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Athletic Trainers' Beliefs About and Implementation of Evidence-Based Practice

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Context: Understanding the beliefs about and use of evidence-based practice (EBP) among athletic trainers (ATs) will help to determine appropriate strategies to improve implementation.

Objective: To examine the ATs' beliefs about and use of EBP.

Design: Cross-sectional study.

Setting: Online survey instrument.

Patients or Other Participants: A total of 467 ATs responded to the survey request, a response rate of 11.67%. A total of 385 (9.6%) completed the EBP Beliefs Scale and 342 (8.5%) completed the EBP Implementation Scale.

Main Outcome Measure(s): The EBP Beliefs Scale and EBP Implementation Scale were administered. The surveys collected demographic information in addition to information about participants' beliefs regarding EBP and implementation of EBP in clinical practice.

Results: The ATs demonstrated a level of *neither agree nor disagree* (56.00 $\pm$ 7.86) on the EBP Beliefs Scale. Belief scores were higher among those ATs required to document for third-party reimbursement ($P = .001$), those with access to current research through professional journals other than the *Journal of Athletic Training* ($P = .02$), and those with a doctoral degree ($P = .01$). A low level of implementation (9.00 $\pm$ 11.38), representing the implementation of EBP approximately 0 times in the previous 8 weeks, was found on the EBP Implementation Scale. Implementation scores were higher among preceptors ($P = .01$), those required to document for third-party reimbursement ($P < .001$), those with access to current research through professional journals ($P = .002$), and those with a doctoral degree ($P = .01$).

Conclusions: Participants had a positive attitude toward EBP; however, they were not implementing EBP concepts when providing patient care. This suggests that additional information and EBP resources are needed so ATs can better implement EBP in practice. To provide the best patient care and to promote EBP within the profession, clinicians should make EBP a priority and advocate for EBP implementation.

Key Words: evidence-based medicine, clinical practice, survey research

Key Points

- Overall, athletic trainers were neutral toward evidence-based practice but believed it results in the best clinical care for patients and is important to the credibility of the profession.
- Athletic trainers' level of implementation of evidence-based practice was low.
- Additional information and resources are needed so athletic trainers can better implement evidence-based practice.
- To provide the best patient care, promote evidence-based practice within the profession, and gain credibility with other health care professions, athletic trainers should become advocates for evidence-based practice and make it a priority.

As health care has entered the 21st century, using evidence when making patient-centered care decisions has evolved to become an expected practice for health care professionals.[1] Evidence-based medicine, as defined by Sackett et al,[2(p71)] is the "integration of the best research evidence with clinical expertise and patient values to make clinical decisions." The term *evidence-based medicine* has evolved into the term *evidence-based practice* (EBP) to recognize the movement into related domains such as nursing, physical therapy, and others.[3] Specifically, EBP is a 5-step process by which clinical decisions are based on research using scientific models and theoretical paradigms.[4] The Institute of Medicine's Committee on Health Profession Education has named EBP as 1 of 5 core competencies that all health care professionals should possess to meet the needs of the 21st-century health care system.[5]

The benefits of athletic trainers (ATs) engaging in EBP include promotion of critical thinking by clinicians,[5] opportunity for third-party reimbursement,[5–7] growth and enhanced reputation of the athletic training profession,[5,6,8] support for treatments and interventions,[5] improved patient care,[5,7–11] and remaining current with health care trends.[5,9] As the movement for athletic training to continue to be recognized as a health care profession strengthens, both educators and clinicians should use EBP concepts in their daily clinical and teaching practices. Research into current EBP use among educators has begun and is gaining

momentum[1,12,13]; however, limited information is known about EBP use among clinicians. It is important to understand how and if EBP is being used by ATs in order to successfully develop and implement educational strategies.

Welch et al[14] studied the effects of an EBP educational intervention for ATs in a variety of roles (ie, professional athletic training students, graduate athletic training students, educators, and clinicians) and found that although participants' knowledge increased, whether participants' implementation of EBP had changed was unknown. We must determine how ATs are currently practicing to design the appropriate intervention strategies necessary to address barriers and increase EBP implementation.

Applying evidence-based techniques will improve patient care.[5,7–11] As consumers of health care, patients are now even more knowledgeable about and invested in their care, especially as medical costs continue to rise.[15] Patients want to receive the best care possible, as quickly as possible, and for a reasonable price. To best treat their patients, ATs must join the movement to deliver this high-quality, efficient care.[15] It is imperative that we examine ATs' beliefs about and use of EBP as it applies to patient care, so we can understand if ATs are achieving these goals and evolving within health care. Evans and Lam[16] described EBP as a mind-set, and we sought to understand the current mind-set of ATs in regard to EBP so future practice can be improved where necessary.

The purpose of our study was to examine ATs' beliefs about and perceived implementation of EBP. The following research questions guided this study: (1) What were ATs' beliefs regarding EBP? (2) Was there an association between ATs' level of education, years of experience, employment setting, preceptor status, documentation requirements, and journal access and their beliefs regarding EBP? (3) What were ATs' perceptions of their implementation of EBP? and (4) Was there an association between ATs' level of education, years of experience, employment setting, preceptor status, documentation requirements, and journal access and their implementation of EBP?

METHODS

Participants

We recruited participants through the National Athletic Trainers' Association (NATA) Members Services Department during the spring of 2013. The inclusion criterion was being employed full time in a college/university, secondary school, or clinic setting in the United States. Employment setting was restricted to these 3 settings because the majority of ATs work in these settings. Athletic trainers who indicated their full-time employment setting to be 100% academic or were no longer actively practicing athletic training were excluded from the study. Participants represented an equal distribution of ATs by employment setting, membership district, age, and sex compared with the overall membership. The survey was e-mailed to 4000 randomly selected individuals. We received approval from the Rocky Mountain University of Health Professions and Slippery Rock University Institutional Review Boards before data collection, and the participants' completion of the online survey served as their informed consent.

Instrumentation

The study used an online survey divided into 3 sections: (1) participant demographic information (eg, sex, age, education, years of experience); (2) beliefs, which were assessed on the EBP Beliefs Scale; and (3) implementation, which was assessed on the EBP Implementation Scale. Although a variety of EBP surveys exist in the health care literature, no scale specifically addressed items related to ATs' beliefs about and implementation of EBP. We therefore investigated to find an existing instrument addressing EBP beliefs and EBP implementation that was generalizable to and suitable for ATs. The EBP Beliefs Scale and the EBP Implementation Scale by Melnyk et al[17] were originally created to investigate nursing practice. We selected these 2 scales because they were generalizable to ATs and addressed the study's research questions. The authors[17] gave us permission to use the 2 scales; however, they controlled access to the SurveyMonkey (Palo Alto, CA) account that housed the 2 scales and sent the data in SPSS format (SPSS Inc, Chicago, IL) to us weekly.

