

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

Athletes' expectations about sport injury rehabilitation: A cross-cultural study

Abstract

Context: Athletes enter injury rehabilitation with certain expectations about the recovery process, outcomes, and the professional providing treatment. Their expectations influence the effectiveness of the assistance received and affect the overall rehabilitation process. Expectations may vary depending on numerous factors such as sport experience, gender, sport-type and cultural background. Unfortunately, limited information is available on athletes' expectations about sport injury rehabilitation. **Objective:** To examine possible differences in athletes' expectations about sport injury rehabilitation based on their country of residence and type of sport (physical contact versus non-physical contact). **Design:** A cross-sectional design. **Setting:** Recreational, collegiate, and professional athletes from the United States (US), United Kingdom (UK) and Finland were surveyed. **Participants:** Of the 1209 athletes ranging from 12 to 80 years of age ($M_{age} = 23.46 \pm 7.91$), of which 529 US [80%], 253 UK [86%], and 199 Finnish [82%] provided details of their geographical location, were included in the final analyses. **Main Outcome Measures:** The Expectations about Athletic Training (EAAT) questionnaire was used to determine athletes' expectations about personal commitment, facilitative conditions, and the expertise of the sports medicine professional (Clement et al., 2012). **Results:** 3x2 MANCOVA revealed significant main effects for country ($p = .0001$, $\eta_p^2 = .055$) and sport type ($p = .0001$, $\eta_p^2 = .023$). Specifically, US athletes were found to have higher expectations of personal commitment and facilitative conditions than their UK and Finnish counterparts. Athletes participating in physical contact sports had higher expectations of facilitative conditions and the expertise of the sports medicine professional (SMP) as compared to athletes participating in non-physical contact sports. **Conclusions:** SMPs, especially those in the US, should consider the sport and environment when providing services. In addition, SMPs need to highlight and demonstrate their expertise during the rehabilitation process, especially for those who compete in physical contact sports.

Key words: injury, cultural issues, athlete-practitioner interactions, expectations, sports medicine professionals

Sport and exercise-related injury statistics in the United States (US),¹ United Kingdom (UK),² and Finland³ indicate that sport injuries throughout the world can be considered an inevitable part of most athletes' careers. Injured athletes often experience emotional distress,⁴ including feelings of anxiety and depression,⁴ which may cause other negative responses such as panic and helplessness,⁵ in addition to feelings of being "powerless and dependent."⁶ Therefore, it is not surprising that injured athletes place a great deal of trust and hope in the skills and knowledge of their sports medicine professionals (SMPs), such as an athletic trainer (AT), physiotherapist, and sport therapist.

According to the literature,^{7,8} trust and hope play a vital role in the relationship between injured athletes and their SMPs, and that association has been shown to be a significant predictor of effective treatment.^{7,9} Consequently, athletes who enter injury rehabilitation typically do so with certain expectations about their rehabilitation outcomes, and the SMP with whom they will be working.^{10,11} These expectations can become an integral part in the effectiveness of the assistance received¹² and may ultimately influence the efficiency of the rehabilitation process.⁸ When coupled with athletes' efficacy beliefs, these hopes can also play an important role in influencing their behavior during the rehabilitation process.¹³ Indeed, they may have an influence on whether injured athletes: (a) use the sports medicine services provided,¹⁴ and (b) engage in the required tasks as suggested by their SMP (e.g., home exercises and rest). Moreover, these expectations can subsequently have an influence on the working relationship between injured athletes and SMPs, which may influence the rehabilitation process (e.g., treatment compliance and adherence), as well as overall rehabilitation outcomes.¹⁵

Unfortunately, literature documenting athletes' expectations about sport injury rehabilitation is sparse. However, there are recent research studies that should be noted. In 2012, Clement et al.¹⁰ found that gender and previous experience with an SMP can influence athletes' expectations of ATs and the injury rehabilitation process. Feltham and Horton¹⁶ argue that cultural differences can significantly impact the formation of opinions and attitudes, as well as expectations about the efficacy of professional help. Thus, cultural background may also play a significant role in the knowledge, experiences, beliefs, values, and attitudes of various groups,¹⁸ which can ultimately influence expectations of treatment.¹⁷

Research indicates that ethnic minority groups (i.e., Black, Hispanic, and Asian) in the US in general are more likely to have lower expectations of medical care than their White counterparts.¹⁸ It would seem from these reports that competence may also contribute to the expectations from patients. In fact, research in the US has shown that patients with race-concordant care providers (i.e., patients and providers who are of similar race) are more satisfied with care than when served by race-discordant care providers.¹⁹ Thus, it is reasonable to presume that athletes' expectations of the sport injury process depend upon their cultural predispositions, norms, and values.

