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ORIGINAL RESEARCH

Declarative Knowledge, Confidence, and Perceptions on Suicide Prevention After Standardized Patient Observation

Brooke K. Harvey, DAT, LAT, ATC; Matthew J. Drescher, DAT, LAT, ATC*; Zachary K. Winkelmann, PhD, ATC, CHSE†; Lindsey E. Eberman, PhD, LAT, ATC*
*Indiana State University, Terre Haute; †Department of Exercise Science, University of South Carolina, Columbia

Context: Standardized patient (SP) encounters are effective strategies to increase learners' declarative knowledge, confidence, and perceptions of clinical scenarios; however, there are barriers to implementing SPs for suicidal ideation (SI) scenarios, and limited data about the value of an alternative educational method, such as observing SP encounters of SI scenarios, which might result in improved learner knowledge, confidence, and perceptions regarding suicide prevention.

Objective: Compare athletic training students' knowledge, confidence, and perceptions regarding suicide prevention after observation of SP encounters in addition to an online suicide prevention module.

Design: Quasi-experimental.

Setting: Asynchronous online suicide prevention module.

Patients or Other Participants: Seventy-six athletic training students enrolled in a Commission on Accreditation of Athletic Training–accredited professional athletic training master's program.

Intervention(s): An online suicide prevention module with videos of SP encounters displaying varying degrees of SI.

Main Outcome Measure(s): Participants completed pretest and posttest assessments for knowledge, confidence, and perceptions regarding suicide prevention. Mean scores for all categories were compared across time and groups using a repeated-measures analysis of variance.

Results: An online suicide prevention module is effective for significantly ($P < .001$) increasing learners' knowledge of and confidence in managing SI scenarios. The experimental group significantly improved their knowledge ($P = .025$) compared with the control group, who did not observe SP encounter videos. Additionally, both groups significantly ($P < .001$) aligned their level of agreement with statements regarding suicide prevention to best care for someone experiencing SI. The experimental group significantly ($P = .039$) increased their agreement that suicide is preventable compared with the control group.

Conclusions: These findings highlight the value of observed SP encounters for suicide prevention knowledge, confidence, and perceptions about suicide prevention. In the absence of a high-fidelity, live SP encounter, observation of an SP encounter may be a cost-effective way to prepare students for SI scenarios in clinical practice.

Key Words: Online education, simulation, suicidality

Dr. Harvey is currently an Assistant Athletic Trainer at Princeton University. Please address correspondence to Lindsey E. Eberman, PhD, LAT, ATC, 567 N Fifth St, Room A-10, Terre Haute, IN 47809. lindsey.eberman@indstate.edu.

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KEY POINTS

- Online suicide prevention education can significantly improve athletic training students' declarative knowledge, confidence, and perceptions regarding suicide prevention.
- Observation of standardized patient encounters in addition to online suicide prevention education can significantly increase learners' agreement with the statement that suicide is preventable compared with online suicide prevention education alone.
- Observation of standardized patient encounters in addition to online suicide prevention education can significantly improve learners' declarative knowledge regarding suicide prevention compared with online suicide prevention education alone.

INTRODUCTION

Suicidal ideation (SI) and death by suicide are significant issues facing individuals of all ages.[1] In 2020, the most recent year of available data from the Centers for Disease Control and Prevention,[1] suicide was a top 10 cause of death for individuals 10 to 64 years old. Athletic trainers (ATs) work with a variety of patient populations across multiple backgrounds and ages and therefore might encounter patients who have experienced SI. For ages 10 to 24, which encompasses secondary school and college students, suicide was a top 3 leading cause of death[1] in 2020. A study examining college-aged individuals reported that 6.4% of student-athletes experienced SI and 1.3% of student-athletes reported a suicide attempt in the last 12 months.[2] From 2003 to 2012, suicide represented 7.3% of all deaths in National Collegiate Athletic Association athletes, with the highest rate occurring in men's football.[3] Moreover, minoritized and marginalized populations are at an even greater risk for SI.[4] Sexual minorities have attempted suicide at a rate 2 times higher than their heterosexual peers, and genderqueer individuals experience one of the highest rates of suicide attempts of any marginalized population.[4,5] Athletic trainers provide significant social support to the patients they treat and are in a position to help when patients express concerns or signs of SI.[6] However, ATs report a lack of confidence in their ability to help patients experiencing SI.[7] Education about suicide prevention can help increase learners' confidence in their ability to intervene appropriately if a patient is experiencing SI.[8]

One method that can be used to increase health care providers' and students' confidence with different clinical scenarios, including behavioral health scenarios, is practicing through a standardized patient (SP) encounter.[9–15] In athletic training education, SP encounters are the predominant method used to assess students' clinical skills.[16] Studies have investigated the use of SPs portraying SI with medical students, pharmacy students, and allied health care professionals who interact with at-risk populations.[13,16–18] Not only can participating in SP encounters increase students' confidence with SI, it has also been shown that observation of others interacting with SPs can help increase students' confidence with care of patients experiencing SI.[9] Learners who observed their peers engaging in a SI SP encounter demonstrated significant increases in their confidence that they could appropriately provide care to the patient. The learners who engaged with the SPs, as well as a third group of learners who did not participate in the SP encounter or observe the SP encounter, also reported significant increases in confidence.[9]

