

The Self-Efficacy of Certified Athletic Trainers in Assessing and Managing Sport-Related Concussions

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Context: Diagnostic and return-to-play assessments of athletes with sport-related concussions (SRCs) have changed dramatically over the past decade. Currently, SRC assessment and management has taken a multifaceted approach, with new SRC measures being developed yearly. However, to date, no researchers have examined certified athletic trainers' (ATs') self-efficacy in assessing and managing a patient with an SRC.

Objective: To examine the self-efficacy of ATs in assessing and managing athletes with SRCs, with a secondary purpose of examining job setting (high school and college).

Design: Cross-sectional study.

Setting: Web-based questionnaire.

Patients or Other Participants: A total of 94 ATs (high school setting = 54.3%, n = 51; collegiate setting = 45.7%, n = 43) completed an online survey, for a response rate of 9.2%.

Main Outcome Measure(s): The survey contained 3 primary subsections: demographics, self-efficacy in assessing SRCs, and self-efficacy in managing SRCs. Possible self-efficacy ratings for SRC assessment and management in the

survey ranged from 0 to 100. Multivariate analyses of variance were performed to identify differences in the self-efficacy of high school and collegiate ATs in assessing and managing athletes with SRCs.

Results: The self-efficacy of all 94 participants in their assessment of SRCs was 60.34 ± 14.5 and in their management of SRCs was 55.30 ± 14.1 . Collegiate ATs reported higher self-efficacy in the assessment of SRCs using balance ($P < .001$) and the King-Devick test ($P = .04$), and their responses approached significance for vestibular-ocular motor screening ($P = .05$). Additionally, their self-efficacy in the management of SRCs was greater using balance ($P < .001$) and vestibular-ocular therapy ($P = .01$) compared with high school ATs.

Conclusions: Athletic trainers had moderate self-efficacy regarding their assessment and management of SRCs. Collegiate ATs had higher self-efficacy in newer SRC assessment and management tools than high school ATs.

Key Words: self-confidence, self-assessment, concussion practices

Key Points

- Athletic trainers reported moderate self-efficacy ratings in the assessment and management of athletes with sport-related concussions.
- Collegiate athletic trainers had higher self-efficacy in the assessment tools of balance measures, vestibular-ocular motor screening, and the King-Devick test and reported higher self-efficacy ratings in the management tools of balance measures and vestibular-ocular therapy than high school athletic trainers.
- Clinicians should continue to improve their self-efficacy in assessing and managing sport-related concussions to promote the safe participation of athletes.

Research on sport-related concussions (SRCs) has increased dramatically over the past decade. Certified athletic trainers (ATs) are typically the first providers to identify and evaluate concussed athletes and are integral in the postinjury management and return to play.¹ After the assessment and diagnosis of an SRC, ATs and physicians will determine the appropriate treatment and rehabilitation plan to reduce the extent of the athlete's injury using a multifaceted approach. Current recommendations and guidelines for the assessment and management of athletes with SRC suggest evaluating numerous domains that could be impaired, including symptoms, physical signs, balance and cognition, sleep and wake cycles, behavior, and the vestibular-ocular motor system.^{1,2} Previous researchers^{3–6} suggested that some ATs were not using a multifaceted approach and not staying current on the SRC literature. It may be that ATs were not using a multifaceted approach to SRCs due to their lack of self-efficacy in the

application of these tools. However, no authors to date have examined the self-efficacy of high school and collegiate ATs and their self-efficacy in SRC assessment and management.

The Bandura self-efficacy theory (1997)⁷ is widely used in several disciplines within psychology and serves as the main theoretical basis for conducting research in self-confidence and sport.⁸ *Self-efficacy* is defined as an individual's "beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations."^{9(p141)} Self-efficacy provides an estimate of how a person perceives his or her ability to successfully perform a specific task.¹⁰ The individual's beliefs influence choice, effort, and persistence and are influenced by the sources of self-efficacy information.⁹ The 4 major sources to develop an individual's self-efficacy are past performance accomplishments, vicarious experiences, verbal persuasion, and physiological states.⁹ First, *past*

performance accomplishments are described as the experience of mastery in the ability to perform a task.⁹ Second, *vicarious experiences* are explained by observing someone who is similar to one's self in physical and academic success perform a task and then performing the same task by imitation.⁹ Third, *verbal persuasion* is encouragement from individuals to convince a person to perform a task successfully.⁹ Lastly, the *physiological states* refer to the moods, emotions, physical reactions, and stress levels that may influence how one feels about his or her personal abilities.⁹ It is imperative that ATs acquire an optimal level of self-efficacy in their knowledge and skills in order to be confident that they are providing the best clinical care for their patients.^{11,12}