It is likely that cultural differences may also exist due to the type of sport that is played. For example, National Collegiate Athletic Association (NCAA) Division III collegiate athletes who had participated in individual sports were found to have perceived pain as more legitimate than did team sport participants.²⁰ In a similar way, cultural differences may also exist depending upon the amount of physical contact a sport requires. That is to say, physical contact sport

environments which emphasize dominance and toughness may reinforce athletes' acceptance of experiencing physical risk, pain, and injury in silence, without expressing emotions.²¹

In regards to athletic training, understanding potential cultural differences and possessing cultural competence have been recognized as foundational behaviors ATs should possess.²² More specifically, ATs should: (a) show awareness of the influence clients'/patients' cultural differences have on their own attitudes and behaviors toward healthcare; (b) demonstrate knowledge, attitudes, behaviors, and skills necessary to achieve optimal health outcomes for diverse patient populations; and (c) be able to work respectfully and effectively with diverse populations in diverse work environments.²² The importance of understanding cultural differences has also been recognized in other countries outside of the US, such as in Finland, where physiotherapy students are trained in "internationalization skills," that include "training in multicultural cooperative working skills."²³

In recent years, a SMP having the ability to provide culturally-appropriate health care has been magnified, especially in an increasingly multicultural environment.²⁴ Despite the importance of addressing cultural differences when working with injured athletes, it appears that the concept of culture in the context of sport injury rehabilitation practices has yet to be investigated in detail.²⁵ Likewise, investigations that have examined cultural differences as they relate to expectations about sport injury rehabilitation are limited. Therefore, the purpose of the present study was to examine if differences exist in athletes' expectations about sport injury rehabilitation based on their country of residence and type of sport.

Methods

Research Design and Setting

The present study used a cross-sectional research design to conveniently sample athletes from both the US and Europe. The US-based athletes were collegiate athletes, who were recruited from five universities across the nation. The European athletes were a mixture of collegiate, professional, and recreational club athletes from the West and East Midlands regions of the UK and Finland.

Participants

A total of 1262 athletes (462 women, 800 men, $M_{\text{age}} = 23.46 \pm 7.91$; age range: 12-80 years) residing in the US, UK, and Finland completed the Expectations about Athletic Training (EAAT) questionnaire (Clement et al., 2012). Of these, 53 were excluded due to incomplete data, leaving a total of 1209 athletes (of which 529 US [80%], 253 UK [86%] and 199 Finnish [82%] provided details of their geographic location) to be included in the final analyses. Of the respondents with complete data, 821 (66.9%) had seen a sports medicine professional at least once (US $n = 442$ [66.2%], UK $n = 207$ [65.3%], and Finland $n = 172$ [70.8%]).

All of the US based athletes were collegiate athletes. However, athletes from the UK and Finland were a mixture of collegiate, professional, and recreational club athletes (see Table 1). The athletes had an average of 10.09 ± 5.49 years of sport experience ($M =$ US 9.61 ± 28.00 ; UK 8.85 ± 27.75 ; Finland 13.02 ± 30.00). The sports represented by the sample were separated into two categories: Physical Contact sports and Non-Physical Contact sports (see Table 2). Physical Contact sports were defined as those sports that involved bodily contact, physical and verbal intimidation, as well as possible physical injury due to another competitor as part of the strategies of the game; whereas, Non-Physical Contact sports were considered to be those sports in which physical intimidation and physical contact with another individual rarely if ever

occured during competition.²⁶ A total of 687 athletes **who provided details of their type of sport** (182 women, 504 men) participated most often in Physical Contact sports representing American football ($n = 207$), soccer ($n = 190$) basketball ($n = 93$), ice hockey ($n = 59$), baseball ($n = 55$), rugby ($n = 27$), Brazilian jujitsu ($n = 16$), lacrosse ($n = 7$), cricket ($n = 6$), mixed martial arts and hockey (both $n = 5$), boxing, flag football, and submission wrestling (all $n = 4$), and fencing, judo, karate, taekwondo, water polo, wheelchair basketball and wrestling (all $n = 1$). In Non-Physical Contact sports, a total of 563 athletes **who provided details of their type of sport** (263 women, 284 men) participated in triathlon ($n = 156$), track and field ($n = 137$), swimming ($n = 61$), volleyball ($n = 32$), running ($n = 24$), softball ($n = 23$), cheerleading ($n = 21$), netball ($n = 15$), gymnastics and floorball (both $n = 11$), cross country and badminton (both $n = 8$), weightlifting ($n = 7$), tennis ($n = 6$), dance, exercise, golf, and horseback riding (all $n = 5$), racquetball ($n = 4$), skiing ($n = 3$), climbing, diving, orienteering, and trampolining ($n = 2$), and bike trial, cycling, fencing, Frisbee golf, ice skating and yoga (all $n = 1$).

