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ORIGINAL RESEARCH

Athletic Training Educators' Instructional Methods and Confidence in Graduating Students' Abilities Regarding Psychosocial Intervention and Referral

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Context: Graduating athletic training students must consider both physical and mental aspects of injury to fully rehabilitate the injured athlete; however, programs may not be preparing students to apply psychosocial strategies that can improve the recovery process.

Objective: To examine Psychosocial Intervention and Referral (PIR) content area curricular methods (instruction and assessment) and the confidence of program directors (PDs) in a graduating student's ability to utilize psychological interventions.

Design: Cross-sectional survey.

Setting: An Internet e-survey gathered information from 128 undergraduate PDs.

Patients or Other Participants: 128 undergraduate professional education PDs; response rate 38.3% (128/334)

Data Collection and Analysis: E-survey variables included educational background (accredited program or internship) and years of PD service, courses, instruction and assessment methods, program demographics (10), content area emphasis rank, and PD's confidence in graduating students' PIR abilities (0-10 scale). Chi-square and odds ratio analyses were employed.

Results: PIR content area received the lowest instructional emphasis rank overall (n = 69; M = 6.80 [2.34]). Competencies that focus on applying psychological interventions with patients were most often instructed through lectures and/or discussions (72.6%) and assessed through written tests (52.3%). Significant Pearson chi-square tests ($P < .05$) showed that confident PDs (rating of 7 to 10) were more likely to use role-playing to instruct and practical exams to assess student learning. Odds ratio analyses found significantly higher odds of confidence in PDs who used practical assessment methods (1.12 to 25.11).

Conclusion: The results suggest that the use of hands-on instructional and assessment techniques will increase a PD's confidence in a student's psychosocial intervention abilities. Implications for effective pedagogical methodology are discussed.

Key Words: CAATE, athletic training education, 4th edition competencies, program directors.

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Athletic Training Educators' Instructional Methods and Confidence in Graduating Students' Abilities Regarding Psychosocial Intervention and Referral

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Graduating athletic training students must consider both physical and mental aspects of injury to fully rehabilitate the patient; however, programs may not be preparing students to apply psychosocial interventions that can improve the recovery process.[1] The mental injury sustained following physical injury is understood and theorized,[2] but interventions are not fully implemented by athletic trainers (ATs) in the clinic and/or educational setting. A recent review of spiritual disciplines in medicine revealed that other allied healthcare practitioners are implementing holistic (mind-body) approaches to healing, further illustrating the importance of education for ATs.[3] Many ATs may feel that the psychological treatment accompanying an athlete's physical rehabilitation is outside their standard of care; however, the Psychosocial Intervention and Referral (PIR) content area is one of the 12 areas required in the curriculum for an accredited professional athletic training education program. In addition, one of the one of the Clinical Proficiencies for this content area requires various psychological interventions such as mental imagery, verbal motivation and visualization techniques (PS-CP2, Table 1).[4] Regarding the effectiveness of an athletic training education program (ATEP) (12 content areas designed by the Executive Committee on Education[(ECE] of the National Athletic Trainers' Association [NATA] and enforced by the Commission on Accreditation of Athletic Training Education [CAATE]), 61.5% of athletic trainers reported graduating from a professional education program accredited by the CAATE, yet only 24.6% reported being taught about the use of mental imagery and other mental skills with injured athletes.[5]

Previous research has investigated issues regarding a student's clinical use[6] and confidence[6] in using PIR-related skills and the satisfaction[6] of students in their PIR educational preparation. The aforementioned studies pose questions regarding how this content area is instructed and if there are enough applied learning/clinical experiences to build one's confidence in employing such techniques in the clinical setting. CAATE accreditation requires education programs to educate and assess students on the Athletic Training Educational Competencies, which includes topics such as mental imagery, systematic desensitization, and relaxation for use within the rehabilitation process (Table 1). However, in a recent study by Stiller-Ostrowski and Ostrowski,[6] ATs who were within 5 years after their graduation reported the lowest satisfaction within their PIR education (Table 1) related to the application of mental training skills (PS-CP2, Table 1). Furthermore, other cross-sectional survey research reports that while ATEPs are providing education in most PIR competencies, recently-certified ATs are not implementing these techniques in their clinical practice.[5]

The purpose of this study was to examine the ATEP PIR content area curricular methods (instruction and assessment) and the program directors' (PD) confidence in a graduating student's ability to utilize intervention techniques. We were interested in the following questions: (1) In what type of courses are the PIR competencies being instructed? (2) Are the competencies spread across multiple courses or nested within one course? (3) How many times are students exposed to each competency? (4) How are the PIR competencies taught (lecture, discussion, role-play)? (5) How are the PIR competencies assessed (written exam, practical exam, clinical observation)? (6) How confident is the ATEP PD in a student's ability to perform the PIR competencies following graduation and certification?