To our knowledge, no research is available on the self-efficacy of ATs in assessing and managing athletes with SRC. Additionally, no investigators have examined current job settings (ie, high school and college) that could affect one's self-efficacy. Colleges and universities tend to have more financial resources, time available, and SRC tools compared with high schools.^{3,4,13,14} However, personnel at many high schools and colleges have stated that the reasons for not performing certain measures of SRCs were insufficient funds, lack of staff, and inadequate resources.^{3,4,13,14} A real or perceived lack of funds, staffing, or other resources available in any job setting could adversely affect student-athletes' health care, specifically as it relates to SRC management, which has been identified as an area for improvement.¹⁵ With the continuing advances in SRC tools, ATs' self-efficacy could influence the choices they make and the courses of action they pursue when assisting a concussed athlete. Therefore, the purpose of our study was to examine the overall self-efficacy of ATs in their assessment and management of SRCs. A secondary purpose was to compare the self-efficacy between high school and collegiate ATs in their assessment and management of athletes with SRC. We hypothesized that collegiate ATs would have greater self-efficacy than high school ATs in their assessment and management of patients with SRC.

METHODS

Research Design and Participants

A cross-sectional research design was used for this study. A sample of 1000 ATs who were active members of the National Athletic Trainers' Association (NATA) was randomly generated from the NATA database. We e-mailed 22 ATs separately with the link attached to complete the anonymous survey, due to accessibility concerns associated with the university. Participants were included if they were certified as ATs and were members of the NATA. No specific occupation, year(s) of certification, sex, age, or race was targeted or excluded from the selection. However, participants were excluded if they were not Board of Certification-certified ATs or members of the NATA or were in a job setting other than high school or college. All recruits provided informed consent, which was implied by actively selecting the link in the e-mail and clicking *yes* to agreeing to participate in the study. Those ATs who either did not meet the inclusion criteria or did not give informed consent were not able to see the questions in the survey.

Instrument

The questionnaire was a 1-time, self-administered online survey. The survey had 3 primary sections: demographics of the ATs, their self-efficacy in SRC assessment, and their self-efficacy in SRC management. The first section consisted of demographic questions about age, sex, race, and highest level of education as well as questions on the current job setting, years of certification, and number of patients with SRCs managed in the past 12 months. The second section contained questions to assess ATs' self-efficacy in using 11 tools that are typically involved in assessing and evaluating a patient with a suspected SRC. The 11 questions in the third section addressed the AT's self-efficacy in using SRC tools that involved managing, treating, and safely returning an athlete to participation after sustaining an SRC. Sections 2 and 3 began with questions regarding general testing tools (eg, history and clinical evaluation, balance testing, neurocognitive testing, vestibular and ocular motor screening), and the sections clearly delineated between assessment and management of an SRC. These tools have been validated and included in consensus statements on SRC assessment and management. Specifically, concussion symptoms,¹⁶ the King-Devick (K-D) test,¹⁷ vestibular-ocular motor screening (VOMS),¹⁸⁻²⁰ the Sport Concussion Assessment Tool-3 (SCAT3),²¹ computerized testing,²² and balance testing²³ have been previously validated in the literature. To complete the self-efficacy assessment and management questions of the survey, participants were asked to select from a 0 to 100 scale: 0 = *no self-efficacy*, 50 = *moderate self-efficacy*, and 100 = *complete self-efficacy*. The survey had a total of 29 questions.

Reliability and Validity of the Survey

Face validity was established by an expert panel of 10 ATs, neuropsychologists, and sports medicine physicians. The panel was instructed to evaluate the questionnaire and determine if the questions examining SRC assessment and management were clear, important, and administered properly. The instrument was revised based on the panel's feedback, and a test-retest reliability pilot study was conducted with a sample of 20 ATs from various sports medicine job settings. Comments from the pilot-study panel and additional suggestions from the expert panel were used to make further modifications to the content areas and associated components. The expert panel and pilot-study participants were excluded from the 1022 participants who were invited to participate in the study. The time between test administrations was 2 weeks, and the Cronbach α for the test-retest pilot study was 0.92. The self-efficacy scales for both the assessment and management of SRCs had acceptable reliability of 0.76. Thus, items of the survey associated with the assessment and management of SRCs were correlated.