Measure

The EAAT is a 66-item self-report questionnaire which assesses an athlete's expectations about athletic training. The EAAT consists of 18 scales, 17 of which measure three factors (Personal Commitment, Facilitative Conditions, and Athletic Trainer Expertise).^{27,28} More specifically, the Personal Commitment factor includes the following scales: (a) motivation; (b) openness; (c) responsibility; (d) attractiveness; (e) concreteness; (f) immediacy; and (g) outcome. The Facilitative Conditions factor includes: (a) acceptance; (b) confrontation; (c) genuineness; (d) nurturance; (e) self-disclosure; (f) tolerance; and (g) trustworthiness. Finally, the factor representing Athletic Training Expertise consists of: (a) directiveness; (b) empathy; and (c)

expertise. The 18th scale, Realism, assesses how realistic an athlete's expectations are concerning the rehabilitation process. Since this scale is based on the local situation, it is often examined separately in order to obtain meaningful results.²⁹ In the present study, participants were asked to respond to items based on the above-mentioned 18 scales using a 7-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The EAAT also includes a demographic section with questions that are primarily aimed at gaining background information about each participant's experiences in sport, and with athletic injuries. Items asked in the demographic section include: (1) gender, (2) age, (3) level of sport competition, (4) sport currently involved in, (5) years participating in the sport, (6) past experience with athletic training, and (7) previous use of mental skills in injury rehabilitation. Internal consistency values for all the scales of the EAAT ranged from 0.63 and 0.80, and test-retest reliability over a 2-week period for all the scales ranged from 0.50-0.89.¹⁰

The EAAT was modified for the UK and Finnish sample to take into account cultural differences. In the UK, the term, "athletic trainer" was changed to "physiotherapist" to reflect the differences in professional titles that are used in different cultural contexts. In Finland, the original EAAT questionnaire was translated into Finnish as follows:

1. The original EAAT was translated from English to Finnish by an independent sport psychology researcher who is fluent in both languages. At this stage, the term, "athletic trainer" was also changed and translated to "physiotherapist" to reflect the differences in professional titles that are used in different cultural contexts.

2. The Finnish-translated version was then back-translated into English independent of the original EAAT questionnaire by a sport psychology professional who is fluent in both languages, but who was not involved in the initial translations.
3. The differences in the content and meanings between back-translated and the original EAAT were then identified.
4. Any items displaying discrepancy in either content or meaning were then discussed, and the items in the Finnish version of the EAAT were revised/reworded to ensure that the original meaning of the items, as well as grammatically correct Finnish had been maintained. Such adjustments were minor in nature, except for the word “problem” which was translated into three expressions. In the Finnish EAAT, the word “problem” had been translated with corresponding Finnish words to describe the problem of injury itself, the problematic situation caused by the injury, or just any general problem, since these meanings cannot be expressed with just one word.
5. The Finnish EAAT was subsequently tested for its psychometric properties. The overall internal reliability (Cronbach’s alpha coefficient) for the Finnish version of the EAAT was found to be 0.79., making it consistent with the reliability scores that were obtained for the original EAAT questionnaire.

Procedure

Institutional review board approvals were obtained at each of the institutions involved prior to administration of the questionnaires. The surveys were administered in a range of ways, depending on the country in which the data was collected. Participants at the US and the UK universities received the questionnaires in person, either prior to, or after their practices or

classes. Some of the athletes in the UK received the survey hosted in SurveyMonkey® via national governing body member mailing list. In Finland, surveys were administered in person to a convenient sample of both non-university competitive athletes (club athletes) and university athletes who were studying sport-related courses. In case of participants under 18 years of age, parental consent was also obtained. At the beginning, participants were introduced to the purpose of the study, and then given information on how to complete the survey. On the first page of the EAAT form, participants were provided with the following instructions:

As an athlete, imagine that you are injured and about to see an athletic trainer/physiotherapist for your first visit. We would like to know just what you think about visiting an athletic trainer/physiotherapist (word changed to represent cultural differences) for sports injury rehabilitation. On the following pages you will find a number of statements about athletic training/physiotherapy. In each instance you are to indicate your level of agreement regarding what you expect the athletic training visit to be like.

