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Student Athletic Therapists' Knowledge of Pain-Relieving Medications: A Nationwide Study

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Abstract

Purpose: Misuse of pain-relieving medications (PRMs), including opioids, is high among injured athletes. Athletes are increasingly relying on PRMs and as a result, it is likely that student athletic therapists (SATs) have managed athletes who have misused PRMs and may have potentially missed important symptoms placing athletes in harm. While dispensing PRMs is not within the scope of practice of the SAT, recognition and referral are. Previous research has found that SATs feel ill prepared to recognize PRM misuse and feel tremendous pressure to provide correct health information to the athlete. The purpose of this study was to expand on previous pilot work and uncover SATs knowledge on PRMs nationally. **Method:** A survey was sent to SATs currently studying in accredited Athletic Therapy programs and recent graduates (AATP). **Results:** A total of 57 surveys were completed. Results indicated that SATs believed they lacked sufficient knowledge related to PRMs and opioids however their personal knowledge of PRMs and opioids empowered them to provide athlete education on such medications. Over half of the SATs indicated that they have been approached by athletes and coaches to provide PRMs. SATs reported experiencing considerable pressure to provide athletes with correct information and showed stigma towards athletes misusing opioids. **Conclusions:** Although SATs reported the ability to recognize an athlete misusing opioids, they were unsure of how to make a quick decision when faced with potential opioid misuse situations. **Recommendations:** We recommend that curriculum, as well as clinical educators, address the pressure SATs experience and reinforce education to help identify and manage athletes who potentially misuse PRMs. Our study provides insight into the current level of knowledge of Canadian SATs regarding PRMs and opioids to help educators and others who work with SATs in a field setting.

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Student Athletic Therapists Knowledge of Pain-Relieving Medications: A Nationwide Study

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ABSTRACT

Purpose: Misuse of pain-relieving medications (PRMs), including opioids, is high among injured athletes. Athletes are increasingly relying on PRMs and as a result, it is likely that student athletic therapists (SATs) have managed athletes who have misused PRMs and may have potentially missed important symptoms placing athletes in harm. While dispensing PRMs is not within the scope of practice of the SAT, recognition and referral are. Previous research has found that SATs feel ill prepared to recognize PRM misuse and feel tremendous pressure to provide correct health information to the athlete. The purpose of this study was to expand on previous pilot work and uncover SATs knowledge on PRMs nationally. **Method:** A survey was sent to SATs currently studying in accredited Athletic Therapy programs and recent graduates (<1 year of graduation from AATP). **Results:** A total of 57 surveys were completed. Results indicated that SATs believed they lacked sufficient knowledge related to PRMs and opioids however their personal knowledge of PRMs and opioids empowered them to provide athlete education on such medications. Over half of the SATs indicated that they have been approached by athletes and coaches to provide PRMs. SATs reported experiencing considerable pressure to provide athletes with correct information and showed stigma towards athletes misusing opioids. **Conclusions:** Although SATs reported the ability to recognize an athlete misusing opioids, they were unsure of how to make a quick decision when faced with potential opioid misuse situations. **Recommendations:** We recommend that curriculum, as well as clinical educators, address the pressure SATs experience and reinforce education to help identify and manage athletes who potentially misuse PRMs. Our study provides insight into the current level of knowledge of Canadian SATs regarding PRMs and opioids to help educators and others who work with SATs in a field setting.

Keywords: curriculum, opioids, athletes, pain management

INTRODUCTION

In Canada, student athletic therapists (SATs) participate in placement opportunities through their accredited Athletic Therapy programs. These placement opportunities allow SATs to learn to manage injuries sustained by athletes in a real-world setting and often in conjunction with other licensed/certified sports therapists. These placements also afford SATs the opportunity to manage injuries and utilize a myriad of non-pharmacological techniques to help alleviate an athlete's pain due to injuries. The nature of sport has cultivated the acceptance of a "play through pain" attitude and therefore injured athletes may prefer to self manage their pain with pharmacological options and not utilize the non-pharmacological options offered by SATs.[1,2] These self-management pharmacological options stem from the immense pressure athlete's face to participate in their sport.[1,3] Pharmacological pain management of the patient is not within the scope of practice of the SAT; however, athletes frequently inquire about pharmacological options and ask the SAT to dispense medication to manage their pain. [4]

