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ORIGINAL RESEARCH

Student Athletic Therapists' Knowledge of Opioids and Other Pain-Relieving Medications

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Context: In their role as health care providers, student athletic therapists (SATs) are responsible for the prevention and management of injuries. To fully understand an injury, SATs require knowledge of contributing factors, including medications and their use and misuse. Opioid misuse by athletes to manage pain has been documented in the literature, highlighting the importance of SATs being able to recognize opioid use and misuse. Opioids are known to alleviate pain, to impair cognition, and to have addictive qualities which prevents appropriate assessment and management of injuries.

Objective: The objective of this study was to understand SATs' knowledge of pain-relieving medication, particularly opioids.

Design: Qualitative study.

Setting: Semistructured interview.

Patients or Other Participants: SATs at an accredited institution in Canada.

Data Synthesis: Data were collected through interviews and transcribed. Themes were developed using triangulation that reflected the data

Results: Four themes were uncovered: (1) SATs had experienced both personal and professional use of opioids, which formulated their current knowledge; (2) SATs lacked appropriate knowledge of pain-relieving medications in general and of the potential consequences of their lack of knowledge; (3) SATs' knowledge stemmed from culture, social media, and news organizations; (4) SATs felt considerable pressure to provide correct information due to their autonomous role with a team.

Conclusions: SATs lacked enough knowledge to be able to appropriately recognize and advise athletes on pain-relieving medications, particularly opioids. SATs formulated their knowledge and opinions from sources that were not rooted in research and as such may transfer incorrect information to their athletes. SATs stigmatized athletes who were using pain-relieving medication, which may factor into inappropriate decisions regarding an athlete's care. Finally, SATs carried a significant burden to share correct information with their athletes and did not refer to outside sources (eg, physicians) when they were unsure of the information they were sharing with their athletes.

Key Words: Curriculum, injury, recognition, pressure, influences, autonomy

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KEY POINTS

- Student athletic therapists lacked knowledge regarding pain-relieving medication and what knowledge they did have stemmed from personal or professional use.
- Their source of knowledge was not rooted in peer-reviewed sources, but rather secondhand knowledge such as social media, culture, and news organizations.
- Student athletic therapists felt considerable pressure to answer athletes' medical questions; however, they chose to source information on their own instead of referring to appropriate professionals.

INTRODUCTION

Participation in collision sport carries risk and often leads to injury and pain, resulting in athletes resorting to pain-relieving agents such as opioids and nonsteroidal anti-inflammatory drugs.[1] Although research indicates that both nonathletic adolescents and adolescent athletes misuse pain-relieving medications,[2–8] the athletes have a higher chance of misusing them to alleviate pain, enhance performance, and combat stress.[2] Currently, there is a lack of robust clinical evidence to guide athletes and their health care teams to make appropriate analgesic decisions, leading to a potential dependence on opioids to combat pain.[5,6] The "opioid pandemic" has garnered significant media attention because it affects the general public, athletes, parents, coaches, physicians, and all health care practitioners (HCP).[3]

Opioid misuse reduces an athlete's ability to compete and can lead to impairment of cognition, addiction, and/or death.[8–11] Athletic therapists (ATs) play a key role in the prevention and management of injuries, and as such, the AT must have a strong understanding of pain-relieving medications to recognize potential side effects and allow the rapid detection and prevention of potentially serious injuries on and off the field.[8] In addition, ATs play a substantive role in helping athletes make informed decisions regarding opioid misuse and have the ability to implement policy-action changes to mitigate opioid misuse.[11,12]

Current studies on opioid use among athletes are based on secondary data obtained from US colleges[13] and therefore do not accurately reflect the reality of opioid use in organized sports in Canada. Research indicates that American athletic trainers discuss opioids with their athletes but report experiencing inadequate knowledge on these medications.[14] Even though it is unknown whether Canadian ATs experience similar situations as their American counterparts, anecdotally it is assumed that they do. It should be noted, however, that the issue of opioid use and misuse is addressed more in the United States and is something that has been researched in many American postsecondary educational institutions.[3,4,7,13,14] Knowledge of pain-relieving medication (including opioid use and misuse) among student athletic therapists (SATs) in Canada is unknown.