Subsequent to these instructions, participants were asked to rate a number of items related to their expectations for an initial session, such as "I expect to like the athletic trainer/physiotherapist" or "I expect the athletic trainer/physiotherapist to tell me what to do" Then they were asked to select one of the Likert scale response categories that ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). Following completion of the EAAT questionnaire the participants were thanked for their participation. The survey required approximately 15 minutes of the participants' time.

Statistical Analyses

Due to the 18th scale, Realism, being dependent upon a local rehabilitation situation^{10,29}, it was excluded from the analyses, and the remaining three scales from the EAAT were used: Personal Commitment, Facilitative Conditions, and Athletic Training Expertise. The third scale (Athletic Training Expertise) will be henceforward referred to as Sports Medicine Professional (SMP) Expertise to account for both of the culturally-specific titles that were used for the purposes of this study. Thus, the mean response scores for Personal Commitment, Facilitative Conditions, and Sports Medicine Professional (SMP Expertise) were used to examine cross-cultural and sport type (Physical/Non-Physical Contact) differences. We conducted a 3x2 (US, UK, and Finland; Physical Contact and Non-Physical Contact) multivariate analysis of covariance (MANCOVA). Gender and past SMP Experience were controlled as the covariates because previous research has indicated that both influenced athletes' expectations.¹¹ We also conducted follow-up univariate ANOVAs to identify additional differences between the groups, and provided the relative importance of the dependent variables. Cronbach's alpha coefficients, for each of the subscales by country, were all above .70 (results for all countries: Personal Commitment \geq .80; Facilitative Conditions \geq .86; and SMP expertise \geq .70).

Results

The means and standard deviations of Physical Contact and Non-Physical Contact sport participants from the US, UK, and Finland are shown in Table 3. Results of the MANCOVA indicate a nonsignificant interaction for country by sport (Physical vs. Non-Physical Contact, Wilks' lambda = .99, $F(6, 1952) = 1.041$, $p = .396$), but in contrast, there were significant main effects for country and sport (Physical vs. Non-Physical Contact groups).

Country

The MANCOVA revealed a significant main effect for country, Wilks' lambda = .892, $F(6, 1952) = 19.080, p = .0001, \eta_p^2 = .055$. Follow-up univariate ANOVAs were conducted to identify those factors that maximized differences in athletes' responses from the US, UK, and Finland. Although univariate ANOVAs indicate a significant effect for Personal Commitment, $F(1, 978) = 24.068, p = .0001, \eta_p^2 = .047$, and Facilitative Conditions, $F(1, 978) = 16.842, p = .0001, \eta_p^2 = .033$, the magnitude of the effect size was small. US athletes ($M = 5.53, SD = .80$) had higher expectations of Personal Commitment to rehabilitation than did UK athletes ($M = 5.30, SD = .61$), or Finnish athletes ($M = 5.14, SD = .61$). Likewise, US athletes ($M = 5.42, SD = .83$) had higher expectations of Facilitative Conditions than did UK athletes ($M = 5.10, SD = .73$), or Finnish athletes ($M = 5.07, SD = .70$).

Sport Type

The MANCOVA also indicated a significant main effect for sport type (Physical Contact vs. Non-Physical Contact), Wilks' lambda = .977, $F(3, 976) = 7.572, p = .0001, \eta_p^2 = .023$. Follow-up univariate ANOVAs were conducted to identify the factors that maximized differences among the responses from Physical Contact and Non-Physical Contact athletes. The univariate ANOVAs did indicate a significant effect both for Facilitative Conditions, $F(2, 978) = 7.900, p = .005, \eta_p^2 = .008$; and SMP Expertise, $F(2, 978) = 10.131, p = .002, \eta_p^2 = .010$; however, the magnitude of the effect size was small. Physical Contact athletes ($M = 5.34, SD = .83$) had higher expectancies of Facilitative Conditions than did Non-Physical Contact athletes ($M = 5.18, SD = .75$). Likewise, Physical Contact athletes ($M = 5.39, SD = .85$) had higher expectancies of AT Expertise than did Non-Physical Contact athletes ($M = 5.20, SD = .83$).