To determine the degree to which these 2 scales addressed appropriate items related to the athletic training profession, content validity and reliability were assessed with ATs. Content validity was determined by a group of 4 ATs with doctoral degrees who had 12 to 24 years of experience as well as EBP expertise. Each individual was asked to rate each item on the EBP Beliefs Scale (16 items) and the EBP Implementation Scale (18 items) for level of relevance to athletic training (1 = *not relevant*, 2 = *somewhat relevant*, 3 = *quite relevant*, 4 = *highly relevant*). The content validity was analyzed for each scale (S-CVI), rather than each individual item (I-CVI). The average relevancy rating for each item (I-CVI) for all items on the scale produced the final scale content validity rating (S-CVI/Ave). Polit and Beck[18] recommend an S-CVI/Ave rating of 0.90 or higher for a scale to be classified as having excellent content validity.

Test-retest reliability was assessed with a group of 15 ATs who had clinical experience (7–21 years) in either a secondary school or college setting. Participants in this reliability study completed both scales on 2 occasions separated by 1 week. A Cronbach α coefficient was also used to determine the reliability of the scales (EBP Beliefs Scale: $\alpha = .811$; EBP Implementation Scale: $\alpha = .923$) within the study sample.

The EBP Beliefs Scale. The EBP Beliefs Scale consisted of 16 items. Items on this scale addressed not only the participants' general perceptions and values regarding EBP (eg, *I believe that EBP results in the best clinical care for patients*; or *I am sure that evidence-based guidelines can improve clinical care*) but also their confidence in their own EBP knowledge and ability to implement it into practice (eg, *I am clear about the steps of EBP*; *I am sure that I can implement EBP in a time efficient way*; or *I believe that I can overcome barriers in implementing EBP*).

Participants selected responses to each item based on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Each of the 16 items received a score ranging from 1 to 5. The totals for all 16 items were summed to generate the composite score. Scores for this scale ranged from 16 to 80; the higher the composite score, the greater the belief regarding EBP. A score of 3 on an individual item was associated with *neither agree nor*

Table 1. Score Ranges for the Evidence-Based Practice Beliefs Scale

Likert-Scale Selection	Level of Agreement	Score Range
1	Strongly disagree	16–31
2	Disagree	32–47
3	Neither agree nor disagree	48–63
4	Agree	64–79
5	Strongly agree	80

Table 2. Score Ranges for the Evidence-Based Practice Implementation Scale

Likert-Scale Selection	No. of Times Evidence-Based Practice Was Used in the Last 8 Weeks	Score Range
0	0	0–17
1	1–3	18–35
2	4–5	36–53
3	6–7	54–71
4	≥8	72

disagree, whereas a minimum composite score of 48 was associated with selecting *neither agree nor disagree* on each of the 16 items. These ranges are provided in Table 1 to further describe the relationship between the level of agreement with each item, the Likert-scale selection, and the participants' score. Within the nursing profession, the EBP Beliefs Scale has a Cronbach α coefficient of 0.90 and a Spearman-Brown *r* reliability coefficient of 0.87.[17] The internal consistency of the EBP Beliefs Scale during this study resulted in a Cronbach α coefficient of 0.811, which is considered *good*.[19] A Spearman ρ coefficient ($r_s = 0.708$; 95% confidence interval [CI] = 0.139, 0.925), determined through test-retest measures with 15 ATs practicing in a clinical setting, indicated moderate reliability.[19] The S-CVI was determined using the averaging calculation method and was 0.830.

The EBP Implementation Scale. The EBP Implementation Scale consisted of 18 items assessed through a 5-point frequency scale by asking the participant to indicate how often in the past 8 weeks he or she had *used evidence to change my clinical practice*, *critically appraised evidence from a research study*, and *generated a PICO* [problem/patient/population, intervention, comparison, outcome] *question about my clinical practice*. To improve the user friendliness of the scale, we thought a scoring system with a floor score of 0 would be easier to understand than a scale that ranged from 18 to 90. This is why the original scale's scoring of 1 to 5 was adjusted to a 0 to 4 scale, where 0 represented *0 times*, 1 represented *1 to 3 times*, 2 represented *4 to 5 times*, 3 represented *6 to 7 times*, and 4 represented *≥8 times* within the last 8 weeks. With this adjustment, a participant who reported implementing EBP zero times in the last 8 weeks would receive a score of zero, rather than a score of 18. A score of 1 on an individual item was associated with using EBP concepts 1 to 3 times within the last 8 weeks, whereas a score of zero indicated no use of EBP concepts within the same time frame. To score the participants' responses to the scale items, the 18 responses were summed for each participant, similar to the calculations for the EBP Beliefs Scale. Scores on the EBP Implementation Scale could range from 0 to 72; the higher the number, the greater the number of implementations in regard to EBP used over the last 8 weeks. Table 2 illustrates the association among the number of times EBP was used in the last 8 weeks, Likert-scale selection, and composite participant score. Cronbach α and Spearman-Brown *r* reliability coefficients for the EBP Implementation Scale were 0.96 and 0.95, respectively, as reported by the authors of the scale within the nursing profession.[17] Internal consistency for this study was calculated using a Cronbach α ($\alpha = .923$) and resulted in a rating of *excellent* reliability.[19] The test-retest reliability was determined through a Spearman ρ ($r_s = 0.874$; CI = 0.542, 0.97) and demonstrated *good* reliability.[19] The S-CVI was determined using the averaging-calculation method and was 0.828.

Procedures

A recruiting e-mail was sent to participants, which included (1) an introduction explaining the purpose and giving an overview of the study, (2) an explanation of how informed consent would be obtained, and (3) a URL address that would direct them to all 3 parts of the survey via the SurveyMonkey Web site. Recruits consented to participate by clicking on the website URL address and completing the survey. Participants were asked to complete the entire survey, which consisted of 3 sections: (1) demographic information, (2) EBP Beliefs Scale, and (3) EBP Implementation Scale. The questionnaire was available for 4 weeks. After the first and third weeks, a reminder e-mail was sent to all participants to increase response rate. After the fourth week, the survey closed and participants were no longer able to access the instrument. The 3 parts of the survey required approximately 15 minutes total to complete.