Upon reviewing athletic therapy programs in Canada, it was discovered that most programs do not provide students with formal training on medications, pharmacology, and opioid usage (and misuse). Even though drug recommendations are not within the ATs scope of practice, awareness of medication usages and their interactions is essential to fully understand an athlete's injury. Athletic therapists can play a vital role in patient education on opioid use (and misuse) and contribute to the overall health and wellness of patients; they have the ability to work with physicians to minimize opioid prescription and use other sources to resolve pain arising from injury.[15] This study was conducted to understand the knowledge base of SATs in an accredited Canadian athletic therapy program to better appreciate what they know about opioids.

METHODS

Research Design and Procedure

A grounded theory (GT) approach was used to collect information related to SATs' knowledge levels of pain-relieving medication, particularly opioids. This approach is a philosophical method of inquiry that seeks to understand "truth" through the interaction of the participants and the interviewers as well as uncover current thoughts and opinions to understand the source of a participant's knowledge. Grounded theory was appropriate for this study due to the lack of quantitative research, but more important, to understand directly how the students' knowledge would affect their interaction and management of athletes. As with any qualitative research design, we reflected on our biases before initiating the research. The first author (J.V.) has been an AT for over 25 years working in field, clinical, and academic settings and is keenly aware of athletes' use of pain-relieving medication and SATs' knowledge levels. The second author (D.A.) in her role as a pharmacologist, is aware of her bias on opioid adverse effects. Finally, the third author (S.L.), is a current SAT and understands her bias that may exist in relation to participants and is aware of her personal knowledge level of opioids and the curriculum.

The ethical review board at Sheridan College provided approval for the study (SREB No. 2018-05-001-016). All participants were contacted via e-mail and scheduled at a convenient time for a personal interview that was conducted at Sheridan College in a private room. Due to the sensitive nature of the topic, individual interviews were conducted to provide richer data and allow the SATs to elaborate on their knowledge without judgment. Before the interview, the nature of the study was explained, and the participants reviewed and signed informed consent forms. Participants were reminded that their involvement was voluntary and they could withdraw at any time. For their participation, they were given a CAD$5.00 gift card.

Table 1. The Interview Script Used to Probe SAT Knowledge Opioids

Background Questions:
1. What is your age?
2. Do you have any previous postsecondary education other than Sheridan College?
3. Have you participated or are currently participating in sports as an athlete?
4. What are your future plans after you graduate from Sheridan College?
Intermediate Questions:
1. What is an *opioid*?
2. Are you familiar with names like Percocet, OxyContin or names such as Vikes or Scratch?
3. What do you think opioids do (ie, what is the purpose of opioids)?
4. What are any potential side effects of opioids?
5. What are benefits of using opioids?
6. What are negatives about using opioids?
7. Where do you get your information about opioids?
8. Do athletes use opioids and if, so why?
9. Where do you think athletes get opioids if they aren't prescribed by their doctor?
10. Who or what may influence an athlete to use opioids?
11. Do you feel opioids are misused in sport? If yes, why?
12. If an athlete asked you about opioids, how would you counsel them? What would you do if an athlete asked you about nonprescribed opioids?
13. How comfortable are you discussing opioid misuse with your athletes?
Ending Question:
1. Is there any else you would like to share with regards to athletes and opioid use?

Participants and Interviews

Researchers attended SATs' academic classes (spanning years 1–4) during January 2019 to recruit participants and inform them of the study. Interested participants were interviewed from February to April 2019. Participants from all years (1–4) were included because the athletic therapy curriculum currently includes scant pharmacology-related information throughout all the years, and we were interested in determining knowledge sources. Inclusion criteria were $\geq$18 years of age, ability to speak English, and registered as a full-time SAT at Sheridan College. The athletic therapy program at Sheridan College is accredited by the Canadian Athletic Therapists' Association (CATA).