Pain-relieving medication (PRM) and opioid misuse during sport can begin from high school and continue to professional levels, with use observed in up to 50% of athletes depending on a variety of factors such as sport, injury, level of play, athlete sex, and previous prescription use. [2,3,5–8] It is therefore highly probable that SATs have assessed and managed patients who have misused PRMs and opioids without being aware of such misuse. Research has found that patients will utilize non prescribed PRMs, including opioids, to mitigate pain without consulting health care providers, physicians, pharmacists, or their SATs. [3,6,9,10] Additionally, injured athletes tend to seek advice on PRMs from other athletes, peers/teammates, culture, social media, coaches, previous prescription use, and online sources. [3,6,10–12] Athlete's use of PRMs without the knowledge of their SAT may lead the SAT to potentially misidentify health conditions therefore potentially leading to incorrect treatment and facilitating an inappropriate return of the athlete to participate in their sport. This becomes especially problematic when patients misuse opioids to mask symptoms associated with injuries such as concussions.[3,5] Consequences of opioid misuse are grave and include physical and psychological dependence, tolerance, masking of concussive symptoms, dizziness, increased risk of post-retirement use, and death.[5,11]

In our previous pilot study, we observed that SATs have scant formalized academic-based PRM knowledge yet have experience with both personal and professional opioid use which formulates their current opioid knowledge. [4] Due to a self-reported lack of knowledge, SATs report considerable pressure to provide correct PRM information to patients, with similar observations seen among NATA (National Athletic Trainers' Association) athletic trainers. [13] Although dispensing of PRMs is not within the scope of practice of the SAT or Certified Athletic Therapist, other aspects are such as the emergency use of naloxone as well as identifying misuse and knowing when to refer are. SATs are required to complete first responder programs where they learn about medications such as naloxone, however, this knowledge may not be reinforced in other curricula within the program. As such, SATs may have minimal educational time dedicated to medication use, particularly opioids other than what is gained from their First Responder course. This leads SATs to not being adequately prepared to manage patients who are misusing these medications from the perspective of an athlete who has not overdosed and requires emergency naloxone use.

Purpose

Much research has been conducted to understand the current situation surrounding patient PRM use and misuse, yet research on SAT knowledge and comfort level in discussing PRMs and opioids is sparse, particularly from a Canadian perspective. We have conducted previous pilot work investigating SATs knowledge at one Canadian accredited Athletic Therapy program and wanted to explore if similar results were seen with other SATs across Canada.[4] The purpose of this study was to determine SATs knowledge of PRMs and opioids at a national level across accredited Canadian Athletic Therapy programs. We were interested in obtaining a sense of whether SATs had sufficient information to recognize and manage a patient misusing PRMs and opioids and to understand the knowledge level that SATs self report particularly with opioids. Previous research has found that athletes are not immune to the opioid epidemic and currently utilize PRMs to manage their pain during sport participation and therefore it can be assumed that SATs have managed athletes who misuse PRMs and opioids on a semi-regular basis. [2,3,5,6,8,10,14,15]

METHODS

Study Design

The present study used a survey administered via SurveyMonkey™ to explore student athletic therapists' knowledge of pain-relieving medications and opioids. Previously, we conducted a pilot study in one accredited athletic therapy program in Canada and wanted to understand if similar findings were found nationally. The current survey was validated by the research team and tested through administration to two certified athletic therapists (feedback incorporated into survey). [16]

Participants

Participants were recruited via electronic communications posted in e-blasts from CATA (Canadian Athletic Therapists Association), accredited athletic therapy programs who expressed interest in taking part and social media sources specific to Athletic Therapy students and recent graduates. Inclusion criteria included ≥ 18 years of age (≥ 19 years of age if the participant

was residing in British Columbia), ability to read English, and either current enrollment in a Canadian accredited Athletic Therapy institution or a recent graduate from a Canadian accredited Athletic Therapy institution within the previous year. Participants were provided with the Informed Consent form through the initial landing pages of the survey. Participants were informed that the survey was anonymous, their participation was voluntary, and that they could withdraw at any time without penalty. Once participants read the informed consent and after selecting the response indicating that they understood their rights as a participant, they were taken to the actual survey. The ethical review board at Sheridan College, all participating institutions, and CATA provided approval for the study (SREB No. 2020-11-001-031).

Procedures

After indicating that they understood their rights as a participant by clicking "OK" on the informed consent page, they were directed to the actual survey. The survey consisted of 49 questions on themes that included educational, personal, and professional knowledge of pain-relieving medications and opioids. Participants who completed the survey were given the choice of being placed in a random draw for one of four $50.00 CAD gift cards. Participants who wished to withdraw from the study after they submitted the survey were advised to email the primary researcher to have their responses removed from the analysis prior to the end date of the survey. The survey was conducted between January to April 2021.