Data Analysis

All data from the EBP Beliefs Scale and the EBP Implementation Scale were sent directly to the SurveyMonkey database and housed by the authors of the scales. On a weekly basis, the authors of the scales sent the data in PASW format (SPSS Inc) to us. Descriptive statistics, including frequencies, means, and standard deviations of the participants' demographic information, were calculated. We also analyzed the EBP Beliefs Scale and EBP Implementation Scale composite scores as they related to each independent variable (level of education, years of experience, employment setting, preceptor status, documentation requirements, and journal access). Levels of frequency on the EBP Beliefs and EBP Implementation scales were reported. The categories of *agree* and *strongly agree* (Likert-scale scores of 4 and 5, respectively) were combined for the EBP Beliefs scale so that only the positive belief frequencies were reported. On the EBP Implementation scale, Likert-scale scores of 2 to 4 (on a 0–4 point scale) were combined to report ATs' use of EBP 4 or more times within the last 8 weeks.

To assess the normality of the data, a Shapiro-Wilk test for normality was calculated at $P \leq .05$ and indicated a non-normal distribution for the EBP Beliefs and EBP Implementation Scales, thus requiring the reporting of median scores to more accurately represent the data. As a result, we used the Mann-Whitney *U* test to analyze whether

Table 3. Participants' Demographic Characteristics

Characteristic	No. (%)
Sex (n = 466)[a]	
Male	235 (50.4)
Female	231 (49.6)
Age, y (n = 465)[b]	
20–29	169 (36.3)
30–39	152 (32.7)
40–49	85 (18.3)
50–59	51 (11.0)
60–69	8 (1.7)
70–79	0 (0)
Level of education (n = 464)[c]	
Baccalaureate degree	122 (26.3)
Entry-level master's degree	100 (21.6)
Advanced master's degree	228 (49.1)
Doctoral degree	14 (3.0)
Experience, y (n = 467)	
<5	112 (24.0)
5–10	141 (30.2)
11–15	70 (15.0)
16–20	49 (10.5)
21–25	41 (8.8)
26–30	29 (6.2)
31–35	14 (3.0)
36–40	3 (0.6)
>40	3 (0.6)
Employment setting (n = 467)	
Secondary school	124 (26.6)
College/university	204 (43.7)
Clinic	43 (9.2)
Clinic/secondary school	81 (17.3)
Other	15 (3.2)

[a] One participant did not list sex.
[b] Two participants did not provide age.
[c] Three participants did not provide highest level of education.

Table 4. Scores by Independent Variables for the Evidence-Based Practice Beliefs Scale

Variable	No.	Median Score	95% Confidence Interval for Difference
Level of education (n = 384)[a]			
Baccalaureate degree	106	55.50	54.20, 56.80
Entry-level master's degree	82	54.00	52.47, 55.53
Advanced master's degree	183	56.00	54.72, 57.28
Doctoral degree	13	61.00	57.82, 64.18
Experience, y (n = 373)[b]			
<5	93	56.00	54.44, 57.56
5–10	116	54.50	53.11, 55.89
11–15	59	57.00	55.01, 58.99
16–20	38	52.50	49.52, 55.48
21–25	33	58.00	55.38, 60.62
26–30	18	58.00	54.42, 61.58
>30	16	60.00	55.33, 64.67
Employment setting (n = 385)			
Secondary school	105	55.00	53.82, 56.18
College/university	165	55.00	53.62, 56.38
Clinic	31	58.00	54.63, 61.37
Clinic/secondary school	71	56.00	54.55, 57.45
Other	13	60.00	54.65, 65.35
Preceptor status (n = 385)?			
Yes	157	56.00	54.72, 57.28
No	228	55.50	54.50, 56.50
Third-party documentation (n = 381)[c]?			
Yes	61	59.00	57.15, 60.85
No	320	55.00	54.14, 55.86
Journal access (n = 384)[d]?			
Yes	290	56.00	55.08, 56.92
No	94	53.50	52.01, 54.99

[a] One participant did not provide highest level of education.
[b] Twelve participants did not provide experience.
[c] Four participants did not respond.
[d] One participant did not respond.

differences existed among the variables (preceptor status, third-party reimbursement documentation, and journal access) with 2 independent groups; a Kruskal-Wallis 1-way analysis of variance was used to interpret differences in responses among independent variables with 3 or more categories (level of education, years of experience, and employment setting). The effect size r (r = z/square root of N) was calculated to determine the magnitude of the effect: calculated r of 0.10 = *small effect*, r of 0.30 = *moderate effect*, and r of .50 = *large effect*.[20] The a priori value of $P \leq .05$ was set for each statistical analysis. Each outcome of the scales included descriptive statistics: mean, median score, standard deviation, and CIs. We used PASW statistical software (version 18.0) for statistical analysis.

RESULTS

Four thousand 3-part surveys were distributed, and 467 ATs (11.7%) completed section 1 (demographic information). However, only 385 ATs (9.6%) completed the EBP Beliefs Scale (section 2), and 342 (8.5%) completed the EBP Implementation Scale (Section 3). Only completed surveys were included in the statistical analysis of each scale. The mean age of the participants was 35.5 ± 9.9 years, and they had an average of 12.02 ± 9.16 years of athletic training experience. Additional participant demographic information is shown in Table 3.

Athletic Trainers' EBP Beliefs

The median score for all participants (N = 385) on the EBP Beliefs Scale was 56.00 ± 7.86, representing the *neither agree nor disagree* level for all items associated with the EBP Beliefs Scale. This score indicated that participants were neutral (neither agreed nor disagreed) on EBP beliefs. Table 4 illustrates the EBP Beliefs Scale scores by independent variables. Table 5 provides each EBP Belief Scale item along with the percentage of responses in the *agree* and *strongly agree* ranges.

