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Frequency of, Confidence in, and Educational Satisfaction With Mental Illness Recognition and Referral Among Certified Athletic Trainers

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Context: Mental illness recognition and referral are required components of professional athletic training education. However, athletic trainers (ATs) often report feeling underprepared to assist patients with mental health emergencies.

Objective: To determine ATs' frequency of and confidence in psychosocial skill use and their satisfaction with education related to mental illness recognition and referral.

Design: Cross-sectional study.

Setting: Online survey.

Patients or Other Participants: A total of 226 ATs (86 men, 140 women; age = 35.5 ± 9.9 years, years of practice = 11.9 ± 9.0).

Main Outcome Measure(s): The independent variables were professional athletic training program, professional psychosocial courses, highest education level, psychosocial continuing education units, clinical practice setting, and years of experience. For each skill, individuals identified the average frequency with which the skill was performed each year, rated their confidence in performing the skill, and rated their satisfaction with professional education related to the skill.

Results: Anxiety was reported as the symptom most frequently recognized and referred. Most respondents felt moderately or extremely confident in managing patients with anxiety, panic attacks, depression, suicidal ideation, or eating disorders but less confident or unconfident in managing those with psychosis or substance use disorder. The majority of respondents felt dissatisfied or only slightly satisfied with their education related to mental health recognition and referral. Years of clinical practice and self-reported frequency of referral were significantly associated for managing patients with anxiety disorder ($\chi^2_{87} = 117.774$, $P = .016$) and suicidal thoughts or actions ($\chi^2_{87} = 179.436$, $P < .001$). For confidence, significant positive associations were present between years of practice and self-reported recognition of patients with anxiety disorders ($\chi^2_{145} = 195.201$, $P = .003$) and referral for those with anxiety disorders ($\chi^2_{145} = 15.655$, $P = .048$) or panic attacks ($\chi^2_{145} = 19.790$, $P = .011$). Significant associations were also noted between the number of continuing education units and self-reported confidence in recognizing suicide ($\chi^2_{15} = 26.650$, $P = .032$), referring for suicidal concerns ($\chi^2_{18} = 40.456$, $P = .002$), recognizing substance use ($\chi^2_{18} = 33.649$, $P = .014$), and referring for substance use ($\chi^2_{18} = 30.918$, $P = .029$). No significant associations were related to satisfaction.

Conclusions: The ATs with fewer years of clinical practice (ie, who had completed professional programs more recently) expressed higher confidence in mental health recognition and referral than those who had completed professional programs longer ago. We recommend that real-time interactions with individuals who have mental health concerns or emergencies be incorporated into professional education programs and that increased emphasis be placed on continuing education related to these topics.

Key Words: psychosocial intervention, psychosocial referral, mental health

Key Points

- Athletic trainers reported recognizing and referring patients with suspected anxiety disorders more frequently than any other skill related to mental health recognition and referral.
- Participants felt more confident in recognizing and referring patients with suspected anxiety, panic attacks, depression, suicidal ideation, or eating disorders and less confident in recognizing and referring those with suspected psychosis and substance use disorders.
- Increased emphasis on mental health recognition and referral is needed in professional athletic training education and should be part of continuing education requirements.

Injury in physically active people results in both physical and psychosocial effects on the injured individual.[1–4] As the role of athletic trainers (ATs) has expanded to emphasize holistic patient care, mental health recognition and referral have become required components of professional education programs. Both injured and uninjured patients struggle with mental health challenges and disorders, including anxiety disorders, mood disorders, eating disorders, substance use disorders, and psychotic disorders (such as schizophrenia).[5] It is important for ATs to be able to recognize signs and symptoms of these disorders and to be confident in their ability to

Table 1. Demographic Characteristics (N = 226)

Characteristic	Value
Age, mean ± SD, y	35.5 ± 9.9
Gender, No.	
Male	86
Female	140
Years of clinical practice, mean ± SD	11.9 ± 9.0
Practice setting, No. (%)	
Middle or high school	45 (19.9)
Clinic, hospital, or physician office	7 (3.1)
College	145 (64.2)
Other[a]	29 (12.7)
Program type, No.	
BS or BA	180
MS or MA	24
Internship	22
Psychosocial courses taken in educational program, No. (%)	
0	21 (9.3)
1	86 (38.1)
2	80 (35.4)
3+	39 (17.3)
Highest education, No.	
BS or BA	17
Some MS or MA	3
MS or MA	178
Some doctoral	19
Clinical doctorate	6
Terminal doctorate	3
Psychosocial continuing education units in past 5 y, No. (%)	
0	18 (8.0)
1–3	77 (34.1)
4–5	70 (31.0)
6+	61 (27.0)

Abbreviations: BA, bachelor of arts; BS, bachelor of science; MA, master of arts; MS, master of science.