All interviews were conducted by the researchers (J.V. and D.A.). An initial interview guide was developed with beginning, intermediate, and ending questions (Table 1). Intermediate questions were considered fluid, with all participants encouraged to tell their stories related to medication use. SATs were probed for clarification and additional information to their answers to provide understanding and richness of data. Ending questions included asking SATs for additional information that may shed light on the research question. Interviews were audio recorded and transcribed verbatim.

Table 2. A Summary of the Demographic Data Among Surveyed Student Athletic Therapists

Parameter	Value, %[a]
Male	14
Female	86
First-year participants	23
Second-year participants	5
Third-year participants	29
Fourth-year participants	43
Participant mean age (range), y	24.6 (22–32)
Participants entering program from high school	60 %
Participants with a degree not related to health	2 %
Participants with a health-related degree	38 %

[a] All values are percentages except for participant mean age, which is in years.

Data Analysis

All participants who volunteered were interviewed to ensure that theoretical saturation occurred. Data were analyzed using a 2-step approach: independent transcript review with initial coding and theme development by each of us, followed by a group discussion to amalgamate themes that captured all the data. Initial coding was conducted separately after each interview to prevent bias and influence from occurring among the researchers. All 3 researchers then categorized their codes into groups that displayed similarities of concepts, which was then followed by creating independent, emerging themes from the data. We then met to discuss these independent themes and pare them down into combined themes to encapsulate all results. This triangulated approach allowed the emergence of data richness and prevented independent bias and influence from occurring.

RESULTS

Participant Demographics

A total of 48 SATs expressed interest in participating in the study; 21 interviews spanning years 1 to 4 were conducted (yielding a response rate of 44%). Interviews were conducted over a 2-month time frame (March and April 2019). Table 2 provides a general overview of participant demographic results.

Sample-size determination is a typical quantitative study methodology; however, it can also be performed for qualitative studies (such as this current study) in that the "ideal" sample size would be based on the theory used (grounded theory in this case) and achievement of theoretical saturation in the results.[16,17] Our current sample size of 21 participants is strengthened by the fact that we achieved theoretical saturation of results.

Emerging Theme Identification

The following 4 themes were uncovered through data analysis:

1. SATs had experienced personal and professional use of opioids, which formulated their current knowledge.

2. SATs lacked appropriate knowledge and understanding surrounding opioids, their use, and the potential consequences of their lack of knowledge towards athletes and their teams.
3. SATs' knowledge stemmed from culture (movies and music), social media (Facebook), and news organizations.
4. SATs felt considerable pressure to provide correct information because of their role as the HCP for the team.

Theme: SATs Had Experienced Personal and Professional Use of Opioids, Which Formulated Their Current Knowledge. SATs' experience with opioids ranged from personal use to knowing athletes or other individuals who have taken opioids (both prescribed and nonprescribed) to having no direct knowledge. All SATs knew of "stories" through hearsay, culture, or news organizations. When asked to define *opioid*, many participants indicated that it was a drug used to relieve pain; however, they were unable to provide a clear definition of an opioid and its effects (whether desired or adverse).

Participants were unclear on different opioid types and their mechanisms of action, with many unsure of whether fentanyl or codeine were opioids. According to 1 participant, people who take opioids are "inclined to keep taking" the medication. Some participants defined *opioids* as "feel-good" drugs, and most identified them as addictive drugs. The main beneficial effect of opioids as identified by participants was pain relief; according to participant N02, "all I know about opioids is that it's a painkiller."

In terms of adverse effects, participants identified the following: addiction, drowsiness, depression, anxiety, increased stress, hallucinations, reduced responsiveness, effects on organs (liver, stomach, and brain cells), constipation, loss of fine motor skills, impact on blood pressure, organ failure, and death. A total of 13 participants reported experience with opioids: 8 reported that they have known people who have used opioids, and 5 indicated that they have personally experienced opioid use through medical procedures. There was no reported nonprescribed use of opioids.