Statistical Analyses

All data from the survey was amalgamated into one data set and analyzed. The data collected from the survey are presented as percentage responses (from total participants for each part) for each question. Chi-squared analyses were performed to determine potential interactions between questions with statistical significance set at 5%.

RESULTS

Participant Demographics and Response Rates

We received responses from current and former students of accredited athletic therapy (AT) programs in Canada including Camosun College, Concordia University, Mount Royal University, Sheridan College, University of Manitoba, University of Winnipeg, Université du Québec à Trois-Rivières, and York University. Although not all accredited institutions sent a link to their SATs, all accredited programs in Canada were represented by participants. **Table 1** provides participant demographics and response rates; 95% of participants were from their second year and above in their AT program.

Table 1: Participant demographics (age, year of study in the program, and sports related experience) and survey completion information.

Age Ranges	**%**
18-20 years	**14.04%**
21-23 years	**28.07%**
24-26 years	**40.35%**
27-29 years	**7.02%**
30-32 years	**5.26%**
33 years or older	**3.51%**
Prefer not to say	**1.75%**
Year of Study in Program	**%**
1st year	**5.26%**
2nd year	**21.05%**
3rd year	**26.32%**
4th year	**15.79%**
Graduated from an accredited program within the last year	**31.58%**
Post-graduate (e.g., massage therapy, graduate school)	**0.00%**
Sports Related Experience	**%**
Collision or contact sports (football, wrestling, hockey, basketball, rodeo)	**75.44%**
Limited collision or contact sports (baseball, cheerleading, gymnastics, volleyball)	**54.39%**
Non-contact sports (rowing, running, swimming, tennis)	**24.56%**

All three types equally	**14.03%**
I have not worked with any sports	**14.03%**

Response Rates

Questions 2 - 7 : Answered: 73 ; Skipped: 23 (Total 96)
Questions 8 - 15 : Answered: 66 ; Skipped: 30 (Total 96)
Questions 16 - 34 : Answered: 58 ; Skipped: 38 (Total 96)
Questions 35 - 45 : Answered: 57 ; Skipped: 39 (Total 96)
Questions 46 - 49 : Answered: 57 ; Skipped: 39 (Total 96)

Participant PRM and Opioid Knowledge and Sources

As a source of PRM knowledge, 32.88% of the participants indicated personal sources (own use, social media, and music), 28.77% indicated professional sources (placement and work), 80.82% indicated academic sources (school and continuing education courses), and 6.85% were unsure. When asked on the amount of knowledge they currently possess on opioids and PRMs, 56.16% of participants indicated having a little bit of knowledge; other responses included 9.59%, 31.51%, 1.37%, and 1.37% as having a lot knowledge, neutral knowledge, no knowledge, and unsure of knowledge, respectively. Personal sources included friends, family, movies, music, social media sources, and independent internet searches while professional sources included athlete use, athletic therapy related work, certified athletic therapist colleagues, coaches, athlete guardians, team doctors, and other health care providers. Finally, academic sources included elementary / high-school school educational programs, previous post-secondary education, accredited athletic therapy programs, and continuing education courses.

Opioid and PRM Use and Misuse in Sport

In general, 43.10% of participants felt that PRMs and opioids should not be used by athletes to play and/or practice (29.31% were neutral, 6.90% felt it appropriate, and 20.69% were unsure). A large majority of participants indicated that opioids and PRMs are misused during sport (Figure 1A) and many participants were unaware of how athletes who use PRMs and opioids to manage pain are described by other athletes and therapists (Figure 1B). The professional perceptions towards an athlete who takes prescribed versus non-prescribed opioids is provided in Table 2 with most participants indicating that non-prescribed use of PRMs is either sometimes or frequently associated with PRM misuse (Table 2). Participants reported that appropriate situations for injured athletes to use PRMs (in the field or at the clinic) included managing a patient / athlete's chronic pain (39.66% for field and 37.93% for clinic selection), and when a patient / athlete is in significant short-term pain (55.17% for field and 36.21% for clinic selection; other reasons not shown).

Figure 1. Opioid and PRM misuse during sport and the view of athlete's who use PRMs to manage pain by their peers and coaches. In part A, responses are presented to the question "In your PERSONAL opinion, are PRMs misused in sport?" and in Part B, responses are provided to the question "In your PROFESSIONAL experience, how are athletes who use PRMs to manage their pain typically described by other therapists and/or other athletes?". Response rates are provided in Table 1 and all responses are presented as % of the total responses provided for each question.