[a] Other: industrial (n = 5, 2.2%), military (n = 4, 1.8%), performing arts (n = 4, 1.8%), other (n = 11, 4.9%).

intervene and refer patients for suspected disorders or associated mental health emergencies (such as panic attacks, suicidal thoughts or actions, or self-harm).[6,7]

The 5th edition of the *Athletic Training Education Competencies*[8] (published in 2011) specifically included a "Psychosocial Strategies and Referral" content area, with competencies and clinical integration proficiencies designed to ensure that athletic training students are exposed to learning situations that will increase their skill and confidence in providing psychosocial support to their patients. The 2020 curricular content standards require students to be able to identify, refer, and give support to patients with mental health conditions.[9] However, the competencies and curricular content standards are intentionally broad and not prescriptive of how content should be instructed or evaluated. Previous authors[10,11] found decreased satisfaction with educational content related to these areas. Yet educational satisfaction in this content area has not been evaluated for more than a decade.

As a result of decreased educational satisfaction, ATs may lack confidence in their ability to recognize mental health concerns and make mental health referrals as part of their clinical practice. In fact, over the past 2 decades, researchers[10–13] have repeatedly suggested that ATs felt underprepared to assist with mental health emergencies in their patients. Mental health disorders are extremely prevalent in the United States, with 18.5% of the US adult population[14] and 22% of US adolescents[15] suffering from a mental health disorder in any given year. Nonetheless, although ATs may recognize when mental health intervention may be beneficial, they have a limited ability to actually implement techniques and assess athletes' need for mental health services.[12,13] Although confidence in ATs' skill use has been evaluated previously, to our knowledge, the frequency of skill use related to mental illness recognition and referral has never been examined.

Given the increasing prevalence of mental illness across all subsets of the US population, ATs must be confident in recognizing the common signs of mental health challenges and disorders and in their ability to make appropriate referrals.[16] Therefore, the purpose of our study was to determine ATs' frequency of psychosocial skill use, confidence in their skill ability, and satisfaction with educational preparation related to mental illness recognition and referral. Secondary purposes were to evaluate associations between frequency of use and years of practice and practice setting; confidence in ability and highest education, years of practice, and number of continuing education units; and in educational preparation and athletic training program type and number of psychosocial courses taken during their professional program.

METHODS

Participants

We invited ATs who were National Athletic Trainers' Association members and who had been in full-time clinical practice for at least 3 years to participate in this study. An online survey was delivered via the National Athletic Trainers' Association Research Survey Service to 1500 ATs who met the inclusion criteria. A total of 226 ATs completed the survey (86 men, 140 women; age = 35.5 ± 9.9 years, years of practice = 11.9 ± 9.0; Table 1); this number exceeded our a priori sample-size estimate of 143 participants (based on desired power of 0.8 for χ^2 and correlation testing). The study was approved by our institutional review board, and informed consent was obtained electronically before participants were given access to the survey questions.

Instrumentation

The survey was a 57-item instrument consisting of 9 demographic questions (Table 1) and 48 questions on psychosocial skills and mental health intervention and referral (frequency of skill use, confidence in ability to use skill, and educational satisfaction related to skill were asked about in 16 items; Table 2). We initially asked for each person's graduation year but later determined that variable lacked relevance, so we did not include it in our analysis. For each skill, we asked individuals to identify the average frequency with which the skill was performed each year (<1, 1–2, 3–5, or 6+ times), rate their confidence in performing the skill (6-point Likert scale: *extremely confident* to *extremely unconfident*), and rate their satisfaction with their professional education related to the skill (6-point Likert scale: *extremely satisfied* to *extremely unsatisfied* or *not learned*).