Theme: SATs Lacked Appropriate Knowledge of Opioids and Consequences Associated with Their Lack of Knowledge. In terms of recognizing opioid use in athletes, participants indicated looking for influenza like symptoms; however, most participants highlighted that signs of use could be hidden, with 1 participant stating that the person using the opioid "look(s) like your regular 16-, 17-year-old" person, with even parents unaware of use. One participant did indicate that "agitation" could be a sign of opioid use. Many SATs also indicated length of the professional relationship with their athlete as being related to recognizing opioid use, with the ability to compare behavior and performance before and after potential opioid use.

> *I think it depends on how close you are, like if you're working with a team for quite a while and you get to know your athletes, so you can get to know what's their abnormal, but if you're just walking into a situation it would kinda be a little bit harder cause you don't really know that athlete so you don't know what their normals are. (participant B01)*

> *Sometimes you'll notice personality differences . . . we're constantly keeping a keen eye on [athletes] . . . how they're doing socially and stuff as well, interacting with the coaches and the other players, um, just cause of concussions, right. (participant P01)*

Overall, SATs reported that they lacked knowledge about opioids through their curriculum, with minimal information provided to them on recognizing usage and side effects of opioids.

Theme: SATs' Knowledge Was Influenced by Culture (eg, Movies or Music), Social Media (eg, Facebook), and News Organizations. Any knowledge that an SAT gained regarding opioids appeared to come from sources other than curriculum; this includes media, news, the Internet, and conversations with family and friends.

> *I've kind of just known about them from I guess word-of-mouth . . . we never really learned about it in our [athletic therapy] program yet. So, it's kind of just something that I picked up over time and especially like you hear of a lot of in every city now, like the opioid crisis. So, like hearing it through like the radio and television I guess, learned a little bit more. But there's still never been that like, really been taught about this. (participant B01)*

Many SATs indicated that culture played an important role in their knowledge of opioids, as 1 participant (D04) alluded to in a quote from the movie *Goon*: "there's only 2 things about me you have to know. One, number 1 is don't touch my Percocets, and number 2 is do you have Percocets?"

TV, media, and music were identified as strong influencers of opioid use, with 1 SAT indicating that the "hip-hop culture makes it sound cool" to take an opioid and that a "young athlete with little education may be influenced" (participant B02) to use opioids on the basis of such music. According to participant M03:

> *I think that's the most popular genre of music [hip-hop] . . . it's very easy to access for kids and athletes to hear about it, and like especially younger, younger kids, 12-year-olds, to hear about um, popping Percocets, or popping OxyContin, and popping whatever opioids, and then they'll get influenced.*

Many SATs revealed a stigma associated with opioid use, referring to those who use opioids as "uneducated" and individuals who give opioids to athletes as "drug dealers" (participant A04) and that opioids should not be prescribed to manage pain. The SATs felt that athletes who use opioids are using them as a "crutch" (participant B03) and that athletes should learn other ways to manage pain that are more "holistic" (participant A02). The SATs would go so far as to tell athletes that they "disagreed" (participant A03) with athletes taking opioids. SATs who have been prescribed opioids to manage pain indicated that they felt stigmatized by HCPs. Participant C02 described that [physicians] "didn't believe" him when the opioids were not working to manage his pain. Participant M02 summarized the general attitude of SATs towards athletes who use opioids:

> *My knowledge per se of like, side effects of opioids and whatnot, not very high. . . . But I am confident enough to know that it's not something they should be doing. And I'm confident enough to tell them that. . . . But I do know enough that it's 1, not allowed, and 2, not something that that they*

should be messing with. . . . Because it's highly addictive and why would you want to throw your life away?

When probed on what would influence an athlete to use opioids, SATs indicated the primary reason would be to relieve pain associated with a game and/or injury. One participant indicated that athletes would "take it and then they just don't know how to stop taking it" (participant A04), whereas another participant mentioned that opioids tend to be used as "quick fix[es]" by athletes (participant A03). According to 1 SAT, athletes tend to use opioids as "performance enhancers" and would initially use them to relieve pain and then become addicted to them (participant A03). Other participants elaborated on that statement by mentioning that the opioid would "boost [athletes'] performance and [provide them with an] advantage to be part of professional sports and get scholarships" (participant A01). Participant C01 stated that athletes "don't want to show they are injured [so that they can get to] the next level; if they hold themselves back, they might not reach their goal." Another SAT highlighted that athletes "have to be able to perform or else they don't get paid. . . . If [athletes] are not on the field, [then] they don't get bonuses [or their] full [pay] check" (participant D02). Overwhelmingly, the predominant response as to what influenced an athlete to misuse opioids can be summarized by 1 participant's comment of "play harder" (participant A03).