Figure 1A

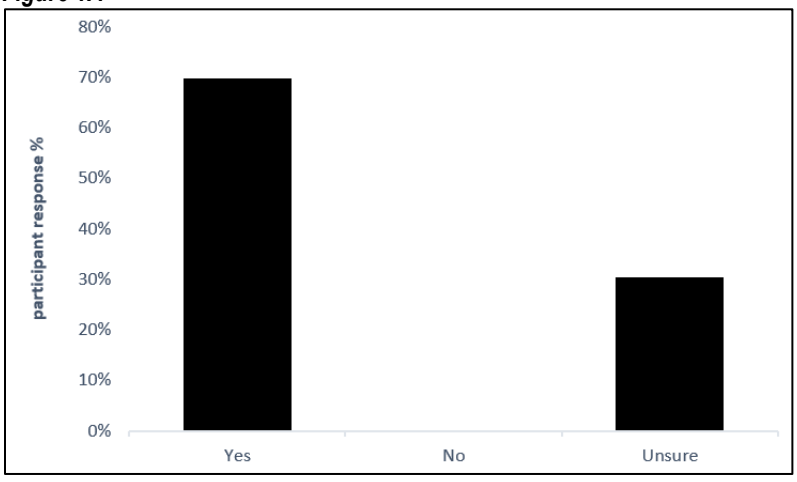


Figure 1B

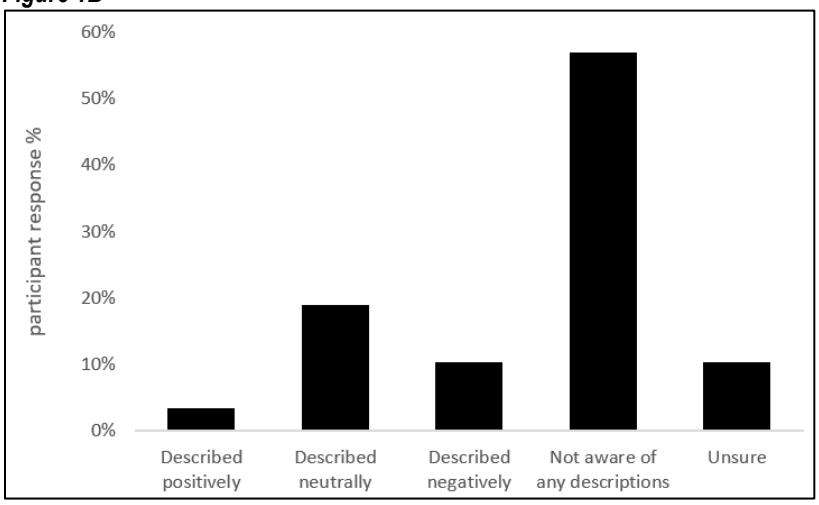


Table 2: Professional opinions of SATs towards athletes utilizing opioids and PRMs under prescribed and non-prescribed situations (HCP is Health Care Practitioner).

PROFESSIONAL Feelings Towards Athlete Taking PRESCRIBED Opioid	**%**
Positive	**7.58%**
Neutral/Indifferent	**68.18%**
Negative	**9.09%**
Unsure	**15.15%**
PROFESSIONAL Feelings Towards Athlete Taking NON-PRESCRIBED Opioid	**%**
Positive	**1.51%**
Neutral/Indifferent	**21.21%**
Negative	**54.55%**
Unsure	**22.73%**
PROFESSIONAL Opinion: How Are PRMs Used In Sport When PRESCRIBED to Athlete	**%**
Always used correctly under the guidance of a HCP	**5.17%**
Frequently used correctly under the guidance of a HCP	**24.14%**
Unsure how they are used	**41.38%**
Sometimes misused while under the guidance of a HCP	**27.59%**
Frequently misused while under the guidance of a HCP	**1.72%**
PROFESSIONAL Opinion: How Are PRMs Used In Sport When NOT PRESCRIBED to Athlete	**%**
Always used correctly according to the drug recommendations	**0.00%**
Frequently used correctly according to drug recommendations	**5.17%**
Unsure how they are used	**27.59%**
Sometimes misused according to the drug recommendations	**32.76%**
Frequently misused according to the drug recommendations	**34.48%**

Providing Athletes with PRM and Opioid Related Information

We observed in our survey that 50% of participants have had athletes approach them with PRM and opioid questions (44.83% responded negatively while 5.17% were unsure). When surveyed on whether they possessed sufficient knowledge to fully address athlete questions on PRMs and opioids, 58.62% of participants felt their knowledge was not sufficient (10.34% felt their knowledge sufficient, 20.69% were neutral, 5.17% were unsure, and 5.17% responded as not applicable). 32.76% participants felt comfortable discussing PRMs and opioids with athletes while 25.86% felt uncomfortable (3.45% felt very uncomfortable, 29.31% felt neutral, and 8.62% were unsure). Most participants (93.11%) felt either some or tremendous pressure to provide athletes with correct health-related information (5.17% felt no pressure to provide correct information and 1.72% were unsure).