- Sample frequency question: On average, with REAL

Table 2. Frequency of, Confidence in, and Satisfaction With Psychosocial Skills Use: Percentage for Each Category. Continued on Next Page

Skill	Frequency	Confidence	Satisfaction
Identifying s/s of suspected anxiety disorder	<1x: 10.2 1–2x: 30.7 3–5x: 32.8 6+x: 26.3	Extremely confident: 21.9 Moderately confident: 48.2 Slightly confident: 21.2 Slightly unconfident: 5.8 Moderately unconfident: 2.9	Extremely satisfied: 7.3 Moderately satisfied: 27.7 Slightly satisfied: 14.6 Slightly dissatisfied: 20.2 Moderately dissatisfied: 5.1 Extremely dissatisfied: 4.4 Not learned: 19.7
Initiating mental health referral for suspected anxiety disorder	<1x: 26.3 1–2x: 40.1 3–5x: 21.9 6+x: 11.7	Extremely confident: 35.0 Moderately confident: 43.8 Slightly confident: 16.1 Slightly unconfident: 4.3 Moderately unconfident: 0.7	Extremely satisfied: 11.7 Moderately satisfied: 24.8 Slightly satisfied: 17.5 Slightly dissatisfied: 15.4 Moderately dissatisfied: 6.6 Extremely dissatisfied: 3.6 Not learned: 20.4
Identifying s/s of suspected panic attack	<1x: 27.0 1–2x: 51.1 3–5x: 15.3 6+x: 6.6	Extremely confident: 29.9 Moderately confident: 41.6 Slightly confident: 21.2 Slightly unconfident: 6.5 Moderately unconfident: 0.7	Extremely satisfied: 10.9 Moderately satisfied: 20.4 Slightly satisfied: 16.8 Slightly dissatisfied: 21.0 Moderately dissatisfied: 6.6 Extremely dissatisfied: 3.6 Not learned: 22.6
Initiating mental health referral for suspected panic attacks	<1x: 48.9 1–2x: 35.8 3–5x: 11.7 6+x: 3.6	Extremely confident: 27.7 Moderately confident: 36.5 Slightly confident: 24.8 Slightly unconfident: 9.4 Moderately unconfident: 1.5	Extremely satisfied: 10.2 Moderately satisfied: 18.2 Slightly satisfied: 21.2 Slightly dissatisfied: 16.8 Moderately dissatisfied: 5.8 Extremely dissatisfied: 1.5 Not learned: 26.3
Identifying s/s of suspected major depressive disorder	<1x: 35.0 1–2x: 49.6 3–5x: 10.9 6+x: 4.4	Extremely confident: 23.4 Moderately confident: 41.6 Slightly confident: 26.3 Slightly unconfident: 3.6 Moderately unconfident: 2.2 Extremely unconfident: 2.9	Extremely satisfied: 10.9 Moderately satisfied: 24.8 Slightly satisfied: 13.9 Slightly dissatisfied: 19.7 Moderately dissatisfied: 5.1 Extremely dissatisfied: 5.8 Not learned: 19.7
Initiating mental health referral for suspected major depressive disorder	<1x: 54.7 1–2x: 36.5 3–5x: 6.6 6+x: 2.2	Extremely confident: 24.1 Moderately confident: 38.0 Slightly confident: 24.1 Slightly unconfident: 9.4 Moderately unconfident: 2.2 Extremely unconfident: 2.2	Extremely satisfied: 10.2 Moderately satisfied: 19.7 Slightly satisfied: 20.4 Slightly dissatisfied: 18.1 Moderately dissatisfied: 5.8 Extremely dissatisfied: 5.8 Not learned: 21.9
Identifying s/s of suspected suicidal thoughts or actions	<1x: 70.8 1–2x: 27.7 3–5x: 1.5	Extremely confident: 17.5 Moderately confident: 41.6 Slightly confident: 24.1 Slightly unconfident: 11.6 Moderately unconfident: 5.1	Extremely satisfied: 8.1 Moderately satisfied: 21.3 Slightly satisfied: 22.1 Slightly dissatisfied: 17.0 Moderately dissatisfied: 5.9 Extremely dissatisfied: 6.6 Not learned: 19.1
Initiating mental health referral for suspected suicidal thoughts or actions	<1x: 75.2 1–2x: 23.4 3–5x: 0.7 6+x: 0.7	Extremely confident: 25.5 Moderately confident: 38.7 Slightly confident: 19.7 Slightly unconfident: 11.7 Moderately unconfident: 2.9 Extremely unconfident: 1.5	Extremely satisfied: 8.0 Moderately satisfied: 20.4 Slightly satisfied: 19.0 Slightly dissatisfied: 19.0 Moderately dissatisfied: 5.8 Extremely dissatisfied: 6.6 Not learned: 21.2
Identifying s/s of nonsuicidal self-harm or self-injury	<1x: 75.2 1–2x: 21.2 3–5x: 3.6	Extremely confident: 13.1 Moderately confident: 37.2 Slightly confident: 27.2 Slightly unconfident: 17.6 Moderately unconfident: 3.6 Extremely unconfident: 0.7	Extremely satisfied: 13.1 Moderately satisfied: 37.2 Slightly satisfied: 8.7 Slightly dissatisfied: 17.6 Moderately dissatisfied: 3.6 Extremely dissatisfied: 0.7 Not learned: 19.7