Participants required to document patient outcomes and treatment interventions for third-party reimbursement (N = 61) had a higher score (median score = 59.00) on the EBP Beliefs Scale than those (median score = 55.00) who were not required to maintain such documentation (N = 320; $P = .001$, $r = –0.17$; Table 6). The ATs with access to current research through professional journals other than the *Journal of Athletic Training* (N = 290) had a stronger belief (median score = 56.00) in EBP, as indicated by a higher score on the EBP Beliefs Scale ($P = .02$, $r = –0.12$)

Table 5. Percentages for the Evidence-Based Practice (EBP) Positive Beliefs Scale

Item	No.	Agree and Strongly Agree No. (%)
I believe that EBP results in the best clinical care for patients.	410	321 (78.29)
I am clear about the steps of EBP.	409	303 (74.08)
I am sure that I can implement EBP.	409	280 (68.46)
I believe that critically appraising evidence is an important step in the EBP process.	407	340 (83.54)
I am sure that evidence-based guidelines can improve clinical care.	408	331 (81.13)
I believe that I can search for the best evidence to answer clinical questions in a time-efficient way.	409	190 (46.45)
I believe that I can overcome barriers in implementing EBP.	408	220 (53.92)
I am sure that I can implement EBP in a time-efficient way.	409	167 (40.83)
I am sure that implementing EBP will improve the care that I deliver to my patients.	405	288 (71.11)
I am sure about how to measure the outcomes of clinical care.	409	198 (48.41)
I believe that EBP takes too much time.[a]	410	106 (25.85)
I am sure that I can access the best resources in order to implement EBP.	409	150 (36.67)
I believe EBP is difficult.[a]	406	103 (25.37)
I know how to implement EBP sufficiently enough to make practice changes.	407	171 (42.01)
I am confident about my ability to implement EBP where I work.	409	190 (46.45)
I believe the care that I deliver is evidence-based.	411	265 (64.48)

[a] Items were reverse scored.

compared with those who did not have access (N = 94, median score 53.50) to current research (Table 6). We found no difference ($P = .74$) in the EBP Beliefs Scale scores between ATs who were currently serving as preceptors for athletic training students or had served as preceptors within the last year (N = 157) and those who were not serving in a preceptor role (N = 228), as described in Table 6. Post hoc analysis indicated a difference among ATs with a doctoral degree (N = 13) and all other groups ($H_4 = 11.231$, $P = .01$); the higher the education level, the higher the EBP Beliefs Scale scores (Table 7). An effect-size index (r) showed a low level of practical significance among education levels, with the exception of participants who had entry-level master's degrees or doctoral degrees, which revealed a moderate effect size ($r = -0.33$). We noted no difference for years of experience ($P = .15$) or employment setting ($P = .15$; Table 7).

Athletic Trainers' EBP Implementation

The median score for all participants (N = 342) on the EBP Implementation Scale was 9.00 ± 11.38, representing the implementation of EBP approximately zero times in the last 8 weeks across various conditions and situations. Table 8 displays the EBP Implementation Scale scores by independent variables. Although participants reported being fairly clear on the steps of EBP, they did not demonstrate implementation of EBP, as described in Table 9, which displays each EBP Implementation Scale item along with the percentage of responses in the *4 or more times* range, representing the middle of the Likert scale.

Athletic trainers who had served as a preceptor for an athletic training program within the last year (N = 144, median score 11.00) scored higher ($P = .01$, $r = -0.13$) on the EBP Implementation Scale compared with those who had not served as a preceptor (N = 198, median score 9.00; Table 6). Athletic trainers who were required to document patient outcomes and treatment interventions for third-party reimbursement (N = 56) scored higher (median score 15.50, $P < .001$, $r = -0.22$) on the EBP Implementation Scale than ATs who were not required to maintain such documentation (N = 282, median score 9.00; Table 6). Athletic trainers with access to current research through professional journals other than the *Journal of Athletic Training* (N = 262, median score 10.00) scored higher ($P = .002$, $r = -0.16$) on the EPB Implementation Scale than those with no

Table 6. Evidence-Based Practice Beliefs and Implementation Scale Scores: Mann-Whitney *U* Test Results

Variable	Scale Scores: Beliefs No.	Beliefs Median (range)	Beliefs *U*	Beliefs *P*	Implementation No.	Implementation Median (range)	Implementation *U*	Implementation *P*
Preceptor status?								
Yes	157	56.00 (54.72–57.28)	17548.00	.74	144	11.00 (8.79–13.21)	12014.50	.01[c]
No	228	55.50 (54.50–56.50)			198	9.00 (7.69–10.31)		
Third-party documentation required[a]?								
Yes	61	59.00 (57.15–60.85)	7094.50	.001[c]	56	15.50 (11.96–19.04)	5181.50	<.001[c]
No	320	55.00 (54.14–55.86)			282	9.00 (7.04–9.96)		
Journal access[b]?								
Yes	290	56.00 (55.08–56.92)	11377.50	.02[c]	262	10.00 (8.57–11.43)	7945.00	.002[c]
No	94	53.50 (52.01–54.99)			79	7.00 (4.96–9.04)		

[a] Four participants did not respond.
[b] One participant did not respond.
[c] Indicates difference ($P < .05$).

Table 7. Evidence-Based Practice Beliefs and Implementation Scale Scores: Kruskal-Wallis 1-Way Analysis-of-Variance Results

	Scale Scores							
	Beliefs				Implementation			
Variable	No.	Median (range)	*H*	*P*	No.	Median (range)	*H*	*P*
Level of education[a]								
Baccalaureate degree	106	55.50 (54.2–56.8)	11.231	.01[c]	88	8.00 (6.26–9.74)	10.554	.01[c]
Entry-level master's degree	82	54.00 (52.47–55.53)			71	9.00 (6.96–11.04)		
Advanced master's degree	183	56.00 (54.72–57.28)			169	10.00 (8.07–11.93)		
Doctoral degree	13	61.00 (57.82–64.18)			13	17.00 (6.41–27.59)		
Experience, y[b]								
<5	93	56.00 (54.44–57.56)	9.376	.15	80	10.50 (8.11–12.89)	7.133	.31
5–10	116	54.50 (53.11–55.89)			105	9.00 (7.01–10.99)		
11–15	59	57.00 (55.01–58.99)			53	10.00 (5.71–14.29)		
16–20	38	52.50 (49.52–55.48)			35	8.00 (5.03–10.97)		
21–25	33	58.00 (55.38–60.62)			26	11.50 (6.40–16.60)		
26–30	18	58.00 (54.42–61.58)			19	10.00 (4.76–15.24)		
>30	16	60.00 (55.33–64.67)			13	10.00 (4.48–15.52)		
Employment setting								
Secondary school	105	55.00 (53.82–56.18)	6.78	.15	84	8.50 (6.74–10.26)	7.766	.10
College/university	165	55.00 (53.62–56.38)			157	9.00 (7.07–10.93)		
Clinic	31	58.00 (54.63–61.37)			27	12.00 (8.14–15.86)		
Clinic/secondary school	71	56.00 (54.55–57.45			63	11.00 (7.97–14.03)		
Other	13	60.00 (54.65–65.35)			11	14.00 (3.07–24.93)		

[a] One participant did not provide highest level of education.
[b] Twelve participants did not provide experience for the Beliefs scale; 11 did not provide it for the Implementation scale.
[c] Indicates difference ($P < .05$).