METHODS

To evaluate the research questions, we emailed via SurveyMonkey™ research invitations to 345 PDs with viable email addresses as provided by the National Athletic Trainers' Association. We did not invite PDs to participate who had undeliverable email addresses. Of the 324 PDs who received our survey (21 were undeliverable), 128 individuals responded to our invitation to voluntarily participate in the study (39.5% response rate). The initial email with a link to the e-survey—including the IRB approved informed consent describing the purpose of the study, length of the survey, list of primary investigators, and methods for data storage (place and time)—was sent out 3 weeks prior to a follow-up reminder email. To identify duplicate entries, we had SurveyMonkey record the computer IP addresses for completed surveys, which we reviewed prior to importing data into SPSS (Version 18 Chicago, IL). Two ATs who are currently teaching in an ATEP using the CAATE PIR competency list developed the survey questions based on the above research questions. Prior to data collection, we tested the usability and technical operation of the e-survey on four classes of undergraduate athletic training students (n=89) and 10 ATs. We made adjustments to the readability of the survey questions based on this feedback. The PD survey included questions on courses (17), instruction (17), and assessment (17) specifically in the PIR content area. Through the survey, we also collected content area emphasis rank (1-12) and PDs' confidence in a graduating student's PIR ability (0-10 scale). Survey participant demographics included educational background of the PD (graduated from an accredited ATEP or internship plan of study), emphasis of the university (research or teaching), years of PD service, and number of program faculty (full- and part-time).

Due to the nature of the data (interval/ordinal), our statistical analyses included the use of chi-square and odds ratio techniques to analyze relationships among the variables of interest. While we primarily used the chi-square technique for our analysis, we used an odds ratio analysis as an additional way to consider the relationships. We also utilized point-biserial correlations as well as mean and range statistics to examine relationships among sample variables and demographics.

RESULTS

Descriptive Statistics

Of the 324 PDs who received our request to participate in the research study, 128 PDs responded (21 were undeliverable, 39.5% response rate). Our sample of PDs covered a wide range

Table 1. Psychosocial Intervention & Referral (PIR): 4th Edition Competencies (C) Clinical Proficiencies (CP) for Athletic Training Students

Number	Description
PS-C1	Explain the psychosocial requirements (ie, motivation and self-confidence) of various activities that relate to the readiness of the injured or ill individual to resume participation.
PS-C2	Explain the stress-response model and the psychological and emotional responses to trauma and forced inactivity.
PS-C3	Describe the motivational techniques that the athletic trainer must use during injury rehabilitation and reconditioning.
PS-C4	Describe the basic principles of mental preparation, relaxation, visualization, and desensitization techniques.
PS-C5	Describe the basic principles of general personality traits, associated trait anxiety, locus of control, and patient and social environment interactions.
PS-C6	Explain the importance of providing health care information (communication) to patients, parents/guardians, and others regarding the psychological and emotional well being of the patient.
PS-C7	Describe the roles and function of various community-based health care providers (to include, but not limited, to: psychologists, counselors, social workers, human resources personnel) and the accepted protocols that govern the referral of patients to these professionals.
PS-C8	Describe the theories and techniques of interpersonal and cross-cultural communication among athletic trainers, their patients, and others involved in the health care of the patient.
PS-C9	Describe the basic principles of counseling (discussion, active listening, and resolution) and the various strategies that certified athletic trainers may employ to avoid and resolve conflicts among superiors, peers, and subordinates.
PS-C10	Identify the symptoms and clinical signs of common eating disorders and the psychological and sociocultural factors associated with these disorders.
PS-C11	Identify and describe the sociological, biological and psychological influences toward substance abuse, addictive personality traits, the commonly abused substances, the signs and symptoms associated with the abuse of these substances, and their impact on an individual's health and physical performance.
PS-C12	Describe the basic signs and symptoms of mental disorders (psychoses), emotional disorders (neuroses, depression), or personal/social conflict (family problems, academic or emotional stress, personal assault or abuse, sexual assault, sexual harassment), the contemporary personal, school, and community health service agencies, such as community-based psychological and social support services that treat these conditions and the appropriate referral procedures for accessing these health service agencies.
PS-C13	Describe the acceptance and grieving processes that follow a catastrophic event and the need for a psychological intervention and referral plan for all parties affected by the event.
PS-C14	Explain the potential need for psychosocial intervention and referral when dealing with populations requiring special consideration (to include but not limited to those with exercise-induced asthma, diabetes, seizure disorders, drug allergies and interactions, unilateral organs, physical and/or mental disability).
PS-C15	Describe the psychosocial factors that affect persistent pain perception (ie, emotional state, locus of control, psychodynamic issues, sociocultural factors, and personal values and beliefs) and identify multidisciplinary approaches for managing patients with persistent pain.
PS-CP1	Demonstrate the ability to conduct an intervention and make the appropriate referral of an individual with a suspected substance abuse or other mental health problem. Effective lines of communication should be established to elicit and convey information about the patient's status. While maintaining patient confidentiality, all aspects of the intervention and referral should be documented using standardized record-keeping methods.
PS-CP2	Demonstrate the ability to select and integrate appropriate motivational techniques into a patient's treatment or rehabilitation program. This includes, but is not limited to, verbal motivation, visualization, imagery, and/or desensitization. Effective lines of communication should be established to elicit and convey information about the techniques. While maintaining patient confidentiality, all aspects of the program should be documented using standardized record-keeping techniques.