A large portion of participants (77.59%) felt comfortable researching an athlete's question on opioids (10.34% were neutral, 8.62% were uncomfortable, 1.72% were unsure, and 1.72% responded not applicable). The top three sources ranked by participants for opioid information were professionals (faculty and health care providers), government websites (Centers for Disease Control and Health Canada), and library/peer reviewed sources such as textbooks (other results not shown). Other sources that participants would seek for PRM and opioid information to answer an athlete's questions included physician (94.74%), pharmacist (71.93%), head team therapist (68.42%), peer-reviewed articles (61.4%), faculty (40.35%), and internet (29.82%). Many participants (93.10%) indicated comfort reaching out to a superior (coach, certified Athletic Therapist, or manager) to help answer an athlete's question on opioids (1.72% were neutral, 3.45% were not comfortable, and 1.72% were unsure). On a professional level, 91.38% of participants felt that learning about PRMs and opioids was either very or extremely important (8.62% felt it was somewhat important).

Interacting with Athletes Using / Misusing Opioids

84.85% of participants had personal experience with PRMs (12.12% have no experience and 3.03% were unsure). When asked whether previous personal experience empowered them to provide appropriate athlete education on PRM use, 28.79% answered "yes", 33.33% answered "no", and 37.88% were unsure; this correlation was statistically significant (using a chi-squared test on cross tabulated data with $p < 0.05$; data not shown). Figure 2 shows participant confidence level when communicating PRM knowledge to athletes (A) and the impact of increased PRM knowledge in responding to athlete questions on pain management (B).

Figure 2. Confidence communicating PRM knowledge to athletes and the impact of increased PRM Knowledge on confidence level in responding to athlete's regarding pain management. In part A, responses are presented to the question "How confident are you communicating your knowledge of PRMs with athletes?" and in Part B, responses are provided to the question "Would having more knowledge of PRMs impact your confidence level in responding to athlete's questions about their pain management?". Response rates are provided in Table 1 and all responses are presented as % of the total responses provided for each question.

Figure 2A

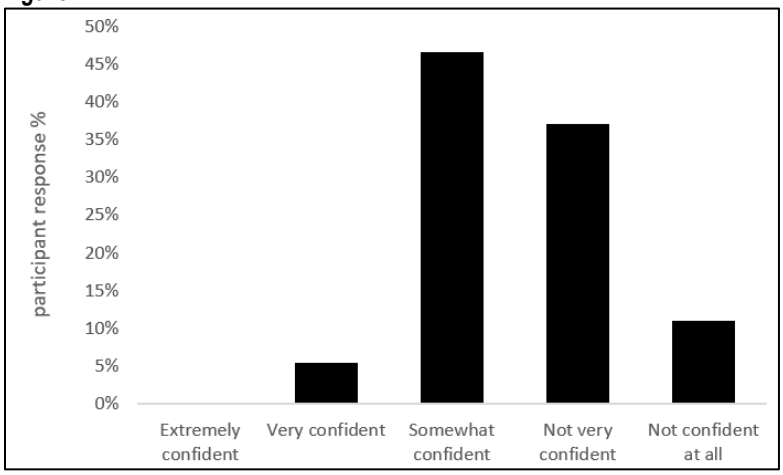
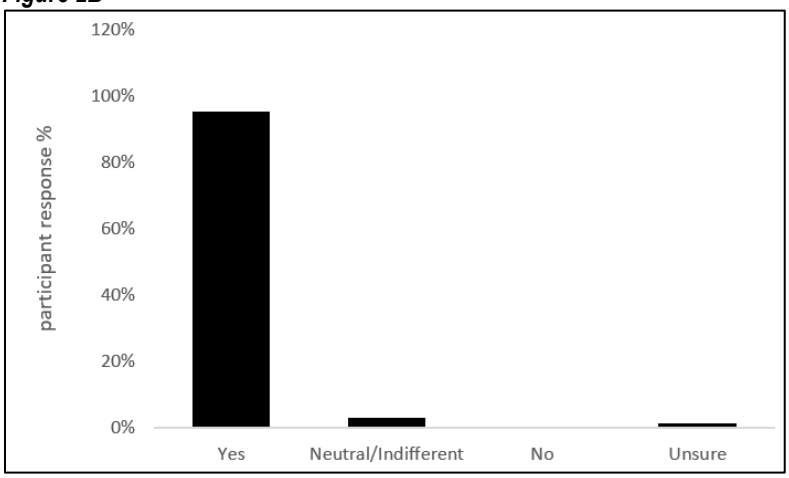