Using SP encounters in education can be beneficial; however, there are barriers to implementation.[14] Three commonly mentioned barriers to implementing SP encounters by athletic training educators were time, personnel, and financial resources.[14] Preparing for, recruiting, training, and compensating SPs requires educators to spend extra time, personnel, and/or financial resources on each actor.[14] One alternative to these barriers is prerecorded videos of SP encounters. Implementing prerecorded videos of SP encounters for learners to observe may serve as a beneficial way to expose learners to conditions that are difficult to simulate with high fidelity or are rare for learners to encounter in clinical practice. The purpose of this study was to determine whether observation of a SP encounter increases students' declarative knowledge, confidence, and perceptions to appropriately manage scenarios in which patients are displaying SI.

METHODS

Design

We created a quasi-experimental study design to determine the effects of observation of simulated SP encounters on learner declarative knowledge, confidence, and perceptions pertaining to suicide risk assessment, intervention, and prevention. Programs were sorted into 1 of 2 groups, with the intervention group receiving the educational module with SP encounter videos and the control group receiving only the educational module. This project was approved by the Indiana State University Institutional Review Board. We used the Strengthening the Reporting of Observational Studies in Epidemiology guidelines to guide the design, data collection, and reporting of this project.[19]

Programs and Participants

We recruited professional master's in athletic training programs through the Association for Athletic Training Education to enroll their program in our study and include the educational content in their curriculum. Programs were eligible to enroll if they were (1) in good standing with the Commission on Accreditation of Athletic Training Education and (2) professional-level master's in athletic training programs. Programs willing to participate provided consent to recruit students into the study, but the educational requirement

Table 1. Participant Experiences With Suicidal Ideation and Prevention Training

Demographic Question	Group	Yes, No. (%)	No, No. (%)
Previous suicide prevention training?	Control (n = 45)	7 (15.6)	38 (84.4)
	Experimental (n = 31)	7 (22.6)	24 (77.4)
Previous exposure to someone who was contemplating, had attempted, or had died by suicide?	Control (n = 45)	29 (64.4)	16 (35.6)
	Experimental (n = 31)	20 (64.5)	11 (35.5)

was included in each program, regardless of whether students chose to allow us to use their data for research purposes.

Once programs were enrolled in the study and submitted site letters to the research team, the programs implemented the educational materials into their curriculum, at a time that aligned with other coursework. The module was designed to be implemented as a course module with readings and assignments, where students would get course credit for completing the module and submitting their score to their instructor. Before starting the module, students filled out an informed consent and indicated if they wished to include or exclude their data from the study. If students elected not to include their data, they were still required to complete the module for course credit. Participants received a proof of completion after finishing the learning module that they could show to their instructors. Instructors could make decisions regarding course credit for completing the module but not for inclusion or exclusion of data in the study. Instructors did not know if students included or excluded their data in the study, and there was no penalty for students who elected to not include their data for analysis. Students needed to be age 18 years or older to participate in the study. Participants ranged from being in the first semester to the second to last semester of their professional program. Table 1 indicates the participants' previous experience with suicide prevention training and SI.

Intervention

We created a learning module, including 5 reflective questions and 3 SP videos, to educate professional athletic training students about suicide risk factors, intervention, and prevention (Table 2).

Learning objectives were as follows:

- Identify risk factors and signs and symptoms associated with SI and/or suicidal behaviors.
- Consider protective factors and prevention strategies for suicidal behaviors.
- Characterize policy surrounding routine and emergent mental health situations.
- Interpret patient behaviors and identify proper referral strategies.

The module was delivered through eAuthoring software (SoftChalk). The primary investigator completed Suicide Triage training through the Question Persuade Refer Institute (https://courses.qprinstitute.com/index.php?option=com_content&view=article&id=315&catid=54&Itemid=101) before creating the module. All members of the research team reviewed the module and assessment tools during the outline process and again before implementation. To ensure that the module was comprehensive and relevant to athletic training, we used 4 content reviewers who had extensive knowledge and experience with behavioral health interventions in athletic training to examine the educational materials and provide feedback. Feedback included a review of the module content and the scripts used to deliver the SP videos. The reviewers' expertise is outlined in Table 3. A cohort of practicing ATs enrolled in a doctorate of athletic training program pilot tested the module, including observing the SP videos. Resources to support mental health were provided before the start of the lesson and at the end of the lesson for participants to access if they experienced psychological distress from the content. Before starting the module, participants received a message that the content may cause emotional distress for some and directed participants to stop the module and use resources specific to their campus or the resources provided in the module, including the National Suicide Prevention Lifeline (https://988lifeline.org/talk-to-someone-now/), Crisis Counselor Text Line (https://www.crisistextline.org/), ATs Care online form (https://forms.nata.org/ats-care-contact), or ATs Care Hotline (https://forms.nata.org/ats-care-contact). Information about SI and suicide prevention is already included in athletic training education, and this module did not pose a unique risk to learners with its content; however, all efforts were made to reduce the risk of an adverse event as part of participation.