Table 8. Scores by Independent Variables for the Evidence-Based Practice Implementation Scale

Variable	No.	Median Score	95% Confidence Interval for Difference
Level of education (n = 341)[a]			
Baccalaureate degree	88	8.00	6.26, 9.74
Entry-level master's degree	71	9.00	6.96, 11.04
Advanced master's degree	169	10.00	8.07, 11.93
Doctoral degree	13	17.00	6.41, 27.59
Experience, y (n = 331)[b]			
<5	80	10.50	8.11, 12.89
5–10	105	9.00	7.01, 10.99
11–15	53	10.00	5.71, 14.29
16–20	35	8.00	5.03, 10.97
21–25	26	11.50	6.40, 16.60
26–30	19	10.00	4.76, 15.24
>30	13	10.00	4.48, 15.52
Employment setting (n = 342)			
Secondary school	84	8.50	6.74, 10.26
College/university	157	9.00	7.07, 10.93
Clinic	27	12.00	8.14, 15.86
Clinic/secondary school	63	11.00	7.97, 14.03
Other	11	14.00	3.07, 24.93
Preceptor status (n = 342)?			
Yes	144	11.00	8.79, 13.21
No	198	9.00	7.69, 10.31
Third-party documentation required (n = 338)[c]?			
Yes	56	15.50	11.96, 19.04
No	282	9.00	7.04, 9.96
Journal access (n = 341)[d]?			
Yes	262	10.00	8.57, 11.43
No	79	7.00	4.96, 9.04

[a] One participant did not provide highest level of education.
[b] Eleven participants did not provide experience.
[c] Four participants did not respond.
[d] One participant did not respond.

Table 9. Percentages for Evidence-Based Practice (EBP) Implementation

Item	No.	Implemented ≥4 Times in the Previous 8 Weeks No. (%)
Used evidence to change my clinical practice.	362	108 (29.83)
Critically appraised evidence from a research study.	361	76 (21.05)
Generated a PICO [problem/patient/population, intervention, comparison, outcome] question about my clinical practice.	361	10 (2.77)
Informally discussed evidence from a research study with a colleague.	362	150 (41.44)
Collected data on a patient problem.	363	78 (21.49)
Shared evidence from a study or studies in the form of a report or presentation to more than 2 colleagues.	361	47 (13.02)
Evaluated the outcomes of a practice change.	359	21 (5.85)
Shared an EBP guideline with a colleague.	361	38 (10.53)
Shared evidence from a research study with a patient/family member.	362	88 (24.31)
Shared evidence from a research study with a multidisciplinary team member.	363	49 (13.50)
Read and critically appraised a clinical research study.	360	101 (28.06)
Accessed the Cochrane database of systematic reviews.	361	17 (4.71)
Accessed the National Guidelines Clearinghouse.	361	6 (1.66)
Used an EBP guideline or systematic review to change clinical practice where I work.	362	24 (6.63)
Evaluated a care initiative by collecting patient outcome data.	362	20 (5.52)
Shared the outcome data collected with colleagues.	362	18 (4.97)
Changed practice based on patient outcome data.	362	24 (6.63)
Promoted the use of EBP to my colleagues.	363	40 (11.02)

access (N = 79, median score 7.00; Table 6). When comparing the outcomes of ATs with various levels of education, we found a significant result ($H_4 = 10.554$, $P = .01$), indicating that the groups differed from each other. A post hoc analysis revealed that ATs with a doctoral degree (N = 13) scored higher on the EBP Implementation Scale compared with all other education levels ($H_4 = 10.554$, $P = .01$; Table 7). The Pearson correlation coefficient (r) revealed a moderate practical significance between participants with baccalaureate degrees and doctoral degrees ($r = –0.31$) and between participants with entry-level master's degrees and doctoral degrees ($r = –0.30$). No difference was noted among participants for years of clinical experience ($H_7 = 7.133$, $P = .31$) or employment setting ($H_5 = 7.766$, $P = .10$; Table 7).

DISCUSSION

The purpose of our study was to examine ATs' beliefs about and implementation of EBP. Through an online survey, we explored these areas and found that ATs who participated in this study had a positive belief in the value of implementing EBP to improve patient care; however, participants reported implementing EBP concepts into their clinical practice zero times in the last 8 weeks. It is clear from the findings that we must work together as a profession to improve the use of evidence in patient care.

Participants' EBP Beliefs

The overall score on the EBP Beliefs Scale indicated participants were neutral (*neither agree nor disagree*) as to EBP beliefs. Specifically, in response to the items *I believe that EBP results in the best clinical care for patients* and *I am sure that evidence-based guidelines can improve clinical care*, the majority of participants indicated *agree* or *strongly agree*, demonstrating a positive attitude toward EBP for patient care. Participants scored low on items related to their comfort with EBP, confidence in implementation of EBP, and understanding of EBP, as well as their current appraisal that they were presently implementing EBP into their patient care. We believe the variety in the participants' responses may reflect the focus of some items as related more to their ability to implement EBP than simply to their attitude toward the concepts. Participants believed in the need for EBP; however, they were not confident that they could implement EBP.

Although the participants' overall score on the EBP Beliefs Scale was neutral, responses to specific items about patient care reveal that ATs in this study had a positive attitude toward the value of EBP in patient care. These results were similar to those in other studies that demonstrated ATs,[21] nurse practitioners,[22] physical therapists,[23,24] physiotherapists,[25] dietitians,[26] and occupational therapists[9,26] had a positive attitude toward EBP. In terms of ATs' beliefs, 98% of participants in this study reported that they believed applying EBP was important to the credibility of the profession.[21] Hankemeier and Van Lunen[8] found similar results when participants noted the need for ATs to justify their services within the health care setting. Melnyk et al[22] reported that 87% of the nurse practitioners who participated in their study believed EBP improves clinical care and 85% believed EBP improves patient outcomes. When studying physical therapists, Jette et al[24] observed that 79% of those studied believed EBP improves the quality of patient care. We found that 81.13% of ATs in this study believed EBP improves clinical care and 78.29% believed EBP results in the best patient care, which indicates that although the focus on EBP in athletic training is not as established as in the fields of nursing and physical therapy, clinicians are in favor of the movement.