Procedure

Before the study was conducted, the Institutional Review Board for the Protection of Human Subjects granted exempt status. The Web-based survey was hosted by the university's Qualtrics system (Provo, UT), took approximately 10 minutes to complete, and was stored on a password-

Table 1. Participants' Current Job Settings (n = 136)

Job Setting	Total Participants, No. (%)
College/university	37 (27.2)
Junior college	6 (4.4)
High school	44 (32.4)
High school/clinic	7 (5.1)
Professional (excluded)	2 (1.5)
Clinic (excluded)	6 (4.4)
Hospital (excluded)	3 (2.2)
Industrial (excluded)	1 (0.7)
Other (excluded)	8 (5.9)
Incomplete surveys (excluded)	22 (16.2)

protected computer. Recruits who agreed to participate in the study were directed to the Web site to complete the questionnaire. Participants were not required to answer all questions, could exit the survey at any time, and had the option of returning to an earlier page. All data were stored in the university's Qualtrics program until collection was completed, at which time they were downloaded and analyzed by the researchers. All responses were anonymous, and no risks were foreseen from completing the online survey. The survey remained online for a total of 4 weeks, with a follow-up e-mail sent to all recipients by week 2, regardless of whether they had already completed the survey.

Data Analyses

All data were analyzed using SPSS (version 24.0; IBM Corp, Armonk, NY). Descriptive statistics identified characteristics about the respondents. The dependent variable was the AT's self-efficacy in performing SRC assessment and management, and the independent variable was the AT's current *job setting*, which was defined as either high school or college. Two correlations were conducted to determine if self-efficacy in the assessment tools of an SRC was associated with the self-efficacy in the management tools of an SRC. Two multivariate analyses of variance (MANOVAs) were performed to assess group differences between self-efficacy ratings for SRC assessment and management tools and current job setting. We selected the MANOVA because of the relationships between the dependent variables and multiple independent variables. All observations were independent, and other assumptions of equality of variance-covariance matrices and multicollinearity were upheld. The level of significance for all statistical tests was set a priori at $\alpha \leq .05$.

RESULTS

Demographics of ATs

A total of 136 ATs responded to the 1022 e-mailed invitations; however, incomplete responses from 22 ATs were excluded. Another 20 responses were excluded based on ATs' job settings that were neither high school nor college. College/university and junior college were combined into 1 group called *collegiate*, whereas high school and high school/clinic were combined into 1 group called *high school* (Table 1). A total of 94 male ($n = 52$, 55.3%) and female ($n = 42$, 44.7%) ATs were included in the data analysis, for a 9.2% response rate. The ATs'

Table 2. Demographics of High School and Collegiate Athletic Trainers

Characteristic	Mean \pm SD		
	High School (n = 51)	College (n = 43)	Total (n = 94)
Age, y	38.63 \pm 12.2	37.60 \pm 10.8	38.16 \pm 11.6
Years of certification	13.00 \pm 10.8	14.02 \pm 10.0	13.90 \pm 10.4
Sport-related concussions observed in the past 12 mo	20.30 \pm 16.4	7.17 \pm 5.7	14.30 \pm 14.2
	No. (%)		
Sex			
Male	28 (54.9)	24 (55.8)	52 (55.3)
Female	23 (45.1)	19 (44.2)	42 (44.7)
Race			
White/Caucasian	48 (94.1)	41 (95.4)	89 (94.7)
Black/African American	2 (3.9)	1 (2.3)	3 (3.2)
Hispanic/Latino/Spanish origin	1 (2.0)	1 (2.3)	2 (2.1)
Highest level of education			
Bachelor's	12 (23.5)	4 (9.3)	16 (17.0)
Master's	39 (76.5)	34 (79.1)	73 (77.7)
Doctorate	0 (0.0)	5 (11.6)	5 (5.3)

current job settings were divided fairly equally into high school ($n = 51$, 54.3%) and college ($n = 43$, 45.7%). The participants were 38.16 ± 11.6 years old and predominately white ($n = 89$, 94.7%). They had 13.90 ± 10.4 years of certification as an AT, and the vast majority had earned at least a master's degree ($n = 78$, 83%). The ATs reported assessing 14.30 ± 14.2 patients with SRC per year (Table 2).