For the experimental group, we created and filmed 3 videos depicting an AT interacting with 3 different adult patients experiencing varying levels of emotional distress and SI. In the videos, the AT displayed strategies from the learning module to help the patients. The video and SP actor scripts were developed by the researchers, using best-practice information for ATs' management and referral of individuals experiencing SI as described by the National Athletic Trainers' Association (NATA).[20,21]

The experimental group participants completed the suicide prevention lesson and then watched a series of videos that depicted an AT demonstrating the appropriate management of a patient actor who depicted SI. The control group completed the same suicide prevention lesson but did not receive the video SP encounters. Before the training (pretest), immediately after the training (posttest), and 6 to 8 weeks after the training (follow-up test), students completed an assessment regarding their declarative knowledge, confidence, and perceptions for appropriately managing a patient with SI.

Instruments

To assess declarative knowledge, confidence, and perceptions, we created pretest, posttest, and follow-up assessments for learners to complete via a web-based survey (Qualtrics, Inc). Because of low levels of completion of the follow-up

Table 2. Suicide Prevention Lesson

Module Section	Main Points of the Module
Terminology	10 commonly used terms relative to suicide and suicidality
Suicide prevalence	Global and national prevalence data
Risk factors	Summary of interpersonal theory of suicidal behaviors with subsections on risk factor categories: • Biological (age, sex, race/ethnicity, genetic load, LGBTQ+) • Personal/psychological (mental/behavioral wellness, substance use and/or abuse, mental illness) • Environmental (season, occupation, geographic location, urban/rural communities, social determinants of health, "the contagion effect") • Acute
Risk assessment	Details role as an AT and gatekeeper, signs to look for, capability, intent, and interactions with the patient.
Referral and plan of care	• Collegiate-setting mental health referral, mental health emergencies, emergency action plans, and follow-up plans • Secondary school mental health referral, mental health emergencies, emergency action plans, and follow-up plans • ATs Care mental health card • AT debriefing after a mental health emergency
Prevention	Subsections on protective factors/buffers, creating safe spaces, reducing stigma, screening, and questionnaires (including specific information for minoritized populations)

Abbreviations: AT, athletic trainer; LGBTQ+, lesbian, gay, bisexual, transgender, queer or questioning, and more; SP, standardized patient.

assessment (n = 9), these data were excluded from the analysis. The assessments asked questions pertaining to the students' knowledge about suicide, their confidence with suicide prevention, and their beliefs about prevention, reluctance, or stigma about addressing suicide. The declarative-knowledge questions are listed in Appendix 1. The questions pertaining to self-reported confidence asked learners to rate their confidence using a 5-point Likert scale with a score of 1 indicating *not confident at all* and a score of 5 indicating *very confident* (strong internal consistency, Cronbach $\alpha = 0.80$). The questions pertaining to beliefs about suicide, stigma, and reluctance to intervene asked learners to rate their level of agreement with statements using a 5-point Likert scale with a score of 1 indicating *strongly disagree* and a score of 5 indicating *strongly agree* (strong internal consistency, Cronbach $\alpha = 0.69$). All declarative-knowledge questions were reviewed by members of the research team with professional experience in education. We included 14 questions that addressed either risk factors or protective factors for suicide or intervention strategies. Questions were presented in multiple-choice format, with 8 of the questions being scenario based. The highest possible score on the quiz was 15 points.

At the end of the posttest assessment, learners could provide feedback on their experience using the online module to learn about suicide prevention. The first question asked about the length of the training, and learners could answer *too short*, *too long*, or *just right*. The second question had students use a sliding numerical scale to rate their level of agreement with the following statements: "Using an eLearning system was easy for me," "Important skills can be learned through eLearning modules," "My beliefs about suicide prevention have changed because of this lesson," and "I intend to use this information in my clinical practice." A rating of 10 indicated *strongly agree*, and a rating of 1 indicated *strongly disagree*.

Data Collection Procedures

At the start of the learning module, students followed a link to the informed consent form in Qualtrics. Participants entered their name in the Qualtrics forms as an identifier so that we could match pretest and posttest responses. Participants completed their informed consent and pretest assessment and then returned to the module. Reflection questions were embedded into the lesson and students' answers were saved in the eLearning module. After completion of the module, participants followed a second survey link to compete the posttest assessment (Figure). We deidentified participants' information for analysis to protect their privacy. The research team stored data on a secure file-hosting cloud. Only members of the research team had access to the file-hosting cloud. Participants could retroactively request that their data not be included in the research for up to 7 weeks after data collection.