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of PD experience from .8 to 32 years (7.0 [7.10]) and included individuals who graduated from accredited undergraduate professional ATEPs (n = 76, 46.5%), professional graduate ATEPs (n = 5, 3.5%), and internship plans of study (n = 56, 38.9%). Our participants also served at research universities (n = 18, 12.5%) and teaching universities (n = 107, 74.3%), with few reporting to fall in neither category (n = 3, 2.1%).

The type of faculty in the programs directed by the PDs comprised a range of 1.0 to 9.0 for full-time faculty (3.32 [1.75]) and 0 to 20.0

for part-time faculty (2.40 [2.78]). Few programs also employed graduate doctoral and master's students to teach courses such as Introduction to Athletic Training, Taping and Bandaging, First Aid and CPR, and Care and Prevention of Injury and Illness. While 17 programs (11.8%) employed at least 1 graduate student, the majority (n = 111, 86.7%), did not use graduate students as a primary instructor in any course.

The PIR content area received the lowest instructional emphasis rank overall (n = 69, 6.80 [2.34]). Significant at the .05 level (n = 128), our results indicated there was a point-biserial correlation between PDs' confidence in students' PIR abilities and years of experience as a PD (r_{pb} = .242).

Courses, Instruction Methods and Assessments

Program directors (n = 68) reported that the PIR competencies were taught across 14 different courses (Table 2) within their curriculums. The majority of PDs reported they had no designated course for the PIR competencies (n = 71; n = 49, 33.8%) and taught this content area across their athletic training core courses (n = 68; n = 44, 30.3%). Of the 5 PIR competencies that require the instruction or use of psychological skills, as much as 71% of the occurrences, the content was delivered and assessed in a non-core course (PS-C1, 40.8%; PS-C3, 54.3%; PS-C4, 71.8%; PS-C15, 42.9%; PS-CP2, 41.1%).

Our examination of instructional methods suggested that programs relied most heavily on lectures and/or discussions to deliver the PIR content, with role-playing and other methods (eg, guest speakers, additional readings with discussion, and case studies) used less often (Table 3). Our examination of assessment methods for the PIR competencies indicated that programs used written exams most often, followed by practical exams and clinical observations (Table 4). Overall, findings indicated that ATEPs often teach competencies focused on applying psychological skills with patients (ie, PS-C1, PS-C3, PS-C4, PS-C15, PS-CP2) through lectures and/or discussions (72.6%) and assess these same competencies with written tests (52.3%). Significant Pearson chi-square tests (P < .05) on the 17 PIR competencies indicated that confident PDs (rating of 7 to 10) were more likely to use role-playing to teach the competencies (11 of 17 competencies) and practical exams to assess student learning (6 of 17 competencies).