Another interesting influencer identified by SATs was the prescription: athletes would feel compelled to take their opioid if they were prescribed it as a medication. Pressure from the sport and coaches or scouts was also identified as an influencer.

[The] sport mentality of being weak [is an influencer for use along with] pressure from coaches and teammates or wanting to prove something to the coaches. Coaches would not be OK with athletes using opioids, but there is a big spectrum of coach mentality so some may encourage athletes to take [opioids] to perform better. Coaches can see athletes as either human beings or accessories. (participant B03)

In my experience, [major influences] would probably be coach or um scouts, people that are, they think are important for them to watch . . . 'cause I'm working with minor hockey, so they can be drafted, they can be sent to schools, get scholarships and stuff like that . . . if their shoulder's hurting they don't want to miss tryouts, and they don't wanna miss a game if they know a scout's gonna be there. (participant N01)

A hierarchy of pressure was identified as an influencer of use: high school athletes would take the opioid to attain a university scholarship, whereas in university the athlete would aim to be spotted for the National Football League or Canadian Football League and hence would take an opioid to mask the pain and continue their ability to play. In terms of sources, SATs indicated friends, family, purchasing them from someone (such as a friend who is selling or a "dealer"), presence in a medicine cabinet in their home, and leftover prescriptions as potential opioid sources for the athlete. According to participant M02: "For pro sports, I think it's [pressure to perform] everywhere. It's from their coaches, it's from their teammates . . . the media, it's from the random person leaving comments on their Instagram."

Many SATs felt that opioids are misused in sports because "athletes are always looking for a way to perform at their best" (participant D02) and added that opioids tend to also be misused among the general public. One SAT specifically indicated that it is now a well-known issue among athletes and they have the mentality that "this will not happen to me" when referring to addictions that could occur with the use of opioids (participant A01). One SAT mentioned that football teams tend to observe the highest misuse rate of opioids and that this related to the culture of the team:

People just aren't taking it as serious . . . they aren't respecting the sport, their team, and their coaches. Coaches are becoming more lenient, even if athletes sign a contract about not using illegal substances . . . [and] something actually happens, they [coaches] won't follow through on their word, [which is] especially true if [the athlete] is a good player and [the] coach needs them to win. (participant D03)

SATs indicated that misuse was not occurring intentionally among athletes and that initially the medications were being taken for their pain-relieving aspects and then the use turned into an addiction. As 1 participant indicated:

Athletes don't have a lot of information on opioids to make an informed decision on using them. This is especially true for athletes moving from varsity into CFL and therefore [are] under pressure to perform to their best of their ability, athletes do not understand that using opioids can cause them to be reliant on them. (participant M01)

Theme: SATs Felt a Significant Burden to Provide Accurate Information. The SATs felt considerable pressure to accurately answer athletes' questions in relation to their health. Most SATs would try to answer (to the best of their ability) if asked about an opioid and direct the athlete to someone more knowledgeable (such as the head AT if one was available) if they could not address the question. SATs also felt a burden to establish trust among their athletes to provide information that was credible. According to participant N01:

I feel like that they trust me and they would expect me to not necessarily talk them out of it but weigh the pros and cons . . . if [the SAT] says like all of these bad things are gonna happen to me, like maybe I'm [the athlete] gonna second-guess myself, but if [the SAT said] don't do that, then they'll . . . come to me for justification I think.

Often the SATs mentioned that if they suspected athletes were misusing opioids, they would research the drugs and counsel the athletes accordingly to manage the situation. Very few SATs indicated that they would refer an athlete to a physician, drug counselor, or pharmacist for advice on managing potential opioids misuse.