Data Analysis and Trustworthiness

We analyzed the objective data using SPSS version 27.0.1.0 (IBM Inc). We analyzed the scores for a statistically significant change in declarative-knowledge scores, self-reported confidence, and perceptions about suicide prevention from pretest to posttest. Significance was set to $P < .05$. The scores of the group receiving the SP encounter videos (experimental group) were compared with the scores of the group that did not receive the videos using a 2 (time) × 2 (group) analysis of variance. Means at each point in time were compared between the experimental group and the control group.

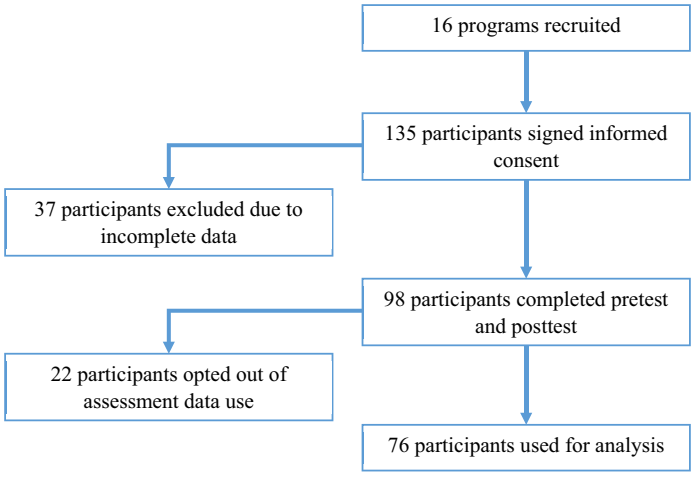
Table 3. Content Expertise of Reviewers

Reviewer	Relevant Experience
1	14+ y of clinical experience coordinating care for collegiate student-athletes, including those with behavioral health conditions
	23 y lecturing on behavioral health topics and developing behavioral health emergency action plans
	2 presentations regarding behavioral health management models in sports medicine
	1 presentation on the effects of a mental health diagnosis on injury and recovery
	Member of the Association for Athletic Training Education Behavioral Health Research Group
	Practical experience creating and implementing simulated patient encounters with behavioral health concerns to undergraduate and graduate students
2	24 y clinical experience coordinating care for collegiate student-athletes including those with behavioral health conditions
	20+ y of extensive continuing education courses and other education sessions on behavioral health topics
	12+ y of speaking engagements on behavioral health topics
	1 publication regarding best practices recognizing, preventing, and managing mental health cases in National Collegiate Athletic Association student-athletes
	6 y teaching stand-alone behavioral health course in athletic training
	15+ y teaching sections of behavioral health in athletic training courses
	Consultant for other schools to aid in increasing their behavioral health plan and screening
	Practical experience creating and implementing simulated patient encounters with behavioral health concerns to undergraduate and graduate students
3	3 y teaching behavioral health content to athletic training students
	Doctoral cognate in sport and exercise psychology
	2 presentations related to behavioral health
	2 presentations related to sport psychology
4	5 y of teaching behavioral health
	18 publications related to behavioral health or simulation in education
	3 presentations on behavioral health
	25+ presentations on simulation in education
	Attended advanced practice training in using and implementing standardized patients

RESULTS

The experimental group that received the module and the SP videos had 31 students and the control group that received only the module contained 45 students. Few participants had previous experience with SI prevention training (n = 13, 17.8%), with students reporting sources of previous training from organizations such as Question Persuade Refer, the Red Cross, the Institute for Healthcare Improvement, and Mental Health First Aid and from experiences such as the military and undergraduate coursework. Many participants had previous exposure to SI by knowing someone who had died by suicide or experienced SI (n = 49, 64.5%).

Figure. Flowchart of procedures.



Declarative Knowledge

We identified main effects for time ($P < .001$) and group ($P < .025$), where the experimental group scored higher overall (11.4 ± 1.63 of 15, 76%) than the control group (10.7 ± 1.55 of 15, 71%) on the posttest assessment (Table 4). The experimental and control groups both improved (mean change = 1.7 ± 1.8, 11.3%) their overall score on the posttest assessment after the module compared with the pretest assessment they took immediately before starting the module.