High School

In the high school setting, 51 male ($n = 28$, 54.9%) and female ($n = 23$, 45.1%) ATs were 38.63 ± 12.2 years old. They had 13.80 ± 10.8 years of certification as an AT, had earned at least a master's degree ($n = 39$, 76.5%), and reported assessing a mean of 20.30 ± 16.4 patients with SRC per year.

College

In the collegiate setting, 43 male ($n = 24$, 55.8%) and female ($n = 19$, 44.2%) ATs were 37.60 ± 10.8 years old. They had 14.02 ± 10.0 years of certification as an AT, had earned at least a master's degree ($n = 39$, 90.7%), and reported assessing 7.17 ± 5.7 patients with SRC per year.

Self-Efficacy of All ATs

The overall self-efficacy of the assessment of SRCs was 60.34 ± 14.5 , and the self-efficacy of the management of SRCs was 55.30 ± 14.1 . The highest self-efficacy ratings among ATs' assessment tools were for the symptom checklist (94.95 ± 7.5), history and clinical evaluation (92.17 ± 12.5), and baseline examination (84.18 ± 30.5). The lowest self-efficacy scores were for the VOMS (39.31 ± 41.7), K-D test (12.71 ± 32.5), and paper-and-pencil neuropsychological test (5.79 ± 21.1). The highest self-efficacy ratings among ATs' management tools were for the

Table 3. High School and Collegiate Athletic Trainers' Self-Efficacy in Assessing Patients With Sport-Related Concussions (n = 94)^a

Sport-Related Concussion Assessment	Mean ± SD
Baseline examination	
High school	81.00 ± 33.8
College	87.95 ± 25.9
Total	84.18 ± 30.5
History and clinical evaluation	
High school	90.55 ± 15.8
College	94.09 ± 6.6
Total	92.17 ± 12.5
Symptom checklist	
High school	94.82 ± 7.8
College	95.09 ± 7.3
Total	94.95 ± 7.5
Cranial nerves	
High school	62.24 ± 38.8
College	72.61 ± 32.4
Total	66.98 ± 36.2
Standardized Assessment of Concussion	
High school	51.88 ± 45.2
College	48.07 ± 48.0
Total	50.14 ± 46.3
Sport Concussion Assessment Tool-3	
High school	64.18 ± 42.7
College	75.16 ± 39.6
Total	69.20 ± 41.4
Balance measure	
High school	56.77 ± 43.5
College ^b	87.40 ± 23.4
Total	70.78 ± 38.7
Vestibular-ocular motor screening	
High school	31.63 ± 40.0
College ^c	48.42 ± 42.3
Total	39.31 ± 41.7
King-Devick test	
High school	6.47 ± 23.6
College ^b	20.12 ± 39.7
Total	12.71 ± 32.5
Paper/pencil neuropsychological test	
High school	7.04 ± 22.3
College	4.30 ± 19.7
Total	5.79 ± 21.1
Computerized neuropsychological test	
High school	79.55 ± 33.2
College	75.19 ± 39.7
Total	77.55 ± 36.2

^a Range = 0 to 100: 0 = no self-efficacy, 50 = moderate self-efficacy, and 100 = complete self-efficacy.

^b Significant for collegiate athletic trainers ($P < .05$).

^c Approached significance for collegiate athletic trainers ($P = .05$).

symptom checklist (94.37 ± 13.1), return-to-play progression (92.61 ± 15.9), and home care instructions (90.93 ± 14.5), whereas vestibular-ocular therapy (17.61 ± 31.7), K-D test (10.80 ± 30.5), and paper-and-pencil neuropsychological test (6.30 ± 21.4) revealed the lowest scores (Tables 3 and 4).

Separate analyses were performed for high school and collegiate ATs to determine if there was a correlation

Table 4. High School and Collegiate Athletic Trainers' Self-Efficacy in Managing Patients With Sport-Related Concussions (n = 94)^a