Belief scores regarding EBP were higher among ATs who were required to maintain documentation for third-party reimbursement. As ATs document patient outcomes and treatment interventions for the purpose of reimburse-

ment, they are able to carefully monitor patient progress, assess which treatments and procedures are effective, and demonstrate their effect on patient care.[27] Athletic trainers with access to journals and those with a doctoral degree also scored higher on the EBP Beliefs Scale. Welch et al[28] documented that in order to implement EBP, ATs need access to journals. If clinicians have access to journals, there is a better chance that they are reading the current evidence with the intention of implementing it into practice. Athletic trainers who held a doctoral degree had the highest level of beliefs regarding EBP compared with ATs who held either a master's or bachelor's degree. However, the moderate effect size demonstrates that the magnitude of effect a degree has on the response may be of limited practical significance in the larger population. Similar results in regard to level of education were shown in ATs,[29,30] physiotherapists,[25] and nurses.[31,32] By completing a terminal degree program, clinicians are exposed to the components necessary to understand research and improve confidence in one's skills, such as finding, appraising, and applying evidence. A terminal degree provides clinicians with the research background and skills needed to improve their clinical practice.[6,33]

Athletic trainers' preceptor status, years of experience, and employment setting did not have a significant influence on their beliefs regarding EBP. In a previous study,[29] preceptors' perceptions of the importance of EBP were not different from those of undergraduate athletic training education program directors or postprofessional athletic training students. Overall perceived importance scores indicated that all ATs studied believed EBP was moderately to extremely important.[29] In another study,[8] preceptors reported a need for EBP to validate the profession, aid in a paradigm shift, improve patient care, and improve student education experiences.

Similar results were found by Hankemeier et al[29] between years of athletic training experience and level of perceived EBP importance, indicating that there was no increase in EBP importance as perceived by younger ATs compared with those who had more years of experience. These results within athletic training, however, vary from those found in physical therapy[24] and occupational therapy.[34] When exploring the results, Jette et al[24] noted that younger physical therapists and those who had been licensed fewer years were more likely to agree EBP was necessary and improved both patient care quality and reimbursement rates. Cameron et al[34] observed that among occupational therapists, as the number of years in practice increased, the level of importance and use of evidence in clinical decisions decreased. We believed that because EBP has become more of a focus within the athletic training programs, participants' beliefs and implementation would be higher. Although we expected that ATs with fewer than 5 years of clinical experience would report greater implementation of EBP and hold a more positive belief toward EBP, the length of time they were exposed to EBP training during their education may have been too brief. The EBP competencies were not formally included in athletic training education until 2012, when the 5th edition of the *Athletic Training Educational Competencies*[35] was introduced. As a result of this recent requirement for inclusion of EBP in athletic training programs, we may not see a difference between ATs with more years of experience and those with less until 2016 to 2018. The lack of a more positive belief in EBP in this study may also indicate that although the content has been incorporated into athletic training education, workplace barriers are too great to overcome for implementing the concepts of EBP. Reported barriers to the implementation of EBP include time,[21,24–26,31,36,37] large workload,[37] lack of knowledge,[21,29,31,36,37] and lack of access to evidence,[25,36,37] all of which can be challenging for ATs to overcome.

We found no difference in beliefs among ATs' employment settings. These same results were demonstrated in a study[38] of nurses working in hospital and community outreach settings. Our thought is that EBP may still be too new in athletic training to show a difference among employment settings or that regardless of setting, all ATs believe EBP has value. Researchers[9,22–26,29] documented a positive attitude in general but a lack of implementation, so the absence of difference among employment settings studied is not surprising. Although ATs work in a variety of settings, the necessary training and behavioral change required to make EBP a part of their clinical practice may be lacking.

Two concerns arise regarding ATs' employment settings: (1) many ATs work in physical isolation with no other health care professionals to assist them with implementing strategies to improve patient care and (2) many ATs report to an athletic director in college and high school settings. First, although ATs must work under the direct supervision of a physician who holds the ultimate responsibility for patient care and return-to-play decisions, day-to-day interactions with other health care professionals may be limited in some employment settings.[39] Athletic trainers who work alone or in physical isolation from others may lack relationships with other health care professionals who could assist them with implementing evidence into patient care and further their professional development.[40] To improve the possibility of implementing EBP, ATs are encouraged to look beyond the idea that they must interact professionally only with ATs and begin to build a community of other health care professionals in their area, such as a team physician, school nurse, or physical therapist. By collaborating with other health care providers, ATs can improve patient care, reduce some of the burden of understaffing, and advance their knowledge of current practices and evidence.

Another possibility is for ATs who work in isolation to connect through online technology, such as a journal club. Sortedahl[40(p118)] found that nurses working in isolation from the health care sector benefited from a journal club, which helped them to "keep up with the literature, impact clinical practice, and teach critical reading skills." School nurses who participated in the study reported feeling more connected with colleagues (82%), an increased comprehension of the evidence in the articles discussed (82%), and a better understanding of the link between evidence and practice.[40] Endslay et al[41] suggested forming a community of practice for those who share a common interest and seek to deepen their knowledge and expertise. Building a community through local or online resources will help ATs who work in isolated locations gain access to other health care professionals who "share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing

basis."[42(p28)] By forming such a connection or community, each professional benefits from gaining and exchanging ideas with another, while the patient benefits from being the recipient of the best possible health care being delivered.[40,41]

A second concern related to employment setting is the chain of command that some ATs must follow, specifically when they are required to report directly to an athletic director or coach. This organizational strategy may severely hinder ATs' ability to implement new evidence-supported techniques in practice for fear of losing their job if the coach is not supportive of the change in clinical practices. If the coach is unhappy with the AT's clinical decisions and complains to the athletic director, this could result in a reprimand or loss of a job. In a study[43] of 101 ATs working in the Football Bowl subdivision of the National Collegiate Athletic Association, 11% reported directly to the head coach, and 32% reported to a coach who played a role in the hiring and firing of the AT's position. Half (52%) felt pressure from a coach to return a player to the sport sooner than medically expected, and 41% felt pressure to return a player to the field after a concussion.[43] Athletic trainers should be supervised by another health care professional who is not directly affected by the return to play of athletes to ensure the safety of all participants and improve patient outcomes though the implementation of best practices.[44,45] When the AT is responsible for selecting intervention strategies for injured players, he or she must be encouraged to use the evidence rather than be directed by a coach who has no medical training. When ATs work with and are supervised by another qualified health care provider, this promotes an evidence-based approach to patient care as they are seen as health care professionals and not support staff working for the coach or athletic director. Consideration should be given to where ATs are housed and by whom they are supervised to promote the integration of EBP into patient care without the fear of job loss.