Confidence

Both groups demonstrated a significant change over time relative to self-reported confidence ($P < .001$) with identifying risk factors associated with SI, intervening with patients experiencing SI, using the NATA framework for helping individuals in crisis, and appropriately referring patients experiencing SI. There was no significant difference between groups for confidence with identifying risk factors associated with SI ($P = .622$), intervening with patients experiencing SI ($P = .079$), using the NATA framework for helping

Table 4. Declarative Knowledge, Confidence, and Perceptions Pretest and Posttest Results[a]

	Pretest Means		Posttest Means		Significance (*P* Value)	
	Control	Experimental	Control	Experimental	Over Time	Between Groups
Overall declarative-knowledge score					< .001	.025
Mean ± SD	9.12 ± 1.33	9.65 ± 1.40	10.67 ± 1.55	11.42 ± 1.63		
No. (%)	45 (60.8)	31 (64.3)	43 (71.1)	31 (76.1)		
C1. Confidence with identifying risk factors					< .001	.622
Mean ± SD	3.05 ± 0.82	3.30 ± 0.70	4.14 ± 0.64	3.73 ± 1.17		
No. (%)	45 (61.0)	30 (66.0)	43 (82.8)	31 (74.6)		
C2. Confidence intervening with patients experiencing SI					< .001	.079
Mean ± SD	2.81 ± 1.03	2.63 ± 0.93	3.98 ± 0.64	3.57 ± 1.04		
No. (%)	45 (56.2)	30 (52.6)	43 (79.6)	31 (71.4)		
C3. Confidence using the NATA framework for helping individuals in crisis					< .001	.293
Mean ± SD	2.05 ± 0.93	2.10 ± 1.16	3.72 ± 0.73	3.30 ± 1.12		
No. (%)	45 (41.0)	30 (42.0)	43 (74.4)	31 (66.0)		
C4. Confidence referring patients experiencing SI					< .001	.512
Mean ± SD	3.05 ± 1.00	2.97 ± 1.13	4.09 ± 0.65	3.93 ± 1.23		
No. (%)	45 (61.0)	30 (59.4)	43 (81.8)	31 (78.6)		
S1. Agreement that suicide is preventable					.002	.039
Mean ± SD	4.17 ± 0.85	4.58 ± 0.50	4.52 ± 0.71	4.71 ± 0.53		
No. (%)	44 (83.4)	31 (91.6)	42 (90.4)	31 (94.2)		
S2. Agreement that it is not my place to talk about suicide with patients					< .001	.540
Mean ± SD	1.76 ± 0.79	1.58 ± 0.81	1.26 ± 0.63	1.23 ± 0.62		
No. (%)	44 (35.2)	31 (31.6)	42 (25.2)	31 (24.6)		
S3. Agreement that it is offensive to ask someone about mental health concerns					< .001	.399
Mean ± SD	1.74 ± 0.73	1.48 ± 0.77	1.21 ± 0.42	1.26 ± 0.51		
No. (%)	44 (34.8)	31 (29.6)	42 (24.2)	31 (25.2)		
S4. Agreement that talking to someone about suicide increases the risk of dying by suicide					< .001	.639
Mean ± SD	1.81 ± 0.86	1.61 ± 0.72	1.29 ± 0.51	1.35 ± 0.66		
No. (%)	44 (36.2)	31 (32.2)	42 (25.8)	31 (27.0)		

Abbreviations: NATA, National Athletic Trainers' Association; SI, suicidal ideation.

[a] Declarative-knowledge scale: 0–15 points. Confidence scale: 1, *not confident at all*; 5, *very confident*. Agreement scale: 1, *strongly disagree*; 5, *strongly agree*.

C indicates a question regarding students' confidence; S indicates a question regarding students' perceptions of suicide

individuals in crisis ($P = .293$), or appropriately referring patients experiencing SI ($P = .512$).

Perceptions

There was a significant decrease over time ($P < .001$), regardless of group, in perceptions of agreement to the statements "It's not my place to talk about suicide with patients," "It is offensive to ask someone about a mental health concern," and "Talking to someone about suicide increases their risk of dying by suicide." There was a significant ($P = .002$) increase in participant agreement with the statement "Suicide is preventable." There was no significant difference between groups for changes in perceptions of agreement to the statements "It's not my place to talk about suicide with patients" ($P = .540$), "It is offensive to ask someone about a mental health concern" ($P = .399$), and "Talking to someone about suicide increases their risk of dying by suicide" ($P = .639$). There was a significant ($P = .039$) increase in participant agreement with the statement "Suicide is preventable" in the experimental group compared with the control group.

Learner Feedback

Participants reported a high level of agreement (8.7 ± 1.8 of 10) for the statement "Using an eLearning system was easy for me." Participants also reported a high level of agreement (8.2 ± 2.0 of 10) for the statement "Important skills can be learned through eLearning modules." Participants reported a moderately high level of agreement (7.1 ± 2.6) for the statement "My beliefs about suicide prevention have changed because of this

lesson." Participants had a high level of agreement (9.2 ± 1.7 of 10) for the statement "I intend to use this information in my clinical practice."

DISCUSSION

The purpose of this study was to investigate the effect of observed SP encounters on students' knowledge, confidence, and perceptions regarding suicide prevention. We found that participation in an educational online module with or without SP videos significantly increased students' confidence and knowledge regarding suicide prevention, as well as significantly adjusting their perceptions of suicide prevention. Learners scored significantly higher on the posttest assessment when SP encounter videos were included in their learning module compared with the learners without SP encounter videos in their module. Additionally, learners with the SP encounter videos in their module significantly increased their agreement with the belief that suicide is preventable compared with the learners without SP encounter videos in their module.