Figure 2B



Participant comfort level in recognizing whether an athlete was misusing opioids (A) and approaching an athlete to discuss their opioid misuse (B) can be seen in Figure 3.

Figure 3. Ability to recognize athlete's misusing opioids within a team and comfort level to approach an athlete to discuss opioid misuse. In part A, responses are presented to the question "When you are working with a team, would you be able to recognize whether an athlete was misusing opioids?" and in Part B, responses are provided to the question "How comfortable are you approaching the athlete(s) to discuss their opioid misuse?". Response rates are provided in Table 1 and all responses are presented as % of the total responses provided for each question.

Figure 3A

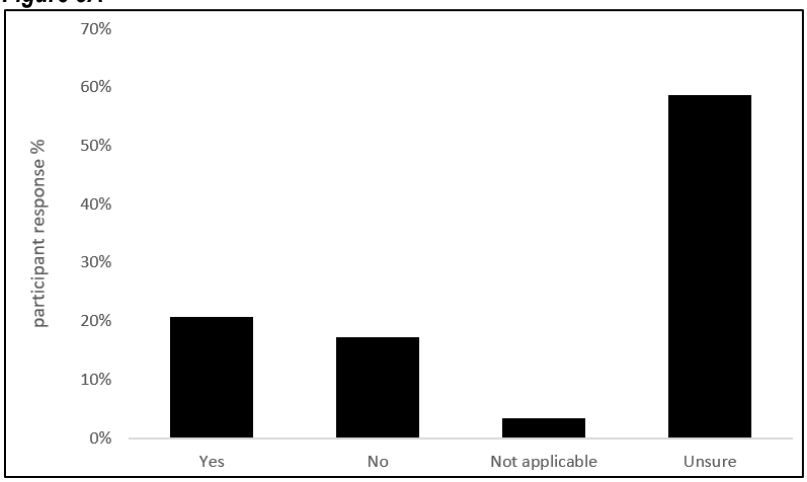
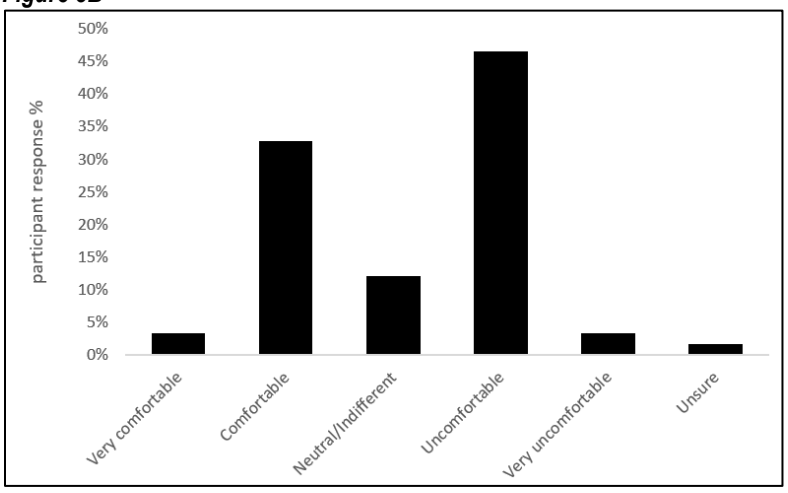


Figure 3B



When asked to rank the signs an athlete is misusing opioids, participants selected alterations in mood, difficulty breathing, and pinpoint pupils as the top three. The course of action taken when directly approached by an athlete asking about PRMS and opioids versus that taken when a conversation is overhead among athletes is shown in Table 3.

Table 3: SAT course of action when approached with opioid / PRM questions compared to overhearing conversations on utilizing such medications.