If say I was the AT [and] someone comes in and I notice they're taking more [opioids] or they're not like decreasing their use over time, then maybe I might wanna try to help nip it in the bud before it becomes out of control. (participant A04)

Most SATs indicated that their comfort level and confidence discussing opioids use (and misuse) with their athletes is low and that no formal education was provided to them in their curriculum to aid them in dealing with such questions. However, SATs indicated that having more knowledge would

help alleviate some of the burden and pressure that they feel when working with athletes. Said participant B01:

> *I think having the knowledge in the background would definitely make me feel more comfortable and more open to talk to them . . . about that conversation . . . I would like to . . . hear from a professional, . . . talking to maybe other athletic therapists, or doctors that may be in the profession that could give us that information."*

DISCUSSION

The addictive qualities of opioids cannot be overstated, and as a result of these qualities, athletes have continued to use opioids long after the prescription has been completed. Research has shown that both prescribed and nonprescribed opioid use are common among athletes to manage pain and addiction.[4] US institutions are taking a stance due to issues associated with opioid use and misuse and are implementing educational strategies to teach frontline HCP (athletic trainers) the ability to recognize and manage opioid use and misuse.[12] Canada appears to be lagging despite the presence of an opioid crisis, one in which the government has seen "epidemic-like numbers related to opioid deaths."[18] This makes it imperative for future HCP to be aware of medications and their effects/interactions and to recognize potential abuse.[8] This study is the first of its kind to explore SATs' knowledge of pain-relieving medications, an area in which SATs typically receive little formal instruction in most accredited English-speaking institutions in Canada. At the time of writing (summer 2020), SATs in 6 of 7 accredited English-speaking athletic therapy programs in Canada did not receive in-depth formal training on pharmacology or opioid use (the University of Winnipeg offers a required fourth-year course called KIN-4502[3]: Drugs and Ergogenic Aids in Sports).[19]

The education of future ATs is an evolving profession that must maintain currency to meet the demands of its athletes/patients. The SATs are perceived as the primary HCP of a team; however, they have yet to develop the skills associated with individuals who have attained the knowledge of an AT. Due to the nature of practical placements, many SATs are treating athletes in the field as autonomous practitioners. Understanding an athlete's use of pain-relieving medication and the effects of these medications is tantamount to the assessment and management of athletes. The SATs' curriculum must include information to support the related knowledge that an AT must acquire. On the basis of our preliminary results, we believe a gap exists in the education of ATs in Canadian accredited athletic therapy programs with regards to pharmacology. Among the 8 accredited programs (both French and English) in Canada, only 2 offer students a course on drugs and pharmacology, and this is concerning especially because we have seen opioid misuse in sport firsthand.

Results from this study revealed that SATs feel uneducated about medication use, particularly opioids. We were not surprised that SATs lacked knowledge related to opioids from an academic perspective, as this goes in hand with the lack of a specific pharmacology-based course in the curriculum. During the time of the study, headlines were rife with news related to opioid fatalities; as such it was alarming that the SATs lacked concern towards the consequences of opioids. The SATs lacked the time-sensitive nature of referral for athletes and the prevention of an athlete from play if under the influence of an opioid or other pain-relieving medication. This was demonstrated by SATs indicating that they would take the time to research the topic before addressing athletes. It is concerning where SATs would research their information if their primary source is non–peer-reviewed sources (such as social media and news), calling into question the validity of their research. The stigma associated with athletes using opioids as observed in this study is unfortunate because, as future HCPs, SATs are judging athletes who use medication without fully understanding the reasons behind such use. One SAT spoke frankly about her experience with prescription of opioids.