Related studies have used Mental Health First Aid training to educate learners on suicide prevention skills.[9,13] We created our own suicide prevention model to ensure that the content was relevant to the scope of practice of ATs, and provided specific examples related to athletic training, such as using an example mental health emergency action plan (Appendix 2). The module was delivered online and asynchronously. Available research suggests online education can result in knowledge gains for athletic training students.[22] Asynchronous video trainings for suicide prevention that include teaching new clinical skills have been implemented with nursing professionals and have demonstrated long-term (6-month) retention of increased beliefs about the nurses' ability to use suicide prevention skills in clinical practice.[23]

After our data collection period concluded, an article[24] published in the *Athletic Training Education Journal* proposed a model for implementing suicide prevention training in athletic training education. Our module includes the following components suggested by the proposed model: foundational knowledge (terms, statistics, risk factors, and warning signs), assessment surveys, reflection questions, and a mental health emergency action plan (NATA guidelines, interdisciplinary teams, role delineation, crisis services, procedures, and review of a policy). Where our module differs from the proposed model is in its online delivery. The model suggests role-playing, debriefing, and skill-check scenarios, which we did not include in our module, but which could feasibly be incorporated into future versions of synchronous and asynchronous online education. Our module also differs from previous trainings because of the inclusion of the SP encounter videos. These videos also contribute to the relevancy of the lesson to athletic training because the health care provider in the videos is an AT simulating an encounter with actors portraying student-athletes. SP videos could also aid role-playing, reflection, and debriefing. While students watch the videos, they can imagine themselves in the role of the AT. While watching, the learners can reflect on the skills demonstrated by the AT and on how well or poorly the encounter goes. Additionally, the videos can facilitate debriefing by having learners examine the skills used by the AT and areas of improvement. Our study supports the proposed modules' suggestions of including foundational knowledge, assessment surveys, reflection, and a mental health emergency action plan.

Suicide prevention training is an effective way to improve individuals' knowledge, confidence, and perceptions regarding suicide prevention.[9] Although trainings may differ, nurses, school personnel, pharmacy students, counselors, social workers, psychologists, and certified rehabilitation counselors have demonstrated improvements in their confidence and/or declarative knowledge about suicide after educational interventions.[9,13,15,17,18] Both groups significantly improved their declarative-knowledge assessment scores from pretest to posttest, indicating that the learning module was effective. The experimental group improved their pretest to posttest score significantly more than the control group, which may be attributed to the inclusion of SP encounter videos in the experimental group's module. In suicide prevention training with health care professionals who work with veterans, declarative knowledge significantly increased immediately after the training.[18]

Our results support that different interventions can lead to significant improvements in learner confidence and knowledge regarding suicide prevention skills. Pharmacy students who engaged in SP encounters, observed SP encounters, and had no involvement with an SP encounter all demonstrated significant increases in their confidence to address SI with patients after suicide prevention training.[9] Participants in our study had similar results, with the control and the experimental group significantly increasing their confidence after engaging with the educational module and there being no significant difference between the 2 groups. Confidence may not serve as the best indicator of a learner's ability to appropriately implement suicide prevention skills. When evaluators scored pharmacy students on their observed behaviors during an SI SP encounter, students overestimated their ability to provide appropriate care.[13]

The experimental group significantly increased their agreement with the belief that suicide is preventable compared with the control group, which might be attributed to learners in the experimental group observing SP encounters. Both study groups adjusted their perceptions to align with beliefs that could help them with suicide prevention. A common misconception about suicide is that talking about suicide may cause someone to consider suicide as an option.[9] Additionally, talking about mental health concerns remains stigmatized in many communities.[25] Stigma surrounding talking about mental health concerns such as SI and belief in myths about suicide present barriers to seeking and offering help.[26] Destigmatizing asking about mental health has been widely discussed as an important step in preventing suicide.[9,25,26] Participants in this study significantly realigned their beliefs to disagree with the statement that talking about suicide might cause someone to consider suicide. Other studies have investigated this misconception when performing pre-assessments for suicide prevention training for pharmacy students.[9] The pharmacy students demonstrated aversion to using suicide-specific terminology when speaking to SPs, which the authors speculated may be from stigma around talking about suicide and a belief that talking about suicide may prompt someone to attempt suicide.[9]

Limitations

The low number of participants who completed the follow-up survey is a potential limitation of this study when examining long-term retention of confidence and knowledge. The only learners to respond to the follow-up assessment were members of the experimental group, which limits our understanding of how their knowledge and confidence compares with the control group. Other studies have reported learners retaining their confidence but failing to retain gains in declarative knowledge at follow-up benchmarks.[17] This could indicate the need for refresher courses to ensure that confidence levels and knowledge are aligned.[9] To fully understand the usefulness of filmed SP encounters in clinical education, further research in this area should explore the difference between learner assessment scores after observed SP encounters and participation in SP encounters. This research could investigate if there is a significant difference in student declarative knowledge, confidence, and perceptions regarding suicide prevention between students who participate in an SP encounter and students who observe an SP encounter.

