, received services under an IDEA 04 classification of *Traumatic Brain Injury* (OSEP, 2021).
- At some point in their career, school psychologists are likely to be involved in evaluating students who have sustained a TBI in order to help determine SPED eligibility.
- Research reveals many school psychologists believe they lack TBI knowledge and have low preparedness for supporting students with TBI (Glang et al., 2017).
- In 2013 Davies proposed insufficient graduate training in TBI was a contributor to feelings of inadequate TBI competency among school psychology interns.
- Davies' 2013 study broadly investigated TBI content being taught by school psychology programs (i.e., instructional time, how TBI content is covered, and extent of coverage), however, data specific to: TBI instructional topics, method of instructional delivery (direct vs indirect), knowledge assessment, training program perception of graduates' level of TBI competency, and suggestions to increase feelings of TBI competency among newly graduated school psychologists were not collected.
- The current study expands on Davies et al. 2013 study by taking a more in-depth look at TBI instructional time, content, and delivery format. Furthermore, it reports feedback from school psychology training programs regarding what trainers can do to increase feelings of TBI competency in early-career school psychologists.

Method

- Data were collected over the course of seven weeks using Qualtrics online survey software

Participants

- 45 school psychology program faculty designated by their program coordinators as being "the faculty member most familiar with the content of your "biological bases of behavior" or any similar course
- Accreditation/ Approval; master's ($n = 4$) specialist degree programs ($n = 25$), doctoral ($n = 6$), combined ($n = 10$)
- *77% NASP-approved, 26% APA-accredited

Procedure

- 167 program directors received email invitations to participate
- Email addresses were obtained through individual university websites. Identified programs whose webpage indicated they were no longer accepting students ($n = 4$) and programs lacking individual faculty email addresses listed on their websites ($n = 9$) were excluded.

Survey

- An 11-item researcher-developed survey was used to collect data.
- Survey contained 22 general TBI topics representing seven broad knowledge domains head injury knowledge (four items), head injury consequences (five items), brain function (three items), assessment and intervention (five items), special education classification (two items), transition and collaboration (two items), and prevention (one item).
- Programs were asked how topic information was delivered (directly, indirectly, or both).
- An optional item was included asking programs how to increase feelings of TBI competency in early career school psychologists.

*Total greater than 100%, programs could select multiple approval/accreditation statuses

Results

Instructional Time

Total instructional time students receive on TBI content	Time spent on individual TBI topics
<ul style="list-style-type: none"> • 44% ($n = 17$) ≤ 1 hr • 33% ($n = 13$) 2 - 4 hrs • 23% ($n = 9$) 5 - ≥ 6 hrs 	<ul style="list-style-type: none"> • Range: 2 - 60 minutes

Topics

- 22 broad topics (see Table 1)
- 25% ($n = 10$) teach all 22 general TBI topics

Broad TBI Knowledge Domains

- Head Injury Knowledge: 85% ($n = 34$)
- Head Injury Consequences: 78% ($n = 31$)
- SPED Classification: 73% ($n = 29$)
- Brain Function: 70% ($n = 28$)
- Assessment & Intervention: 65% ($n = 26$)
- Transition and Collaboration: 63% ($n = 25$)
- Prevention: 60% ($n = 24$)

Broad Knowledge Domain	Content Area	*DI only % (n)	*II only % (n)	Both DI & II % (n)	Topic not covered	Missing % (n)
Head Injury Knowledge	Injury biomechanics (e.g., acceleration/deceleration injury, translational inertial injury, primary and secondary injury, coup contrecoup, axonal shearing)	18 (8)	27 (12)	29 (13)	16 (7)	11 (5)
	Head injury type (e.g., mild, complicated mild, moderate, severe, closed head injury, penetrating head injury)	24 (11)	22 (10)	38 (17)	4 (2)	11 (5)
	How head injury severity level is determined (e.g., Glasgow Coma Scale, LOC, PTA, etc.)	18 (8)	27 (12)	22 (10)	22 (10)	11 (5)
	Stages of Recovery (e.g., acute, chronic)	16 (7)	18 (8)	38 (17)	18 (8)	11 (5)
	Broad Domain Total %	19 (9)	24 (11)	32 (14)	15 (7)	11 (5)
Brain Function	Neuroimaging (e.g., MRI, CT, FLAIR, fMRI)	13 (6)	24 (11)	27 (12)	24 (11)	11 (5)
	Brain anatomy	18 (8)	13 (6)	44 (20)	13 (6)	11 (5)
	Brain networks and brain network functions	16 (7)	18 (8)	31 (14)	25 (11)	11 (5)
	Broad Domain Total %	16 (7)	18 (8)	29 (13)	16 (7)	11 (5)
Assessment & Intervention	School-based assessment of concussion/mild TBI	18 (8)	18 (8)	27 (12)	27 (12)	11 (5)
	School-based assessment of moderate/severe TBI	13 (6)	18 (8)	31 (14)	27 (12)	11 (5)
	School-based interventions for concussion/mild TBI	16 (7)	18 (8)	31 (14)	24 (11)	11 (5)
	School-based interventions for moderate/severe TBI	13 (6)	18 (8)	33 (15)	24 (11)	11 (5)
	Neurorehabilitation	9 (4)	18 (8)	11 (5)	16 (7)	11 (5)
Broad Domain Total %	14 (6)	18 (8)	27 (12)	24 (11)	11 (5)	
Transition & Collaboration	Effective transition from hospital or home to school	11 (5)	24 (11)	16 (7)	38 (17)	11 (5)
	Collaboration with medical and rehabilitation professionals	18 (8)	24 (11)	16 (7)	31 (14)	11 (5)
	Broad Domain Total %	15 (7)	24 (11)	16 (7)	35 (16)	11 (5)
SPED Classification	Special education classification criteria	27 (12)	7 (3)	38 (17)	18 (8)	11 (5)
	Special education prevalence rates	18 (8)	7 (3)	31 (14)	33 (15)	11 (5)
	Broad Domain Total %	23 (10)	7 (3)	35 (16)	26 (12)	11 (5)
Head Injury Consequences	Neurological consequences	22 (10)	13 (6)	47 (21)	6 (3)	11 (5)
	Behavioral consequences	18 (8)	13 (6)	36 (16)	22 (10)	11 (5)
	Social consequences	22 (10)	13 (6)	31 (14)	22 (10)	11 (5)
	Emotional consequences	22 (10)	11 (5)	36 (16)	20 (9)	11 (5)
	Academic consequences	24 (11)	16 (7)	29 (13)	20 (9)	11 (5)
	Broad Domain Total %	22 (9)	13 (6)	36 (16)	18 (8)	11 (5)
Prevention	Prevention	18 (8)	16 (7)	20 (9)	33 (15)	11 (5)
	Broad Knowledge Domain Total %	18	17	28	24	11