Table 2. Continued From Previous Page

Skill	Frequency	Confidence	Satisfaction
Initiating mental health referral for nonsuicidal self-harm or self-injury	<1x: 81.8 1–2x: 16.8 3–5x: 1.5	Extremely confident: 19.0 Moderately confident: 38.7 Slightly confident: 24.1 Slightly unconfident: 12.4 Moderately unconfident: 2.9 Extremely unconfident: 2.9	Extremely satisfied: 19.0 Moderately satisfied: 38.7 Slightly satisfied: 5.1 Slightly dissatisfied: 12.4 Moderately dissatisfied: 2.9 Extremely dissatisfied: 2.9 Not learned: 19.7
Identifying s/s of suspected eating disorder	<1x: 47.1 1–2x: 42.6 3–5x: 8.1 6+x: 2.2	Extremely confident: 21.9 Moderately confident: 44.5 Slightly confident: 22.6 Slightly unconfident: 10.2 Moderately unconfident: 0.7	Extremely satisfied: 47.1 Moderately satisfied: 42.6 Slightly satisfied: 8.1 Slightly dissatisfied: 2.2
Initiating mental health referral for suspected eating disorder	<1x: 54.7 1–2x: 39.4 3–5x: 4.4 6+x: 1.5	Extremely confident: 26.3 Moderately confident: 40.9 Slightly confident: 21.2 Slightly unconfident: 9.4 Moderately unconfident: 1.5 Extremely unconfident: 0.7	Extremely satisfied: 54.7 Moderately satisfied: 39.4 Slightly satisfied: 4.4 Slightly dissatisfied: 1.5
Identifying s/s of suspected psychosis	<1x: 96.4 1–2x: 3.6	Extremely confident: 4.4 Moderately confident: 17.5 Slightly confident: 29.2 Slightly unconfident: 30.7 Moderately unconfident: 9.5 Extremely unconfident: 8.8	Extremely satisfied: 96.4 Moderately satisfied: 3.6
Initiating mental health referral for suspected psychosis	<1x: 97.8 1–2x: 2.2	Extremely confident: 10.2 Moderately confident: 16.8 Slightly confident: 24.8 Slightly unconfident: 29.9 Moderately unconfident: 8.0 Extremely unconfident: 10.2	Extremely satisfied: 97.8 Moderately satisfied: 2.2
Identifying s/s of suspected substance use disorder	<1x: 59.1 1–2x: 29.9 3–5x: 6.6 6+x: 4.4	Extremely confident: 13.9 Moderately confident: 40.9 Slightly confident: 25.5 Slightly unconfident: 16.1 Moderately unconfident: 2.9 Extremely unconfident: 0.7	Extremely satisfied: 59.1 Moderately satisfied: 29.9 Slightly satisfied: 6.6 Neutral: 4.4
Initiating mental health referral for suspected substance use disorder	<1x: 76.6 1–2x: 19.0 3–5x: 2.2 6+x: 2.2	Extremely confident: 16.1 Moderately confident: 34.3 Slightly confident: 27.0 Slightly unconfident: 16.1 Moderately unconfident: 3.6 Extremely unconfident: 2.9	Extremely satisfied: 76.6 Moderately satisfied: 19.0 Slightly satisfied: 2.2 Neutral: 2.2

Abbreviation: s/s, signs and symptoms.