> *P01: "They treat you like you're a criminal when you go and pick them [opioids] up. You have to go and submit your ID.*
> *J.V.: Who's they?*
> *P01: The, the pharmacist. They have to do their due diligence, I know that . . . I never pick up as much as I get because of that, I guess, social pressure of it . . . they're harsher with their voices, they required a lot more documentation . . . they're always sitting there, you can feel them evaluating whether you're abusing it . . . especially when you're young, that they think that . . . maybe that's just my personal opinion of how [they are] projecting that. But I don't like having to pick up opioid-type prescriptions.*

SATs overwhelmingly reported feeling immense pressure because they are perceived as the primary HCP and lack confidence with regards to counseling athletes who inquire about opioids. This lack of ability was verified, given that SATs indicated that they are unable to recognize opioid impairment. Although not studied, this pressure calls into question whether SATs are prepared emotionally to handle the demands presented to them and whether they are equipped to manage questions or know when and how to refer to experts.

The SATs at Sheridan College start a practicum during their second year to learn and reinforce skills developed within the curriculum. Unfortunately, SATs tend to work by themselves without direct supervision by the clinical educator in a field setting and therefore may develop an autonomous stance: They have no one to answer questions in real time and must solve medical concern and issues themselves. It was disappointing to uncover that many SATs would not immediately think to refer an athlete with a medication question to physicians or pharmacists and that instead they would seek out information to counsel the athlete on medication use by themselves; this is something that is outside their scope of practice. The results we observe in this study therefore contribute to the "knowledge transfer" of ATs because the results will facilitate their education on opioids and other medications and enable them to make sound, practical decisions with their patients, including referring them to their primary HCP.[20,21] The SATs are also relying on information from social media, culture, and news sources and are not grounded in research when counseling and passing on this information on to their athletes. It is therefore imperative that educational institutions revisit a curriculum that deals directly with how to source appropriate information. This will ensure that SATs are better educated and can safely serve the public and their athletes.

To our knowledge, this study is the first of its kind to highlight a knowledge level of opioids directly from the standpoint of an SAT; this study reinforces that SATs are passionate about the field of athletic therapy and care considerably about helping their athletes. We recognize that this study is from only 1 accredited institution. A future study will be conducted to understand whether these findings would be similar to those in other accredited institutions in Canada. It is hoped that the results of this study will affect placement opportunities such that SATs have direct access to a clinical educator who is an AT who can guide the SAT and alleviate the pressure that the SAT feels when in the field setting. This may alleviate the pressure they felt and eliminate their "burnt out" feelings due to the high demands of school and placement.

When considering limitations, participants volunteered for the study and as such, a bias may result due to the nonrandomized nature of participant recruitment. In addition, convenience sampling represents a limitation because the results were presented from Sheridan College only and therefore require corroboration and confirmation from other institutions to determine whether similar patterns were observed. Although the researchers wanted equal representation from all years, there was a lack of second-year SATs who participated, which may have skewed the results in that these students would have had their first practicum placement dealing primarily with high school athletes and have an autonomous setting within which to learn (ie, lack a clinical educator in the field). Also, it is known that SATs in their third and fourth years have a heavier placement schedule (eg, traveling university/college teams) and as a result may feel more pressure overall with academics and managing athletes. Some of the SATs have worked with professional teams and indicated a more cavalier attitude toward pain-relieving medications and this may have framed their lack of concern regarding medication use. Finally, there is significantly more women who agreed to participate in this study, which may potentially have skewed the results. Future qualitative studies may want to explore knowledge trends of medication use and misuse among certified ATs to address questions related to knowledge levels of pain-relieving medication among ATs, sources of credible information related to pain relieving medications, and the pressures that ATs feel when counseling athletes specifically about pain-related medication.

CONCLUSION

Students in health care professions who are given the tools to assess and manage situations on their own is daunting, particularly when issues arise in areas that are not taught formally. Most educators are aware of the deficiencies in their curriculum but may not be aware of the struggles that students face in trying to fill that void. This study revealed that students lacked enough knowledge on pain-relieving medications, in particular opioids, as well as the consequences associated with their use to prevent, assess, and manage injuries. The SATs attempted to fill that knowledge void with sources that lack credibility and, as a result, may provide their athletes with inaccurate information. SATs reported that they felt immense pressure to provide correct information to their athletes, which increases their anxiety particularly when they are unable to ask questions due to their autonomy in the field. Finally, SATs indicated that they stigmatized an athlete's use of pain-relieving medication, which may affect their treatment of athletes.

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