Note: *totals do not equal 100% - percent rounded. DI = Direct Instruction (e.g., lectures, class discussions), II = Indirect Instruction (e.g., readings, online resources)

Delivery Method

- 78% ($n = 35$) spontaneous opportunity during classes/discussions (direct instruction)
- 82% ($n = 37$) reading assignments (indirect instruction)
- 13% ($n = 6$) specific instructional unit

Increasing Early-Career School Psychologist Confidence in Application of TBI Knowledge

- 40% ($n = 6$) provide field-based experience opportunities
- 33% ($n = 5$) providing focused course content
- 27% ($n = 4$) utilizing case studies
- 13% ($n = 2$) provide collaborative opportunities
- 7% ($n = 1$) take advantage of post-graduate training opportunities

Discussion

Instructional Time

- Most surveyed programs estimate they are spending very little time instructing students about TBI, with less than a quarter (23%) spending a total of five hours or more on instruction.
- Although 60% of programs are covering 17 - 22 general TBI topics, average estimated time spent providing instruction on these topics is reported to range between 15 and 45 minutes, depending on the topic; with some topics receiving as little as one minute of instructional time.
- It is unlikely that TBI knowledge is being discussed in enough depth for students from programs surveyed to have more than a minimal understanding about TBI upon graduation.

Topics

- Although content is being covered across seven broad general TBI domains, most participating programs appear to be emphasizing two general domains, head injury knowledge (75%) and head injury consequences (82%).
- Topics reported as not being covered by some participating programs include special education classification criteria, assessment, transition, collaboration with medical and rehabilitation professionals, and prevention.
- Apart from prevention, the topics not covered by programs are directly related to school-based evaluation of traumatic brain injury.
- Collaboration with medical and rehabilitation professionals is extremely important and strongly recommended in order to support children who have sustained and survived a TBI (Davies, 2013, 2014; Jantz et al., 2014), therefore it is surprising that many programs surveyed do not cover this area of TBI content.

Delivery Method

- Many programs surveyed use a combination of direct and indirect methods for teaching TBI content with many programs endorsing indirect only instruction for several topics (see Table 1).
- Most programs (82%) use reading assignments for indirect delivery of TBI content.
 - Though reading assignments are a useful tool for preparing students for class and reinforcing/expanding content delivered directly, a recent study shows that it is uncommon for graduate students to complete reading assignments that are not related to areas of their particular interest (Cooper, 2015).
 - While TBI reading assignments are commonly assigned by programs, it is unlikely that students other than those who have a special interest in TBI are completing these readings.

Suggestions from Programs

- Three of the suggestions provided by programs (requiring field-based experiences, reviewing and discussing of TBI case studies, collaborating with medical and rehabilitation professionals) emphasize experiential learning, which has been suggested to aid students in application of knowledge in the field (Beck et al., 2017).

Implications for Trainers

- Data from this survey suggests programs could improve and expand instruction in TBI.
- School psychology training programs are encouraged to examine and evaluate their current models of training to ensure this happens. Some suggestions are:
 - Provide more direct instruction (vs. indirect) dedicated to TBI knowledge.
 - Dedicate sufficient time to TBI topics (i.e., more than 2 minutes per topic).
 - Programs should consider a comprehensive approach to teaching TBI information that encompasses head injury knowledge, head injury consequences, sped classification, brain function, assessment & intervention, transition and collaboration, prevention.
 - If all students in a program are to graduate with sufficient knowledge to feel prepared for TBI assessment, programs need to prioritize the instruction of TBI in their curriculum.
 - Given the importance of collaboration with medical and rehabilitation professionals, programs should consider providing students with the opportunity to collaborate or provide direct instruction on how to effectively collaborate.

Limitations

- Surveys are susceptible to inconsistent question interpretation.
- Survey questions were not piloted or vetted and were created using a book written by one of the contributing researchers, therefore may not exemplify best practice for providing TBI content to students.
- TBI topics surveyed were broad, general, and limited in number; consequently, programs may be teaching TBI content not surveyed in this study.
- The sample size is small and predominately consisted of NASP-approved programs specialist level programs which may not be representative of doctoral and APA-accredited programs.
- Location data was not collected thus it cannot be determined if the results of this study are generalizable to all school psychology graduate programs.