Chi-Square Analyses

There was a significant relationship between the instructional method and a PD's confidence level in a student's ability to

Table 2. Courses that instruct the 17 Psychosocial Intervention and Referral Competencies and Clinical Proficiencies

	Sport & exercise psychology	Psychology of injury	Introduction to psychology	Athletic Training core	Required kinesiology	General education	Other*	Total
PS-C1	29.6% (21)	8.5% (6)	4.2% (3)	76.1% (54)	2.8% (2)	4.2% (3)	1.4% (1)	71
PS-C2	26.4% (19)	8.3% (6)	18.1% (13)	66.7% (48)	4.2% (3)	5.6% (4)	1.4% (1)	72
PS-C3	31.4% (22)	7.1% (5)	15.7% (11)	62.9% (44)	5.7% (4)	1.4% (1)	2.9% (2)	70
PS-C4	32.4% (23)	7.0% (5)	26.8% (19)	57.7% (41)	8.5% (6)	4.2% (3)	4.2% (3)	71
PS-C5	27.1% (19)	8.6% (6)	41.4% (29)	32.9 (23)	4.3% (3)	8.6% (6)	2.9% (2)	70
PS-C6	9.9% (7)	5.6% (4)	8.5% (6)	77.5% (55)	5.6% (4)	2.8% (2)	1.4% (1)	71
PS-C7	14.1% (10)	4.2% (3)	12.7% (9)	78.9% (56)	12.7% (9)	7.0% (5)	2.8% (2)	71
PS-C8	12.5% (9)	6.9% (5)	26.4% (19)	55.6% (40)	5.6% (4)	20.8% (15)	4.2% (3)	72
PS-C9	15.5% (11)	9.9% (7)	25.4% (18)	56.3% (40)	2.8% (2)	11.3% (8)	5.6% (4)	71
PS-C10	19.4% (14)	6.9% (5)	16.7% (12)	63.9% (46)	29.2% (21)	8.3% (6)	5.6% (4)	72
PS-C11	14.3% (10)	7.1% (5)	17.1% (12)	60% (42)	25.7% (18)	11.4% (8)	5.7% (4)	70
PS-C12	15.3% (11)	8.3% (6)	45.8% (33)	45.8% (33)	9.7% (7)	8.3% (6)	4.2% (3)	72
PS-C13	25.7% (18)	5.7% (4)	38.6% (27)	57.1% (40)	7.1% (5)	8.6% (6)	2.9% (2)	70
PS-C14	16.9% (12)	4.2% (3)	21.2% (15)	71.8% (51)	9.9% (7)	9.9% (7)	4.2% (3)	71
PS-C15	20% (14)	4.3% (3)	14.5% (10)	80% (56)	4.3% (3)	4.3% (3)	4.3% (3)	70
PS-CP1	13.0% (9)	5.8% (4)	14.5% (10)	25.5% (59)	5.8% (4)	4.3% (3)	4.3% (3)	69
PS-CP2	22.1% (15)	7.4% (5)	13.2% (9)	72.1% (49)	2.9% (2)	2.9% (2)	4.4% (3)	68
Mean %	20.3%	6.8%	21.2%	61.2%	8.6%	7.3%	3.7%	

*Other courses included Rehabilitation, Seminar in Athletic Training, Scientific Basis for Sports Injury, Personal Health and Wellness, Health Psychology, Care and Prevention, General Medicine in Athletic Training, and Case Studies in Athletic Training.

Shaded regions are psychological intervention competencies (eg, mental imagery).

The number in parentheses is the number of respondents.

Table 3. Method of Instruction of the 17 Psychosocial Intervention and Referral Competencies and Clinical Proficiencies (Lecture, Discussion, Role Play)