PATIENTS, how many times PER YEAR do you identify potential signs and symptoms of nonsuicidal self-harm or self-injury (such as cutting, burning, nonlethal overdoses, etc)?

- Sample confidence question: How confident would you be identifying signs and symptoms of nonsuicidal self-harm or self-injury in a REAL PATIENT today?
- Sample satisfaction question: How satisfied are you with your professional education (athletic training program) related to identifying signs and symptoms of nonsuicidal self-harm or self-injury?

The instrument was validated by a panel of 6 external ATs who were considered experts in psychosocial intervention and referral content in athletic training. Before dissemination in this study, we pilot tested the instrument with 20 individuals who were not in the pool of potential participants and calculated test-retest reliability. Pilot testing demonstrated strong test-retest reliability (all r values > 0.8). Descriptive statistics are reported in Table 1. Average frequency, confidence, and satisfaction for each skill are provided in Table 2. Chi-square tests of independence were conducted to examine associations between variables (frequency, confidence, satisfaction) and skill use. Spearman rank correlations were used to assess relationships between frequency, confidence, and satisfaction (reported in Table 3).

RESULTS

Frequency

Anxiety disorder was the most frequently recognized and referred condition, followed by major depression and eating disorders. Suicide, nonsuicidal self-injury (NSSI), and psychosis were recognized and referred least often (Table 2). Significant associations were identified between years of clinical practice and frequency of referral for suspected anxiety disorder ($\chi^2_{87} = 117.774$, $P = .016$) and between years of clinical practice and frequency of referral for

Table 3. Spearman Rank Correlations for Frequency, Confidence, and Satisfaction

Item Value	Frequency and Confidence	Frequency and Satisfaction	Confidence and Satisfaction
Signs of anxiety disorder			
r	0.427	0.161	0.454
P	<.001	.027	<.001
Refer for anxiety disorder			
r	0.539	0.190	0.408
P	<.001	.009	<.001
Signs of panic attack			
r	0.369	0.148	0.438
P	<.001	.042	<.001
Refer for panic attack			
r	0.485	0.175	0.439
P	<.001	.016	<.001
Signs of major depression			
r	0.417	0.161	0.538
P	<.001	.027	<.001
Refer for major depression			
r	0.516	0.316	0.490
P	<.001	<.001	<.001
Signs of suicide			
r	0.275	0.057	0.434
P	<.001	.439	<.001
Refer for suicide			
r	0.290	0.006	0.424
P	<.001	.936	<.001
Signs of nonsuicidal self-injury			
r	0.282	0.085	0.558
P	<.001	.245	<.001
Refer for nonsuicidal self-injury			
r	0.313	0.143	0.473
P	<.001	.050	<.001
Signs of eating disorder			
r	0.344	0.056	0.612
P	<.001	.447	<.001
Refer for eating disorder			
r	0.358	0.140	0.550
P	<.001	.054	<.001
Signs of psychosis			
r	0.130	0.127	0.697
P	.074	.083	<.001
Refer for psychosis			
r	0.123	0.154	0.626
P	.093	.034	<.001
Signs of substance use disorder			
r	0.286	0.230	0.582
P	<.001	.001	<.001
Refer for substance use disorder			
r	0.346	0.290	0.607
P	<.001	<.001	<.001

suicidal thoughts or actions ($\chi^2_{87} = 179.436$, $P < .001$). In both cases, ATs with more experience referred patients more frequently. No other associations between years of clinical practice frequency and skill use were significant.

Significant associations were seen between practice setting and frequency of referral for individuals experiencing panic attacks ($\chi^2_{45} = 67.532$, $P = .0016$) and between practice setting and frequency of recognition of signs of NSSI ($\chi^2_{30} = 49.876$, $P = .013$). In both cases, ATs working in a hospital setting referred individuals more frequently. Significant associations were also present between practice setting and frequency of recognition of signs of potential substance use disorder ($\chi^2_{45} = 62.630$, $P = .042$), with ATs in hospitals and physician offices identifying patients more frequently and between practice setting and referral for suspected substance use disorder ($\chi^2_{45} = 89.776$, $P < .001$), with ATs in industrial, military, and professional sports settings referring patients less frequently.