Although the module was scoping, passive SI was not among the topics discussed. Future iterations should include this emerging topic. Additionally, although the module included information about recognizing and referring individuals with concerns of SI in the secondary school setting, observers could presume all SP encounters demonstrated scenarios with adult patients because there was no inclusion of parents/guardians. Future iterations of the SP videos could include parents/guardians in the referral and communication plan. However, the same referral pattern is warranted whether the patient is a minor or an adult.

CONCLUSIONS

Participants who observed SP encounter videos in addition to engaging with the online suicide prevention module scored significantly higher on their posttest assessments of declarative knowledge and significantly increased their agreement with the belief that suicide is preventable compared with participants who did not observe SP encounter videos. The inclusion of the SP videos could account for the difference in scores, indicating that learners benefit from seeing suicide prevention skills demonstrated through filmed SP encounters. The potential benefits of using filmed SP encounters in clinical education include addressing reported barriers to training actors for live SP encounters, such as time spent training actors each time an SP encounter is used in curriculum, time creating SP scripts for actors, compensations for SP actors, and physical resources needed to implement SP encounters. Athletic training educators have reported a benefit of live SP encounters being an increase in students' confidence and their exposure to unique conditions. A filmed SP encounter could portray unique conditions as well, and participants in our study demonstrated increases in confidence after the module that included SP videos. Further research could help health care educators across professions understand if there is a significant difference between using filmed and live SP encounters.

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Appendix 1. Declarative-Knowledge Questions

Question	Answer Choices
What is the leading cause of death by suicide?[1]	Firearms (correct) Intentional overdose Suffocation/hanging Jumping
Which mental illness has the highest concurrence with death by suicide?[2]	Depression (correct) Bipolar disorder Schizophrenia PTSD
What is the strongest predictor of death by suicide 5–10 years following an attempt?[3]	Alcohol use (correct) Being fired or expelled Losing housing Living in an urban environment
Which of the following is NOT a protective factor against suicide?[4]	Seeing a health care provider (correct) Fear of death A sense of purpose Having a pet or children to care for A safe school atmosphere
Which of the following is an environmental risk factor for suicide?[4–8]	Low state-level funding for mental health services (correct) Untreated mental illness A parent who has died by suicide Lack of familial support after coming out as gay
All of the following represent an ACUTE risk factor for suicide EXCEPT for:[9,10]	Prior suicide attempt (correct) Being fired/expelled Global insomnia Recent death of a friend
For the next section, read the patient case and answer the questions that follow.	Fear of punishment (correct) Loss of financial security (correct) Substance abuse

Patient case: You are in your office alone when a men's basketball player (Alex) comes in for his scheduled treatment. You notice Alex is behaving differently. He is withdrawn and not making eye contact. You ask if he's okay. Alex says, "I just failed my midterm, and I'm failing all my assignments. I can't pass the class anymore, and it's too late to withdraw. This is going to ruin my GPA. I'm going to lose my scholarship, and my parents are going to be so disappointed. I don't think I can face them. I don't think I can do this anymore." Based on Alex's statement, what risk factor(s) for suicide is he displaying? Select all that apply.[10,11]	
What is the best course of action to take with Alex?[12]	Ask Alex to explain what he meant by his last sentence and ask directly if he has been thinking about suicide. (correct) Tell Alex that one class won't ruin everything, and he can retake it next semester. Listen to Alex vent while you continue with treatment. Sometimes people just need to let it out.
For the next section, read the patient case and answer the questions that follow. Patient case: You have been treating Keisha, a soccer player, for 2 weeks. You see Keisha come into the busy athletic training facility with new scars on her arms. You suspect that these may be self-inflicted. What should you do next?[10,12]	Ask the patient to speak in a private, quiet room. Express your concern and ask the patient if she is harming herself. (correct) Politely ignore them unless the patient brings them up. While the patient is in the athletic training facility with her other teammates, ask her about the scars. "You're not doing these to yourself, right?"
Keisha states that she has been harming herself lately. What should you do next?[12,13]	Ask her if she has attempted or is thinking about attempting suicide. (correct) Give her the number of the school counseling center and return to the athletic training facility. Thank her for her honesty and call her coach in to let the coach know what's going on.
Keisha says that she attempted suicide last month. Does this prior attempt increase the patient's risk of dying by suicide?[10]	Yes, a prior attempt is a risk factor for death by suicide. (correct) No, because a failed attempt means that the patient will likely also not succeed next time. Unknown. It cannot be determined if the previous attempt is a risk factor because we do not know the means the patient used last time.
You've been treating Spencer, who has shared with you that they have a history of depression and suicide attempts. Spencer is seeing the school counselor and has been doing seemingly well in treatment. One day Spencer is in especially high spirits and brings you a gift to thank you for always being there for them. The gift is the patient's most prized possession, a necklace that belonged to their grandmother. This behavior is:[10,11]	Concerning. Giving away possessions can be a sign that someone planning a suicide attempt. (correct) Great to see! The patient seems happier than they have been in a while, and this is proof that counseling is working. Not concerning. You have gotten gifts from other patients before, and this seems normal.
You ask Spencer why they have given you the necklace. Spencer responds that they won't need the necklace anymore. This statement concerns you, so you continue to ask Spencer questions, and eventually Spencer tells you that they have decided to die by suicide tonight. They are at peace with their decision and don't want you to intervene. Read the statements below and select the statement that is true.[10,13]	You should stay with Spencer and connect them with resources that could intervene immediately. (correct) There is nothing you can do now that Spencer has made up their mind to die by suicide. As long as Spencer promises to call their counselor and text you tonight, they are okay to leave.