	Lecture	Discussion	Role Playing	Other*	Total
PS-C1	85.3% (58)	61.8% (42)	13.2% (9)	1.5% (1)	68
PS-C2	87.0% (60)	47.8% (33)	5.8% (4)	1.4% (1)	69
PS-C3	73.5% (50)	67.6% (46)	29.4% (20)	2.9% (2)	68
PS-C4	73.9% (51)	58.0% (40)	37.3% (26)	10.1% (7)	69
PS-C5	89.7% (61)	35.3% (24)	2.9% (2)	2.9% (2)	68
PS-C6	92.8% (64)	37.7% (26)	7.2% (5)	2.9% (2)	69
PS-C7	91.2% (62)	44.1% (30)	16.2% (11)	5.9% (4)	68
PS-C8	72.5% (50)	55.1% (38)	33.3% (23)	2.9% (2)	69
PS-C9	82.4% (56)	51.5% (35)	30.9% (21)	4.4% (3)	68
PS-C10	91.2% (62)	51.5% (35)	23.5% (16)	5.9% (4)	68
PS-C11	92.5% (62)	47.8% (32)	20.9% (14)	3.0% (2)	67
PS-C12	91.3% (63)	34.8% (24)	4.3% (3)	2.9% (2)	69
PS-C13	86.6% (59)	51.5% (35)	10.3% (7)	1.5% (1)	68
PS-C14	82.6% (57)	43.5% (30)	21.7% (15)	4.3% (3)	69
PS-C15	89.7% (61)	48.5% (33)	2.9% (2)	1.5% (1)	68
PS-CP1	64.7% (44)	45.5% (31)	57.4% (39)	1.5% (1)	68
PS-CP2	60.3% (41)	50.0% (34)	52.9% (36)	5.9% (4)	68
Mean %	82.8%	48.9%	21.8%	3.6%	

*Other methods included guest speakers, additional readings and discussions, and case studies

Shaded regions are psychological intervention competencies (eg, mental imagery).

The number in parentheses is the number of respondents.

Table 4. Assessment Type of 17 Psychosocial Intervention and Referral Competencies and Clinical Proficiencies (Written Exam, Practical Exam, Direct Observation in a Clinical Setting)

	Written Exam	Practical Exam	Clinical Observation	Other*	Total
PS-C1	89.9% (62)	18.8% (13)	24.6% (17)	5.8% (4)	69
PS-C2	91.4% (64)	12.9% (9)	18.6% (13)	4.7% (4)	70
PS-C3	82.6% (57)	24.6% (17)	34.8% (24)	5.8% (4)	69
PS-C4	80.0% (56)	30/0% (21)	21.4% (15)	5.7% (4)	70
PS-C5	90.0% (61)	7.4% (5)	7/4% (5)	5.9% (4)	68
PS-C6	85.7% (60)	10.0% (7)	24.3% (17)	10.0% (7)	70
PS-C7	76.8% (53)	24.6% (17)	31.9% (22)	11.6%	69
PS-C8	74.3% (52)	17.1% (12)	34.3% (24)	5.7% (4)	70
PS-C9	81.2 (56)	18.8% (13)	24.6% (17)	7.2% (5)	69
PS-C10	90.0% (63)	25.7% (18)	18.6% (13)	7.1% (5)	70
PS-C11	87.0% (60)	23.2% (16)	18.8% (13)	7.2% (5)	69
PS-C12	90.0% (63)	11.4% (8)	8.6% (6)	4.3% (3)	70
PS-C13	88.4% (61)	15.9% (11)	10.1% (7)	5.8% (4)	69
PS-C14	84.3% (59)	21.4% (15)	18.6% (13)	8.6% (6)	70
PS-C15	92.8% (64)	14.5% (10)	15.9% (11)	4.3% (3)	69
PS-CP1	62.3% (43)	30.4% (21)	40.6% (28)	8.7% (6)	69
PS-CP2	64.7% (44)	25.0% (17)	39.7% (27)	10.3% (7)	68
Mean %	83.0%	19.5%	23.1%	7.0%	

*Other assessments included personality inventories, concept mapping, presentations, and group and individual projects.

Shaded regions are psychological intervention competencies (eg, mental imagery).

The number in parentheses is the number of respondents.

use intervention techniques. PDs who used role-playing (versus lectures and discussions) to instruct the PIR competencies were more confident in a student's ability to employ the knowledge and skills for 6 of the 17 PIR competencies (Table 5). Specific to the use and instruction of psychological interventions with patients, PDs who used role-playing were more confident with 2 of the 5 PIR competencies (see shaded regions in Table 5) as compared to those PDs who used lectures and discussions. Considering the type of assessment, PDs who assessed students with practical exams versus written exams were more confident on 11 of 17 PIR competencies (Table 6). Specific to the use of psychological interventions with patients, PDs who used practical exams to assess students were more confident in a student's abilities on 4 of 5 competencies (see shaded regions in Table 6) as compared to those PDs who used written exams. Due to only 7 PDs reporting they had a designated course for the PIR competencies, we did not complete comparison analyses for associated confidence levels.