Confidence

Most ATs felt moderately or extremely confident in their ability to recognize and refer individuals for suspected anxiety disorder, panic attack, major depressive disorder, suicidal ideation, or eating disorder, whereas they were less confident or unconfident in their ability to recognize and refer patients for psychosis and substance use disorder (Table 2).

Significant associations were evident between years of clinical practice and recognizing signs of potential anxiety disorders ($\chi^2_{145} = 195.201$, $P = .003$), referring patients for suspected anxiety disorders ($\chi^2_{145} = 15.655$, $P = .048$), and referring patients with panic attacks ($\chi^2_{145} = 19.790$, $P = .011$); ATs with fewer years of experience reported higher confidence and those with more years of experience reported lower confidence. No other significant associations between years of clinical practice and confidence in any skill were demonstrated.

Significant associations were also identified between the number of continuing education units related to psychosocial content and recognizing suicide ($\chi^2_{15} = 26.650$, $P = .032$), referring for suicidal concerns ($\chi^2_{18} = 40.456$, $P = .002$), recognizing substance use ($\chi^2_{18} = 33.649$, $P = .014$), and referring for substance use ($\chi^2_{18} = 30.918$, $P = .029$). Those with 4+ continuing education units were more confident. No significant associations between confidence and highest education for any skill were revealed ($P > .05$).

Satisfaction

The majority of ATs were dissatisfied or only slightly satisfied with their education related to the use of mental health recognition and referral skills, with the exception of NSSI, eating disorder, and psychosis. Additionally, a substantial percentage (range = 19.1%–26.3%) stated they had not learned about anxiety disorders, panic attacks, major depressive disorder, suicidal thoughts or actions, or NSSI at all (Table 2).

No significant associations were seen between satisfaction and type of professional athletic training program for any skill (all P values $> .05$) or between satisfaction and the number of psychosocial courses for any skill (all P values $> .05$).

Frequency, Confidence, and Satisfaction Correlations

For all mental illness recognition and referral skills (with the exception of psychosis), strong, significant, positive correlations were noted between frequency of use and confidence: higher frequency of skill use was correlated with a higher level of confidence (Table 3). A similar pattern was present for frequency and satisfaction, with strong, significant, positive correlations for nearly all skills except suicide, NSSI, eating disorders, and psychosis (Table 3). Finally, strong, significant, positive correlations were displayed between confidence and educational

satisfaction for all skills (Table 3); however, an examination of the distribution of confidence and satisfaction indicated that confidence values were higher than satisfaction values for all skills (Table 2).

DISCUSSION

Anxiety disorders were the most frequently recognized and referred condition, which correlates with national data suggesting that anxiety disorders are the most prevalent mental health disorder in US adults and adolescents (18.1% and 31.9%, respectively).[14,17] Yet patients with panic attacks, which present in approximately 13% of the population,[18] were identified 2 to 3 times per year by most participants (51.1%) but referred less than 1 time per year (48.9%). This may suggest a lack of knowledge about the importance of referral or perhaps a lack of comfort in making this type of referral.

The frequency with which individuals with suspected major depression were identified and referred seems on par with reported prevalence rates (6.8% of US adults, 12.8% of US adolescents).[14,17] Additionally, the frequencies with which patients who expressed suicidal thoughts or actions were recognized and referred were nearly identical, indicating that clinicians were willing to refer for this mental health crisis. However, although the majority of individuals reported feeling confident in their ability to recognize and refer those with these conditions (83.9% and 83.2%, respectively), only about half felt satisfied with their educational preparation related to suicide recognition and referral (51.5% and 47.4%, respectively). This may indicate the need for professional education programs to increase their focus on recognition and referral for individuals with suicidal thoughts or actions. Related to NSSI, most ATs indicated identifying and referring patients less than 1 time per year (75.2% and 81.8%, respectively). Still, national statistics tell us that the lifetime prevalence of NSSI in adolescents and young adults is 15% to 20%, and in adults, approximately 6%.[19] This may indicate underrecognition of NSSI in our patients and suggest the need for increased educational focus on this topic.