Sport-Related Concussion Management	Mean ± SD
Home care instructions	
High school	89.86 ± 17.8
College	92.19 ± 9.3
Total	90.93 ± 14.5
Symptom checklist	
High school	93.02 ± 16.2
College	95.98 ± 7.9
Total	94.37 ± 13.1
Standardized Assessment of Concussion	
High school	46.04 ± 46.7
College	43.89 ± 48.0
Total	45.05 ± 47.0
Sport Concussion Assessment Tool-3	
High school	60.24 ± 45.6
College	71.16 ± 42.6
Total	65.23 ± 44.4
Balance measure	
High school	53.08 ± 45.7
College ^b	87.56 ± 23.5
Total	68.85 ± 40.9
Vestibular-ocular motor screening	
High school	32.24 ± 41.9
College	45.23 ± 43.4
Total	38.18 ± 42.8
Vestibular-ocular motor therapy	
High school	9.84 ± 24.4
College ^b	26.65 ± 36.7
Total	17.61 ± 31.7
King-Devick test	
High school	6.47 ± 23.6
College	15.93 ± 36.6
Total	10.80 ± 30.5
Paper/pencil neuropsychological test	
High school	7.88 ± 22.5
College	4.42 ± 20.2
Total	6.30 ± 21.4
Computerized neuropsychological test	
High school	79.59 ± 32.9
College	77.42 ± 38.0
Total	78.60 ± 35.2
Stepwise progression	
High school	91.55 ± 20.3
College	93.86 ± 8.3
Total	92.61 ± 15.9

^a Range = 0 to 100: 0 = no self-efficacy, 50 = moderate self-efficacy, and 100 = complete self-efficacy.

^b Significant for collegiate athletic trainers ($P \leq .05$).

between the overall self-efficacy of ATs in their assessment versus management of patients with SRCs. Significant positive correlations were demonstrated for ATs' overall self-efficacy for assessment and management of SRCs in the high school setting ($r = 0.71$, $r^2 = 0.50$, $P < .01$). Significant positive correlations were also present for ATs' overall self-efficacy for assessment tools and management of SRCs in the collegiate setting ($r = 0.87$, $r^2 = 0.76$, $P <$

.01). Both the high school and collegiate ATs who had high self-efficacy ratings for SRC assessment also had high ratings for SRC management.

High School and Collegiate ATs' Self-Efficacy

The MANOVA revealed between-groups differences for the self-efficacy of ATs' assessment of patients with SRC ($F = 2.977, P = .002, \text{Wilks } \Lambda = 0.715, \text{partial } \eta^2 = 0.29$). Collegiate ATs (64.40 ± 13.5) had higher self-efficacy than high school ATs (56.92 ± 14.5) in their assessment of SRCs. For the individual assessment tools, collegiate ATs' self-efficacy was greater than that of high school ATs for the balance measure ($F = 17.158, P < .01, \text{partial } \eta^2 = 0.16$) and K-D test ($F = 4.257, P = .04, \text{partial } \eta^2 = 0.04$); self-efficacy for the VOMS ($F = 3.904, P = .05, \text{partial } \eta^2 = 0.04$) approached statistical significance. Findings for all other assessment tools were nonsignificant between high school and collegiate ATs.

The second MANOVA revealed a difference between groups for ATs' self-efficacy in their management of patients with SRC ($F = 2.687, P = .005, \text{Wilks } \Lambda = 0.733, \text{partial } \eta^2 = 0.27$). Collegiate ATs (59.48 ± 13.5) had higher self-efficacy compared with high school ATs (51.78 ± 13.8) in their management of SRCs. Regarding the individual tools, collegiate ATs' self-efficacy was greater than high school ATs' self-efficacy for the balance measure ($F = 18.842, P < .001, \text{partial } \eta^2 = 0.17$) and vestibular-ocular therapy ($F = 6.932, P = .010, \text{partial } \eta^2 = 0.07$). No other differences were present between groups for any other SRC management tools.

DISCUSSION

To our knowledge, we are the first to document the self-efficacy of ATs in their assessment and management of patients with SRC. Overall, ATs reported moderate self-efficacy for their use of SRC assessment and management tools. The self-efficacy of collegiate ATs was higher than that of high school ATs in the assessment and management of SRCs. Additionally, collegiate ATs had greater self-efficacy in the assessment tools of balance measures, VOMS, and the K-D test versus high school ATs. In regard to the management of SRCs, collegiate ATs reported higher self-efficacy in balance measures and vestibular-ocular therapy than high school ATs. Finally, a moderate to high correlation was present between ATs' self-efficacy in assessing and managing patients with SRC. Practicing ATs, educators, and researchers need to continue to increase their self-efficacy by using a multifaceted approach and current SRC tools to enhance their skills and abilities for the safety of our athletes.