There was no statistical difference between PDs who were prepared through an accredited education program route and PDs who were prepared through an internship route in regards to the likelihood of using role-playing to instruct PIR competencies and practical exams to assess student learning. Additionally, there was no difference between the 2 groups of PDs in regards to their confidence in a graduating student's abilities related to the PIR competencies. When comparing accredited-education PDs to internship-prepared PDs on each of the 5 psychological intervention competencies, accredited-education PDs showed a higher use of role-playing on 1 of 5 competencies (PS-CP2). Results addressing assessment methods indicated that accredited-education PDs had a higher use of practical exams for 2 of the 5 competencies (PS-C1, PS-C15).

Table 5. Chi-Square Results of the 17 Psychosocial Intervention & Referral Competencies and Clinical Proficiencies for Instruction (Role-Playing vs. Lectures & Discussions)

	X^2 (1, *N*)	Pearson chi-square	*P* value
PS-C1	38	10.59	*P*<.001
PS-C2	70	0.087	*P*=.768
PS-C3	46	5.34	*P* =.021
PS-C4	54	1.76	*P* =.184
PS-C5	68	0.65	*P* =.421
PS-C6	68	5.72	*P* =.017
PS-C7	62	0.081	*P* =.776
PS-C8	68	4.60	*P* =.032
PS-C9	67	0.034	*P* =.853
PS-C10	68	2.43	*P* =.119
PS-C11	67	4.31	*P* =.038
PS-C12	69	0.073	*P* =.786
PS-C13	67	0.001	*P* =.981
PS-C14	69	1.38	*P* =.240
PS-C15	41	2.97	*P* =.085
PS-CP1	69	4.28	*P* =.038
PS-CP2	53	1.09	*P* =.296

Shaded regions are psychological intervention competencies (eg, mental imagery).

Table 6. Chi-Square Results of the 17 Psychosocial Intervention & Referral Competencies and Clinical Proficiencies for Assessment (Practical vs. Written Exams)

	X^2 (1, *N*)	Pearson chi-square	*P* value
PS-C1	60	8.54	*P*=.003
PS-C2	62	5.34	*P*=.021
PS-C3	59	4.88	*P*=.027
PS-C4	63	11.38	*P*<.001
PS-C5	64	1.09	*P*=.296
PS-C6	62	11.04	*P*<.001
PS-C7	66	13.28	*P*<.000
PS-C8	63	8.10	*P*=.004
PS-C9	59	3.04	*P*=.081
PS-C10	63	3.26	*P*=.071
PS-C11	61	7.18	*P*=.007
PS-C12	67	1.39	*P*=.239
PS-C13	63	0.43	*P*=.516
PS-C14	64	13.66	*P*<.000
PS-C15	63	3.37	*P*=.066
PS-CP1	58	5.99	*P*=.014
PS-CP2	54	5.97	*P*=.015

Shaded regions are psychological intervention competencies (eg, mental imagery).

Odds Ratio Analyses

We conducted additional analyses to examine the relationship between instructional and assessment methods on a PD's confidence in a student's abilities within the PIR content area. Specific to instructional methods, computed odds ratios were not significant for any of the 17 PIR competencies (Table 7). However, upon examination of assessment methods, significant odds ratios were found for 11 of the 17 PIR competencies and 4 of the 5 competencies specific to mental skills training and use (Table 7). Taken together, the odds of a confident PD (7 to 10) were significantly higher (1.12-25.11) when they used practical assessment methods to assess the PIR competencies (11 of 17 total; 4 of 5 psychological skills).

DISCUSSION

The objective of this study was to examine the instructional methods and types of assessment ATEPs use for the PIR content area, as well as the confidence of PDs in a graduating student's ability to utilize psychological interventions. We hypothesized that confident PDs would report focusing the teaching of PIR competencies to one course, use applied methods to instruct the competencies (eg, role-playing), and assess the competencies through practical assessment methods. The rationale behind these hypotheses is that due to the applied nature of the

Table 7. Odds Ratio Results of Psychosocial Intervention & Referral Competency for Assessment (Practical vs. Written Exams) and Program Directors' Confidence in Students' Abilities: Odds Ratio of Program Director Confidence Given Practical Assessment Method

	Odds ratio	95% CI lower	95% CI upper
PS-C1	5.57	1.67	18.54*
PS-C2	3.95	1.18	13.19*
PS-C3	3.27	1.12	9.51*
PS-C4	6.17	2.06	18.45*
PS-C5	2.22	0.48	10.20*
PS-C6	6.89	2.08	22.89*
PS-C7	7.50	2.39	23.47*
PS-C8	4.54	1.56	13.24*
PS-C9	2.67	0.87	8.17
PS-C10	2.57	0.91	7.25
PS-C11	4.39	1.44	13.37*
PS-C12	2.03	0.61	6.69
PS-C13	1.46	0.45	4.70
PS-C14	7.90	2.40	25.11*
PS-C15	3.05	0.90	10.00
PS-CP1	5.57	1.67	18.54*
PS-CP2	3.99	1.28	12.37*

*Denotes significant at the $P < .05$ level

Shaded regions are psychological intervention competencies (eg, mental imagery).