Discussion

The purpose of this study was to examine whether differences exist in athletes' expectations about sport injury rehabilitation based on their country of residence and type of sport (Physical Contact versus Non-Physical Contact). Overall, no significant interaction was found for country by sport type; however, statistically significant main effects were found for both country and sport type. The following information will highlight the existent literature that supports and potentially contests our findings.

The results of the current study indicate that US athletes had higher expectations of Personal Commitment to the rehabilitation process than did their UK or Finnish counterparts. The Personal Commitment scale explores athletes' personal motivations to engage in injury rehabilitation, openness to the rehabilitation process, and personal responsibility for actions in rehabilitation. It appears that athletes from the US place higher importance on rehabilitation and their own roles in the process, when compared to athletes from the UK or Finland. This finding is likely reflective of the importance of athletics within the US collegiate sport culture as well as how sports medicine professionals (SMPs) are typically situated within the sport culture (i.e., athletic trainers work with the team on a day-to-day basis); whereas in the UK and Finland, SMPs are more common within higher-level sports only, and not among club/university/collegiate or recreational level sports. The highest levels within the university/collegiate structure in the US (i.e., NCAA Division I and II) also provide athletic scholarships, and athletes competing within these levels may be more committed to rehabilitation, and hence, more open to the rehabilitation process due to their need to earn or retain a scholarship. In addition, some professional sports in the US are more tied to success within the US university/collegiate system. While this is somewhat changing for some Physical

Contact Sports (e.g., basketball, and football), the main source of recruitment from professional organizations in the US are reliant upon the university system. Also, some students use college athletics to achieve their ultimate goal of playing at the professional sport level to have a career as a professional sport athlete which may provide additional incentive for compliance with their rehabilitation program. In contrast, for the sample of UK and Finland athletes, although they were mainly university/collegiate aged athletes, the structures of sports within the UK and Finland are more club-sport focused, and the hope of becoming an elite athlete is not tied as strongly to the university structure like in the US.

In addition, sports form an important part of the culture in the US and as such are strongly integrated into the American education system, with nearly all high schools and universities having athletic programs.²⁶ Typically, the role of “athlete” in the US is linked to popularity within the school or university, and receives more attention from within the collegiate community.^{26,30} Hence, due to these additional social reasons, US athletes may have higher expectations of Personal Commitment to the rehabilitation process in general and may be more committed to return to their sports after injury.

Coakley²⁶ argues that sport ethic describes what it means to be an athlete and includes norms that impact injury. The four components of the sport ethic include: **(1)** athletes make sacrifices for the game, **(2)** athletes strive for distinction, **(3)** athletes accept risks and play through pain, and **(4)** athletes accept no limits in the pursuit of possibilities.²⁶ According to Kenow and Kamphoff,³¹ sport ethic is considered to be a standard in the US sport culture, and as such, impacts sport injury occurrence, injury recovery, athletes’ expectation of SMPs, and the overall rehabilitation environment. This may be particularly true among those athletes who

engage in over-adherence to the sport ethic by playing to extremes and, when injured, they may do the same in the rehabilitation environment. For example, injured athletes may push their bodies above their healing limitations, and do everything in their power and beyond to return to play³¹; hence, their personal motivations and feeling of responsibility during the rehabilitation process will likely be higher.

Similar to the findings of Personal Commitment, US athletes had higher expectations of Facilitative Conditions than did their UK or Finnish counterparts. However, based on the mean scores, athletes from all three countries scored above the midpoint, indicating that such characteristics are valued across cultural contexts. Based on these results, it can be seen that athletes from the US appear to hold slightly higher expectations of SMPs to be honest, sincere, warm, interpersonally-skilled, calm, easy going, accepting, inspire confidence and trust, and facilitate positive regard. Such cultural differences are worth noting, particularly since previous research in both the US and UK have indicated that SMPs possess an appreciation for the psychological impact of injury and view addressing psychosocial aspects of injuries to be an important part of their role when rehabilitating injured athletes.³²⁻³⁶ Moreover, being aware of athletes' cognitive and emotional processes during injury rehabilitation, as well as using psychosocial techniques to expedite the development of Facilitative Conditions (e.g., use of positive self-talk, social support, goal setting and other techniques aimed to increase interpersonal communication, build a trusting relationship, inspire confidence, facilitate positive regard, and demonstrate warmth and acceptance) are accepted practices of SMPs regardless of their country of origin³⁹ (see Arivnen-Barrow & Walker, 2013 for more details on use of range of intervention techniques used in sport injury rehabilitation, see ³⁷rehabilitation). Although a

firm conclusion cannot be made based on the above consensus about importance of attending to psychosocial aspects of injuries during rehabilitation, it does seem unlikely that athletes' expectations of Facilitative Conditions are due to differences in how SMPs approach "care" across countries.