First Course of Action if Athlete Approaches With PRM / Opioid Questions	**%**
Defer answering their question until you obtain sufficient information	**15.52%**
Dismiss the conversation with the athlete	**0.00%**
Give athlete information on opioids you obtained directly from internet sources	**0.00%**
Give athlete information on opioids you obtained directly from reputable sources	**39.66%**
Refer the athlete to a doctor	**39.66%**
Share your personal opinion about opioid use with your athlete whether positive, negative or neutral	**3.45%**
Other responses: talk to my preceptor	**1.72%**
First Course of Action if Conversation on PRMs / Opioids is Overheard Among Athletes	**%**
Ignore the conversation	**1.72%**
Immediately approach the athlete(s) privately to discuss the issue	**17.24%**
Discuss with the athlete privately at a later time	**62.07%**
Unsure	**15.52%**
Other responses: reach out to preceptor and intervene	**3.45%**

With regards to uncomfortable situations related to PRMs and opioids, 8.62% of participants felt uncomfortable when asked about whether an athlete should engage in personal opioid use, 3.45% felt personally responsible for an athlete's opioid misuse, 25.86% had a member of the coaching staff ask them to provide a PRM to an athlete, 27.59% had other teammates ask them to provide a PRM to an athlete, 51.72% had an athlete directly asking them to provide them with a PRM, and 12.07% were asked to hold onto a non-prescribed PRM for future use by the athlete. No participants selected the option "was told to ignore an athlete's opioid use when on the roster to play" as an uncomfortable situation they have experienced. For all uncomfortable situations, participants were able to select all options applicable to them.

Academic Opioid / PRM Knowledge and Learning Preferences

When asked to reflect on their academic Athletic Therapy education, 59.65% of participants felt they possessed adequate knowledge to manage an athlete's pain (24.56% felt their knowledge was inadequate and 15.79% were unsure). This knowledge included both academic and non-academic sources; however, the majority of the knowledge was gained from years 1 – 4 of their athletic therapy programs (data not shown). When asked to rate the top three modalities to treat musculoskeletal pain in athletes, participants selected heat/ice therapy, electrical modalities, and rehabilitative exercises. More than half of the participants (63.16%) did not learn about the physical and/or psychological treatment options for opioid misuse in their curriculum (15.79% answered yes

while 21.05% were unsure). When asked to rank the negative side effects associated with opioid use, participants ranked physical dependence/tolerance/addiction, cognitive impairment, and blood pressure changes as the top three. In terms of positive effects of using opioids, participants ranked pain reduction (92.98%), relaxed feeling (43.86%), and decreased inflammation (40.35%) as the top three (other responses included improved mental health, mood improvement, gastrointestinal relief, nausea relief, and unsure).

Participants had a correct understanding of who can prescribe medications to an athlete, selecting either specialist doctor such as an orthopedic surgeon (96.49%) or a team doctor/dentist (96.49%); no selections were made for Athletic Therapists (practicing or student) as having the ability to prescribe medications. In support of this, most participants (94.74%) knew that Athletic Therapists should be able to refer an athlete to a health care practitioner for information on PRMs.

DISCUSSION

The purpose of this study was to further explore SAT knowledge of opioids and PRMs using a national setting among current and/or recently graduated SATs. Our objective was to explore SAT knowledge, comfort level, and knowledge sources on opioids and PRMs. Prescribing medications is not within an athletic therapist's scope of practice however counselling athletes and recognition of conditions are. Previous research has found that injured athletes use PRMs and opioids to manage their injuries/pain, therefore, it is highly likely that SATs have encountered athletes misusing opioids and PRMs.

Our results revealed that SATs possess basic PRM and opioid knowledge with most of the knowledge arising from their accredited educational institutions. A statistically significant correlation, however, was observed between personal PRM and opioid use and SAT empowerment to provide appropriate use information to athletes; this indicates that despite knowledge arising from educational institutions, comfort in educating athletes was based on the SAT's own personal use of such medications. Approximately half of the surveyed SATs reported that athletes have approached them with PRM questions, revealing that this is a common issue encountered by SATs during placements; this further supports that idea that SATs have likely encountered athletes using / misusing opioids in practice. Despite being approached with PRM questions, more than 50% of the participants revealed that they had little opioid knowledge and that their knowledge was not sufficient to answer the athlete's questions. SATs in this study expressed tremendous pressure to provide the athlete with correct health-related information related to PRMs (similar pressure sentiments have been reported elsewhere in the literature[4,13]) and this pressure may hinder their decision-making process as SATs feel accountable to teammates, coaches, and other key stakeholders. This pressure among SATs is further exacerbated by being asked to provide on-the-spot decisions regarding PRM and opioid use by athletes and can be seen in our results whereby SATs tend to provide inaccurate advice: SATs reported that opioid use is appropriate when the athlete is in significant short-term pain. Such a "decision" however is not part of the recommendations set forth by the IOC (International Olympic Committee) [17] and calls into question whether this is a recommendation that is routinely advocated by SATs. Although, the responses for potential side effects were correct, other side effects reported by SATs were incorrect indicating that although many felt their knowledge was sufficient, these answers call into question whether SATs truly understand their level of knowledge.