PIR competencies, they should be taught so students apply techniques in role-playing scenarios intended to build their confidence/proficiency. Based on the perceptions of PDs, our findings suggest support for this hypothesis that the odds of PDs being confident in a student's abilities were higher on 11 of the 17 PIR competencies when they used practical assessment methods to assess student learning. Furthermore, chi-square analyses demonstrated that PDs who used applied instructional methods (eg, role-playing) and practical assessment methods were more confident in a student's abilities with 6 of the 17 and 11 of the 17 PIR competencies, respectively. Role-playing is a method of interactive learning where students engage in problem solving through acting out a given scenario in assumed roles. Using active methods of instruction in the classroom has been shown to improve students' learning because students do not just listen to a lecture, they become actively engaged participants in the learning process.[7]Although the majority of athletic training students are exposed to the PIR content through lectures and discussions (72.6%), the literature on effective teaching strategies suggests instructors use role-based learning activities to promote the transfer of knowledge to the workplace.[8, 9]

Of specific interest to us was student learning related to the teaching and implementation of mental skills with patients. PDs were more confident in a student's abilities when they used applied instructional methods for 2 of 5 PIR competencies and practical assessment methods for 4 of 5 PIR competencies related to use of mental skills. The use of mental skills is a hands-on skill that, like taping, requires practical experience to master. We find it interesting that the majority of PDs reported using lectures and discussions to instruct this content (72.6%) and written exams to assess it (52.3%). Prior research found that athletic trainers are not confident in their knowledge of psychological strategies,[5] and as a result, employ them less in the clinical setting.[10] It is important for athletic training educators to re-evaluate instructional methods related to the PIR competencies to determine if they are being taught in a manner that facilitates success with implementing them.

Emphasis Ranking of PIR Content Area & PDs Confidence Related to Years of Service

The PIR content area received the lowest overall ranking of the 12 educational content areas included in the preparation of athletic training students. This finding suggests that this content area should be scrutinized further. Being ranked as the least important content area, the PIR competencies and clinical proficiencies are likely to suffer from ineffective instruction and assessment, leading to underprepared students taking the Board of Certification (BOC) exam. Since 1991, treating the psychological aspects of athletic injury has been documented as highly important by various researchers and scholars in the fields of athletic training and sport psychology.[11-19] Furthermore, the educational preparation of ATs in the early 1990s was not unified under an accrediting body like it is today (ie, the internship route still existed). It is our hope that today's graduating students will be equally prepared in all content areas, creating a well-rounded clinical practitioner and future educator. Promising results of a recent survey showed that ATs believe in the effectiveness using PIR-related skills with injured athletes to promote adherence, increase recovery speed, and decrease pain during rehabilitation[10] which demonstrates an improvement in attitudes since 1991.[19]

Furthermore, the findings of our study suggest that the more years of PD service, the more confident the PD was regarding a student's abilities with the PIR content area. This finding prompts two questions. First, are PDs becoming complacent after many years of service by assuming that the ATEP is good for the student because all the wrinkles have been ironed out and the ATEP has maintained its accreditation? Second, are PDs who have been in the role for a longer period of time making an effort to ensure that students are getting an effective education (instruction and assessment) within each of the 12 content areas, and is this why they are more confident? This finding also suggests that a mentorship role (ie, pairing a new PD with an experienced PD) may help improve a new PD's levels of confidence in a student's abilities and potentially increase the overall effectiveness of an ATEP's curriculum.