We found differences between high school and collegiate ATs in their self-efficacy for SRC assessment and management tools. Possible explanations for high self-efficacy in using the home care instructions and the symptom checklist, taking a history and performing a clinical evaluation, and progressing the return to play could be the efficient and brief administration of inexpensive and readily available SRC tools. Although speculative, possible reasons for ATs reporting lower self-efficacy for the VOMS, vestibular-ocular therapy, balance, K-D test, and paper-and-pencil neuropsychological tests may be outdated or newly developed tests; required

additional training; limited finances, resources, and time; and lack of clinical use. Even though respondents displayed high self-efficacy in some categories of the assessment and management of SRCs, categories with low self-efficacy, which may affect assessment and management practices, are concerning.

Collegiate ATs had greater self-efficacy for their assessment and management of SRCs compared with high school ATs. Specifically, collegiate ATs' self-efficacy was higher than that of high school ATs for the individual SRC assessment tools of balance measures, VOMS, and the K-D test. Similarly, collegiate ATs had greater self-efficacy for the individual SRC management tools of balance measures and vestibular-ocular motor therapy compared with high school ATs. Several explanations are possible as to why collegiate ATs had higher self-efficacy than high school ATs when assessing SRCs. Collegiate ATs may have larger budgets and more financial resources,²⁴ which could provide more access to resources and tools for the assessment and management of patients with SRC. This can include such tools as the K-D test and balance devices, such as force plates. Additionally, collegiate ATs used more tools than high school ATs in their overall assessments.^{3,4} High school ATs reportedly used fewer SRC assessment tools: only 24% administered balance tests.¹⁴ Until recently, no brief screening of vestibular-oculomotor function was available to evaluate patients with SRCs.¹⁷ Both the VOMS and K-D test are newer SRC instruments that may be used by clinicians. Baugh et al²⁵ reported that fewer than 3% of sports medicine clinicians administered the K-D test during the diagnosis and management of a concussed athlete. The K-D test requires further training, is costly as compared with the VOMS (which is readily available and inexpensive), and has a high false-positive rate.²⁶ Moreover, vestibular impairments are commonly overlooked despite their high prevalence and prognostic utility to predict a protracted recovery.^{27,28} Evidence supporting strategies for both vestibular and oculomotor impairment and symptoms is limited but shows promise in assisting in the SRC evaluation process.^{29,30} Finally, we observed no differences in self-efficacy for any other SRC assessment or management tools, such as the computerized neuropsychological testing, SCAT3, symptom checklist, or baseline examinations. This could be explained by the ready availability and regular use of these tools by a majority of ATs.

We examined high school and collegiate ATs to determine if there was a correlation between their overall self-efficacy in assessing and managing SRCs. Within both groups, an increase in self-efficacy in the assessment of SRCs was related to an increase in self-efficacy in the management of SRCs. Correlations revealed moderate to substantial r^2 values, indicating that moderate to high amounts of the variance in the assessment tools of SRCs was explained by the self-efficacy for management tools of SRCs in high school and collegiate ATs, respectively. Self-efficacy has been suggested as a useful measure for predicting the behavioral outcomes of individuals, which was shown in the high correlations of the ATs' self-efficacy for SRC assessment and management practices.³¹

The current study had several limitations. First, the response rate was low; therefore, the results should be taken with caution and warrant further investigation. Increasing

the response rate could produce more generalizable data and a more accurate representation of ATs' self-efficacy. Second, as with most survey-based results, participants may not have been completely honest in their answers. This could suggest societal response bias, which may have been high if the ATs gave socially accepted answers. Another limitation is that their clinical skills may not have reflected the answers they gave in the survey. In other words, ATs could have indicated a high level of self-efficacy that was not supported by their clinical skills; however, we were not able to verify this. Additionally, sample selection and nonresponse bias was present, which explains why proper randomization was not achieved and why the results should be carefully interpreted. Lastly, measurement error and large standard deviations were found in the Likert-scale answers.

Practicing ATs, educators, and researchers need to continue to review the current SRC guidelines and recommendations while using the most up-to-date and accurate tools for their patients. This study indicates the need for ATs to understand their own self-efficacy and to use effective techniques to enhance their clinical abilities in all situations. Future investigators should focus on increasing the self-efficacy of ATs and other sports medicine professionals through intervention strategies, such as modeling, positive self-talk, and goal setting. It is vital for ATs to have high self-efficacy in their assessment and management of patients with SRC, along with proper knowledge of SRCs, to ensure the safety of all concussed athletes.

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