More than 50% of the participants in this study felt that opioids and PRMs are misused in sport. A difference in perception towards opioid use among athletes was observed in this study based on prescribed versus non-prescribed use: 50% of SATs harboured a negative view towards athletes utilizing a non-prescribed opioid while more than 65% of SATs felt neutral or indifferent towards prescribed opioid use. Such negative attitudes are concerning as they may prevent athletes from reaching out to health care providers for counselling. Eliminating stigma associated with opioid use is essential in creating open door "discussions" to help athletes who may be struggling with pain.[18] SATs must therefore be aware of their personal biases to ensure that the health of the athlete remains paramount.

Previous studies have shown that athletic trainers tend to feel they have a role in their patient's health with regards to PRMs, but are unsure of the definition of that role.[13] In 2017, the IOC published a consensus statement on pain management where one of the first recommendations was the use of non-pharmacological pain management strategies during the earliest / acute stages of pain.[17] Reinforcement of using non-pharmacological strategies to manage injuries is important and emphasizes the SATs scope of practice, particularly in light of the current opioid epidemic.[17,19] Additionally, NATA published a consensus statement regarding medication management within sports teams in 2018: the Athletic Trainer acts as a resource and must possess working knowledge of over the counter medication with minimal information given regarding other aspects (disposal, educational initiatives, policy changes etc.).[18,20] It is possible that a lack of concrete guidelines may factor into the pressure that Athletic Trainers and SATs experience towards opioid use among their athletes. [13,20]

This current study illustrates that SATs understood the importance of referring an athlete who is misusing opioids however putting that knowledge into practice may be difficult for the SAT who is struggling with potential stigma and pressure to ensure the athlete

plays safely. Further complicating matters, only 50% of surveyed SATs were unsure on how to recognize opioid use among athletes and 45% were unsure on their comfort level approaching an athlete who is potentially misusing opioids. SATs want more information on PRM use, since knowledge will empower them ultimately making them better able to perform their role in recognizing and referring athletes to appropriate health care services while placing aside their biases on opioid misuse. Given that the opioid epidemic has seeped into the athletic community,[3,6,8,10,14,21] it is essential that SATs be educated on both theoretical and clinical / applied pain management through the provision of educational modules on how to prevent, recognize, and manage athletes who are misusing opioids. The Canadian Pain Task force has found that pain education amongst health professionals generally needs improvement and that may include SATs.[21] Our results also show that participants do not feel that opioid misuse is discussed within their Athletic Therapy curriculum which may explain the difficulties SATs experience in discussing medication misuse with athletes. What is encouraging from our findings is that accredited programs are addressing educational content regarding PRM and opioids which is different from the results of our pilot study, however, the information may not be adequately translated to the SATs unless they've experienced PRMs and opioids personally. Misuse of opioids is an issue in Canada and has been identified as problematic from many government and media sources. CATA can therefore be a leader in providing both the public and its members with online resources on pain management strategies similar to NATA.[22]

Limitations

One of the strengths of this study is the amount of completed surveys with an overall response completion rate of 59%. Most responses, however, were collected from English speaking accredited athletic therapy programs due to translation limitations. Our results however are based on 7 of the currently 8 accredited programs in Canada (since 7 programs are English speaking and were targeted by this survey), which strengthens the observed results. In this study, we considered both PRMs and opioids however as a medication class, PRMs encompass many pharmacological agents and therefore future studies should further elucidate the perceptions students may have towards such specific pharmacological agents.

CONCLUSION

This is the first study to examine nationwide PRM and opioid knowledge levels among SATs. Academia is a source of knowledge for SATs on PRMs and opioids, however most SATs felt empowered to provide athletes education on such medications based on the SAT's own personal knowledge. By attempting to understand the drivers of SAT knowledge related to PRMs and opioids, we determined that there are some knowledge gaps that exist in current athletic therapy curriculum thereby creating a need to develop curricular content and educational initiatives specifically targeting PRMs and opioids. Future studies should explore how theoretical PRM knowledge among SATs can be translated into practical applications to further empower them regarding recognition. Additionally, we feel that accredited athletic therapy programs should include in their curriculum ways to curtail stigma and teach SATs strategies to alleviate the pressure they feel with regards to supporting their athlete's health.

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