From your conversation with Spencer, you can tell that they have:[1–12]	Intent to attempt suicide (correct) Access to means to attempt suicide Thoughts of suicide but no intent to attempt suicide A plan, access, and intent to attempt suicide

Abbreviations: GPA, grade point average; PTSD, posttraumatic stress disorder.

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Additional Module Resources

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Appendix 2. Example Mental Health Emergency Action Plan

Recognizing signs and symptoms of potential mental health issues	Depression: 1. Decreased performance (athletic and/or academic) 2. Increased irritability or anger 3. Feeling unusually sad 4. Eating disturbances 5. Sleeping disturbances 6. Decrease in energy levels 7. Feeling helpless/hopeless 8. Withdrawal from social relationships 9. Thoughts of death/suicide Anxiety disorder: 1. Excessive worrying, fear, dread 2. Sleep disturbances, difficulty falling asleep 3. Increased heart rate/blood pressure 4. Feeling "out of control" Although anxiety and depression are common concerns for student-athletes, other issues may include but are not limited to: 1. Substance abuse 2. Relationship concerns (family, friends, coaches, team, dating) 3. Performance concerns 4. Disordered eating and eating disorders 5. Issues related to injury 6. Transitions (adjustment to demands of sport, end of career, new coach/administration) 7. Sexuality/coming out 8. Managing expectations 9. Sleep and nutrition 10. Wellness
Physical questionnaire	Mental health screen: 1. There will be a list of questions included in the annual physical questionnaire that will be reviewed by a primary care team physician. 2. If there are any concerns from the team physician, appropriate referrals will be made according to the referral process.
Referral process	Listen 1. When an individual approaches indicating they wish to speak, listening is the first part of communicating. Avoid criticism or judgement. Know your limits 1. Be aware of when it is time to refer to more qualified help. Confidentiality 1. Ensure that all information is confidential; this may involve athletic trainers, coaches, athletic directors, parents, and teammates. 2. Student-athlete is protected by the Family Educational Rights & Privacy Act (FERPA/Buckley Amendment). 3. Medical and/or university personnel may communicate with the athlete's parents or guardians without permission only if the student-athlete is in immediate and serious danger. Making a referral 1. During regular hours a. Contact the Student Counseling Center: (XXX) XXX–XXXX b. Tell front staff of your situation. Front office staff will arrange for athlete to speak with a therapist. c. It is helpful to call ahead to arrange a consult time; however, an athlete may walk in and will be seen as promptly as possible. 2. After hours a. For assistance with emergencies, contact the Public Safety Office: (XXX) XXX–XXXX if not emergent, call in the morning. b. Call 911 if the crisis is life-threatening. c. Contact the Suicide Prevention Lifeline: 1–800–273–TALK (8255). d. Go to the emergency room.

Mental health emergency action management plan	Mental health emergencies include (but are not limited to): 1. Suicidal and/or homicidal ideation 2. Sexual assault 3. Highly agitated or threatening behavior, acute psychosis, or paranoia 4. Acute delirium/or confusion 5. Acute intoxication or drug overdose In the event of a mental health emergency: 1. For assistance with emergencies, contact the Public Safety Office: (XXX) XXX-XXXX 2. Call 911 if the crisis is life threatening. 3. Contact the Suicide Prevention Lifeline: 1-800-237-TALK (8255). 4. Go to Union or Regional Hospital's emergency rooms. 5. Contact director of sports medicine, assure care is given to student-athlete first. a. The director of sports medicine and performance will communicate with athletics and the medical director. b. The policy was referenced according to the 2014–2015 NCAA Sports Medicine Handbook, Guideline 2–0, MENTAL HEALTH: INTERVENTIONS.

Abbreviation: NCAA, National Collegiate Athletic Association.