The EBP Implementation

Even though participants reported a positive attitude toward and a need for EBP, they are not implementing EBP concepts into clinical practice. Participants indicated the use of EBP approximately zero times in the 8 weeks before they completed the survey. An effect-size index (r) showed a small magnitude of effect for group on EBP implementation, suggesting that this effect is likely not consistent in the larger population. Cameron et al[34] found that occupational therapists did not use EBP in the intervention-planning process, which was similar to the results of Bostrom et al[46] from their study of registered nurses. Our results, along with those of Cameron et al[34] and Bostrom et al,[46] show that EBP is not being implemented across health care disciplines. While exploring the effectiveness of an EBP educational intervention, Welch et al[47] found that participants had no change in their clinical practice after the intervention. Participants did reveal that the intervention improved their knowledge and perception of EBP; however, this did not result in their implementing the new knowledge into clinical practice. As to why they did not need to implement evidence into practice, participants cited reasons related to numerous years of experience and not conducting research. Bero et al[48] examined 18 systematic reviews of the effectiveness of various educational strategies for closing the gap between research and practice and observed that passive dissemination of information, such as publications in professional journals or mailings of educational materials, was generally ineffective and created only a small change in practice. Documentation of the effectiveness of educational interventions related to EBP in athletic training is lacking. This area should be explored so the profession can move from simply being in favor of EBP to cultivating EBP in daily patient care. Change is hard, and perhaps some clinicians view the need for outcomes assessment and EBP to mean that the current care provided by ATs needs improvement.[49] However, all ATs, whether they conduct research or not and regardless of how many years of experience they have, must incorporate the best available evidence along with patient values and clinical experience to deliver the highest-quality health care possible; clinical experience alone is not enough.

Only 29.83% of respondents reported having used evidence 4 or more times in the previous 8 weeks. Although participants described searching for evidence as the most common of the 5 steps of EBP they use, only 28.06% reported that they had read and critically appraised a clinical research study in the last 2 months. Jette et al[24] found that 66% of physical therapists reported reading 2 to 5 articles in an average month. We believe that because ATs have not been trained in EBP for as long as physical therapists have, they are simply lagging in knowledge and implementation strategies and have not yet made the necessary changes in their professional habits to incorporate searching and reading evidence into their lifestyles. Most ATs are not required to document patient outcomes for the purpose of third-party reimbursement, as physical therapists are, and therefore, they may not be as inclined to read current research articles. To be reimbursed by insurance companies, physical therapists must document and communicate thoroughly from the initial evaluation to the final discharge of the patient, including why they selected specific treatments and how the patient is responding to those interventions.[50] These requirements of insurance companies are standards for physical therapists to receive reimbursement; such standards demand accountability for patient outcomes and the implementation of evidence among the profession, something that is not mandatory in the athletic training profession. Athletic trainers need to demonstrate their value and track their accountability.

We found higher implementation scores among ATs who had served as preceptors within the last year, those with a terminal degree, and those with access to journals other than the *Journal of Athletic Training*. Athletic trainers who serve as preceptors have the opportunity to influence athletic training students to use EBP, but preceptors must first be knowledgeable and comfortable with their own EBP skills. It is encouraging that preceptors scored higher on the EBP Implementation Scale than those ATs who had not served as preceptors; however, the overall implementation level needs improvement to ensure that athletic training students are witnessing clinicians applying evidence in their clinical decision making. Because athletic training programs rely heavily on preceptors to bridge the gap between didactic and clinical education, it is imperative that they provide the necessary development and education for preceptors to succeed in this role.[51] However, preceptors must also take it upon themselves to improve their own skills in and knowledge of EBP.

As determined by this study and previous authors,[21,29] overall knowledge and implementation of EBP is low among ATs. Although EBP components have only recently been required for professional athletic training education, most preceptors are not as familiar with EBP concepts as current athletic training students are. Therefore, we suggest athletic training educators continue to educate athletic training students on the components of EBP but also help them to work constructively and generate discussions with preceptors who have various levels of EBP knowledge and comfort. Additionally, faculty should encourage preceptors to be open to the ideas athletic training students bring with them into the clinical setting. However, ultimately, preceptors must want to improve their knowledge of EBP and successfully implement it into their patient care. Students can help advocate for the use of EBP and motivate preceptors to step out of their comfort zone.

Access to resources plays a very important role in the use of the best available evidence. A total of 75.5% of survey respondents indicated that they had access to journals beyond the *Journal of Athletic Training*. In contrast, when asked about access in a separate survey question, only 36.67% of participants reported being able to access the best resources to implement EBP. This may indicate that clinicians in this study believed extensive access to the literature was necessary to implement any EBP concepts. Educating ATs on the resources that already exist may be necessary to help them overcome the barrier of limited resources. It should be noted that various journals offer free full-text articles through the Directory of Open Access Journals (https://doaj.org), PubMed Central (http://www.ncbi.nlm.nih.gov/pmc), and their own Web sites. In addition to open-access journals, social-media venues such as Facebook, Twitter, and blogs make it easy for ATs to remain current on topics in health care. All information from social-media sites should be critically appraised, however, just as the current literature should be reviewed.

The results associated with journal access beyond the *Journal of Athletic Training* were only slightly lower than the findings of other studies. McCarty et al[21] noted that 87.3% of clinicians had access to peer-reviewed journal articles and only 14.5% of clinicians had access to the Cochrane databases; it is unclear if participants had access to any journals other than the *Journal of Athletic Training*. Heiwe et al[26] reported that 93% of physical therapists, dietitians, and occupational therapists had access to the professional literature in paper or Internet form. We found that ATs said they had access to the *Journal of Athletic Training* but not to a variety of other journals. Although reading the *Journal of Athletic Training* may help ATs to implement EBP into clinical practice, it is unlikely that all of their clinical questions can be answered by a single journal. Access to a variety of journals will allow clinicians the opportunity to find current evidence related to PICO questions. Once ATs have an understanding of EBP, begin to increase their comfort with applying the steps of EBP, and have a vested interest in implementing EBP, then reading the *Journal of Athletic Training* can be a valuable resource, but it should be used in conjunction with other journals to answer their PICO questions.