The majority of participants were confident in (88.4%–89.1%) and satisfied with (97.8%–98.5%) their education related to identification and referral of patients with eating disorders. The ATs' confidence was higher than that in a previous report[20] in which only 27% of ATs felt confident identifying a female patient with an eating disorder and only 38% felt confident asking a patient if she had an eating disorder. Related to substance use disorder, most of our sample identified and referred individuals for substance use disorder $<$1 time per year (59.1% and 76.6%, respectively), despite the fact that 8.1% of US adults and 11.4% of US adolescents aged 13 to 18 years have a diagnosable substance use disorder in any given year.[14,17] Among US college students, the prevalence of substance use disorder is 39.6%.[21] Data from our study (with 64% of participants working in the collegiate setting), paired with national data on the prevalence of substance use disorder, may indicate that patients with these disorders are being underrecognized and referred by ATs.

Mental health disorders involving psychosis, including schizophrenia, are among the least prevalent mental health disorders (4.6 per 1000, or 0.46%)[22]; however, schizophrenia has a median age of onset of 27 years,[23] making initial presentation likely during the college years and early adulthood. Although it is certainly possible that ATs may never encounter an individual experiencing psychosis, it is important that they feel confident in their ability to recognize the signs and symptoms and refer appropriately. Based on our sample, athletic training education programs are doing a good job in this area, with 100% of the ATs reporting that they felt satisfied with their educational preparation; yet only about half felt confident in their ability to identify and refer patients (51.5% and 51.8%, respectively). This underscores the need for additional training and continuing education related to mental health disorders.

Although only a few associations were significant, they indicated that ATs with fewer years of clinical practice (ie, who had completed professional programs more recently) had more confidence than those who had completed professional programs longer ago. This may be the result of increased focus on psychosocial intervention and referral in newer editions of the Athletic Training Education Competencies.[8] Still, the majority of ATs were dissatisfied or only slightly satisfied with their professional education. Given the frequencies with which ATs used these skills and the fact that neither the type of professional athletic training program nor the number of psychosocial courses taken was related to educational satisfaction, programs at all levels should provide more practical education related to recognition and referral of patients with mental health conditions. Additionally, the large percentages of individuals who had not learned about many mental health disorders as part of their professional programs should be concerning to the Commission on Accreditation of Athletic Training Education (CAATE) and the Board of Certification. Specifically, real-time interactions with individuals who have mental health concerns or emergencies should be incorporated into professional education programs. This may be accomplished through preceptor education (encouraging preceptors to include athletic training students in conversations with patients about mental health concerns), standardized patient scenarios in the curriculum, or both. Other interactive activities, including exploratory counseling sessions, certification in mental health first aid or training in suicide prevention or both, and participation in a mental health standardized patient scenario, have been effective in increasing awareness of and empathy for individuals living with mental illness[24] and improving athletic training students' critical thinking and confidence in their ability to recognize mental health concerns and make appropriate referrals.[24–29] Such activities would satisfy CAATE Curricular Content Standards 77 (identify, refer, and give support to patients with behavioral health conditions) and 94 (develop and implement procedures for identifying patients with behavioral health problems and referring patients to qualified providers).[29] Reflective journaling after these interactive experiences has also been shown to support the development of critical thinking and prevention of negative patient outcomes.[24,30,31] It has been previously suggested[24] that this type of reflective journaling meets CAATE Curricular Content Standard 67 related to self-assessment of professional competence.

Limitations of our study included the small sample size and uneven distribution of clinical practice settings and

professional program type. The self-reported nature of the data collected was also a limitation. Frequency of skill use could be validated by cross-referencing patient charts over a period of time. Future researchers should look to increase the sample size with the goal of more equal representation of various professional settings to confirm the significant findings and trends we identified and should examine how mental health competencies are being implemented successfully in athletic training programs to increase confidence in skill use and satisfaction with educational preparation.

CONCLUSIONS

Athletic trainers indicated high frequencies of use for mental health identification and referral skills; however, a large subset of our sample was dissatisfied with their professional education related to these topics. Although it seems that professional athletic training education related to mental illness has improved, especially related to recognition and referral for anxiety disorders, major depression, and eating disorders, it is still not adequately preparing ATs for clinical practice, given the prevalence of mental illness in our society. Athletic training professional education programs and continuing education programming should emphasize interactive experiences, including practical, real-time interactions or simulations related to recognition and referral of patients with mental health conditions.

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