Type of Course Instructing the PIR Content: ATEP Core Vs. General Education Courses

When considering the 5 PIR competencies that require instruction and/or use of psychological skills with athletes, as much as 72% of the time the content was delivered and assessed in a non-ATEP core course (PS-C1, 40.8%; PS-C3, 54.3%; PS-C4, 71.8%; PS-C15, 42.9%; PS-CP2, 41.1%). In addition, faculty who teach non-core courses required by an ATEP tend not to be ATs, as

these courses are often taught by generalists with or without a terminal degree. While the instructor of a class surely influences how the content is delivered, a general or cognitive psychologist may not place a sport-injury perspective on the content and may not cover each competency in a practical manner that would allow the student to gain experience delivering psychological interventions. This finding calls for subsequent investigations on the effectiveness of general education courses to deliver and assess our ATEP content, which may also include the effectiveness of adjunct instruction and assessment. While CAATE has no requirements on how competencies are instructed, PDs should consider these issues to ensure that PIR competencies are instructed by appropriately-trained professionals. PDs must provide a list of the competencies to be instructed in a course, and may want/need to suggest how the faculty member instructs the content.

Many ATEPs teach competencies multiple times across their curriculum to provide the student ample opportunity to absorb the content; however, this does not appear to be the case with PIR content as it was reported to be instructed in more than one course on only 19 occasions, or 0.7% of the time (number of total exposures = 1156 [ie, 68 PDs x 17 PIR competencies]). Due to the student getting "one shot" at the PIR competencies, effective instruction and assessment are of utmost importance. We suggest that the PIR content be instructed and assessed in a practical manner within the clinical education courses so that when students are "tested" on their learning comprehension across the curriculum, they get a second opportunity to practice and display their knowledge of the PIR competencies. We also suggest that to ensure depth of instruction and best practice, the complete set of PIR competencies should be compiled into one course. This course should also use role-playing and other applied instructional methods, as well as practical skill assessments versus written exams. Previous research has demonstrated that such content can be instructed in as little as 6 hours of course time.[19]

Limitations

The survey tool and delivery method presented 3 potential limitations: (1) online format, (2) length of survey, and (3) data required to answer all survey questions. Non-response bias is always a potential limitation in survey research. Perhaps if there was a larger pool of ATEPs to draw from (> 345 PDs), we could have used a stratified random sample to decrease this bias. In addition, it is easy to delete an e-mail invitation to participate in an online survey; therefore, mailing the survey may have generated a greater response rate. As it is, the current data set came from a nearly 40% response rate, and we are confident the results can be generalized beyond this study.

Next, the survey contained 61 questions that spanned 2 online screens. Not only was it time-consuming to gather all of the required information, the PDs also needed to produce a complete set of data that enabled them to answer all of the questions. As a result, only 68 of the 128 PDs who responded also completed all curriculum questions.

Lastly, not surveying all individuals who teach the PIR content to students may be a potential limitation. However, we specifically wanted to consider the PDs' perceptions as their role in the educational process is to manage the assignment of competencies to courses and the instruction/education of students. Furthermore, including all instructors within ATEPs would invariably include adjuncts, which may not be reachable by the National Athletic Trainers' Association email database.

CONCLUSION

The student must be equipped with tools from all 12 content areas to be successful on the BOC exam and to be a proficient practitioner; however, programs may not be preparing students to apply psychosocial strategies that can improve the patient's recovery process. To highlight our concern, in a recent study 61.5% of ATs reported graduating from an accredited ATEP; however, only 24.6% reported receiving education on the use of mental imagery with injured athletes.[5] This finding illustrates the potential ineffectiveness of current instructional methods across ATEPs. Our results suggest that the use of hands-on methods to instruct and assess PIR competencies and clinical proficiencies will increase the PD's confidence in graduating students' abilities. Research examining education methods used with allied health professionals suggests that role-playing builds confidence in effective communication skills in family medicine residents and assists in more realistic training[19] for the "difficult patient".[22] In addition, research highlighting best practices regarding the education of psychiatrists and counselors demonstrated that role-playing increases self-efficacy and patient-related clinical performance in practicum students.[23] Due to the characteristics of the PIR area, educational methods may need to reflect the applied nature of the content. Learning how to apply tape requires hours of guided training in class and clinical rotations under the supervision of instructors. How is applying psychological interventions any different? Students require just as much practice on the PIR-related skills. The amount of time spent and techniques used to teach and assess these competencies may be reflected in a student's confidence with these skills. Role-playing these skills in the classroom provides education, promotes learning, develops good questioning skills, encourages students to learn from their mistakes, meets the needs of diverse learners and is easy to implement.[24] Lastly, the applied nature of the PIR content area requires a deeper instructional approach; hence, nesting all 17 of the PIR competencies in one ATEP core course may help the student learn the knowledge and skills better

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