Jette et al[24] found that physical therapists with access to online databases at home were 3.2 times more likely to express an interest in learning or improving their skills in implementing EBP than those who did not have home access. These results demonstrate the need for ATs to have adequate access to journals and databases to promote the use of evidence during clinical decision making. Applying the best evidence in practice is only possible when clinicians have access to that evidence. The evidence also needs to be applicable, easy to read, and accessible to all ATs. According to Welch et al,[28] ATs demonstrated the need for more resources to be available in order for them to implement EBP. Participants reported a lack of EBP resources and the desire for more processed information. Having access to this condensed or processed information, such as article summaries or clinical practice updates, would allow ATs to gain knowledge from the literature without spending a great deal of time or having extensive training in research or statistical procedures. Athletic trainers are encouraged to take advantage of the "Clinical Bottom Line" section of the *NATA News*, along with NATA Range of Motion e-blasts, which provide quick, easy-to-read, updated information.

Years of employment and years of clinical experience had no effect on EBP implementation in the current study. Rudman et al[52] reported no difference in the level of EBP implementation during the first 5 years after graduation. Iles and Davidson[25] also found no difference in the level of implementation based on years of clinical experience among physiotherapists. Similar to the lack of difference in EBP beliefs between newly certified and seasoned ATs, the short duration since the 5th edition of the *Athletic Training Education Competencies*[35] was introduced may play a vital role in the lack of difference between these groups. And as a result, we may not see a difference between ATs with more years of experience and those with less until 2016 to 2018.

Of those ATs studied, 74.08% reported being clear about the steps of EBP. If ATs are clear about EBP and see a need for EBP to be implemented, then why are they not implementing these concepts? In other studies of ATs, participants' EBP knowledge was low and overall confidence was rated as minimal to moderate.[29,30] Athletic trainers' knowledge of EBP needs improvement. Without improvement in the basics of EBP, clinicians will not be able to implement EBP concepts. Beginning in 2014, all Board of Certification (BOC)-certified ATs were required to complete 10 continuing education units of BOC-approved EBP hours per 2-year cycle. This initiative is designed to promote EBP among ATs by improving their understanding of EBP concepts and how to apply evidence to their clinical practice. The BOC is approving new courses to address multiple aspects of EBP and promote application within the profession.[53] This new requirement will help ATs gain an understanding of EBP and, we hope, help them to make it a priority; however "buy-in" from clinicians is still essential for the profession to fully implement EBP into patient care. Athletic trainers must not only complete continuing education units to improve their knowledge, skills, and implementation of EBP but must also embrace EBP and be advocates for using EBP. The implementation of EBP can improve patient outcomes and decrease the amount of time spent treating patients, providing clinicians with a more efficient workday. Athletic trainers aim to do what is the best for their patients. Therefore, we should emphasize the combination of patient values with the best available research and clinical expertise.

LIMITATIONS

Although our results add to the knowledge base of EBP in athletic training, the study has minor limitations. The response rate of 11.67% was lower than expected. A total of 467 participants initially accessed the survey, and 385 (9.6%) and 342 (8.5%) completed the EBP Beliefs and EBP Implementation Scales, respectively. This low response rate could have been due to the topic not being of interest to potential participants, or the survey might have been perceived as requiring too much time to complete. It is also very likely that ATs are frequently asked to complete surveys in this area. A lack of familiarity or comfort with the topic could also be reasons for the low response rate. The response rate makes it difficult to truly understand what is occurring with EBP implementation; however, from the results of this study and others,[21,36,47] we gained a sense from participants that they are not implementing EBP. The similar findings help to improve the external validity.

Another limitation was the S-CVI/Ave, which was calculated by the averaging method for the instruments used in the study. Researchers suggest a score of 0.90 or higher is needed to demonstrate excellent content validity. We calculated scores of 0.830 (EBP Beliefs Scale) and 0.828 (EBP Implementation Scale) for the S-CVI/Ave. It is possible that chance factors increased the disagreement among raters. The probability that all raters would agree on the relevance of the items was 0.625.[18] Although the S-CVI/Ave did not meet the recommended level, no scale item received more than 2 rater scores below a 3 or 4 (1 = *not relevant*, 2 = *somewhat relevan*t, 3 = *quite relevant*, 4 = *highly relevant*).

The self-reporting nature of this study can lead to unreliable data. Because EBP is commonly discussed in athletic training literature and at meetings of the NATA membership, participants might have answered in a socially acceptable manner so as to not feel behind or unfamiliar with a current trend in their field.

CONCLUSIONS

The ATs studied had a positive attitude toward EBP and believe that EBP results in the best clinical care for patients and is important to the credibility of the profession; however, they are not implementing the concepts into practice. To provide the best patient care, promote EBP within the profession, and gain credibility with other health care professions, clinicians should make EBP a priority and become advocates for EBP. We may see a rise in the level of EBP implementation over the next 3 to 5 years after the relatively new EBP educational competencies and continuing education requirements are implemented into ATs' professional and continuing education.

Although ATs are not commonly required to document for third-party reimbursement, they must be held accountable for patient outcomes and the effectiveness of the treatments they implement. Adequate access to journals and other resources is necessary to help ATs implement EBP; however, the focus on bridging the gap between research and practice must be addressed to raise the professional standard of EBP implementation within the athletic training community.

Finally, ATs should focus on connecting with other health care professionals, especially those working in isolated settings, to collaborate on patient care and increase accountability for the integration of best practices. Athletic trainers should seek administrative and organizational support for the implementation of evidence without fear of dismissal from their jobs. With appropriate supervision, ATs can better promote the implementation of new techniques and adequately assess the outcomes that result.

Future researchers should investigate the components necessary to elicit a behavioral change in clinicians to implement EBP, identify resources available for athletic trainers to implement EBP and strategies to connect ATs with these resources, and assess the influence preceptors have on the development of athletic training students' behaviors and attitudes associated with EBP.

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