Perhaps the difference in Facilitative Conditions by country is due to a concept of "entitlement" that is experienced by US athletes. Every university/college athlete has ready access to an athletic trainer or sports medicine professional, and they have likely come to expect such services when injured. Similarly, the larger or "big-time" athletic programs within US collegiate athletics spend over \$60 million at some Universities (with highest total revenue reported as \$163 million)²⁶ and these athletes are treated like professional athletes due to these large investments.

Athletes at big-time programs may feel that they generate millions of dollars for the university, and that this popularity is tied more closely to their status as an intercollegiate athlete instead of their academic achievement; as a result, that perceived popularity affects their behaviors to be less involved in academics than their athletic achievement.^{28,40} Hence, the US collegiate culture may have created athletes that expect professionals to address and cater to their individual needs, including sports medicine professionals.¹⁰ Such feelings of entitlement may not be the case in the UK and Finland simply due to cultural differences in the structure of competitive sports.

Our analysis also revealed significant differences for the sport types: Physical Contact and Non-Physical Contact. Specifically, athletes in Physical Contact sports had higher expectations of Facilitative Conditions than did athletes participating in Non-Physical Contact

sports. Similarly, athletes in Physical Contact sports had higher expectations of SMP Expertise than did athletes participating in Non-Physical Contact sports. Some of the Physical Contact sports such as basketball and football, which were well represented in the sample, are often considered revenue-generating sports, whereas *all* of the Non-Physical Contact sports are viewed as nonrevenue-generating sports.^{26,38} Revenue-generating sports not only receive more financial support and resources, they also tend to receive more attention from fans and the media than nonrevenue-generating sports.³⁹ Hence, athletes in revenue-generating sports may expect higher Facilitative Conditions and SMP Expertise because they regularly receive specialized treatment more than nonrevenue-generating sport participants, or in this case, Non-Physical Contact sports. Not only do revenue-generating sport athletes feel pressured to perform at much higher levels, they also perceive injuries as an intrinsic part of playing sports, and therefore regularly expect to return to their sport soon after an injury.⁴⁰ The constant attention and available resources at their disposal may potentially lead revenue-generating sport athletes to expect higher levels of care from their SMPs. For example, athletes may be expecting SMPs to possess a broader range of facilitative personal qualities and much higher levels of expertise. Such findings may not be surprising, since many athletes who participate in Physical Contact sports are aware of the risks of participation, they expect that SMPs will be “there for them” when they become injured and will simply expect them to “Diagnose me, treat me, and make me fit again.”⁴⁰ Historically, and becoming more prevalent in recent years, SMPs have taken on additional roles in their professional capacities since they have saved lives on the sidelines of athletic events.⁴¹ This newly-perceived role as life-savers could potentially add to the expectation of them facilitating care with higher levels of expertise.

The results from the present study add to the existing literature that emphasizes the importance of SMPs to possess both knowledge and understanding of athletes' expectations and their individual differences, with the hope of optimizing care which is provided to athletes during injury rehabilitation. More specifically, this study highlights the importance of possessing awareness of possible differences in such expectations due to culture and sport type. Athletes who travel often, or permanently reside in countries other than their native origin, may have perceptions that differ from those residing in that country. That is to say, they may have attitudes and beliefs about what 'SMPs do and don't do' that is not consistent with the cultural context in which they are currently located. To provide the best care, SMPs should understand and apply an evidence-based approach to care, that includes sensitivity to cultural norms, as they relate to Personal Commitment of the athlete and a more Facilitative Environment.^{18,20,42,43} To best gain such sensitivity/knowledge, it might be beneficial for the SMPs to include a coursework on cultural communication and/or counselling to their training. Additionally, SMPs should be mindful of the attitudes and beliefs that are associated with certain sports (Physical Contact/Non-Physical Contact, revenue-generating/nonrevenue-generating, etc.) and how those factors may influence injured athletes' expectations of the Facilitative Environment and SMP Expertise.

From a practical perspective, facilitating Personal Commitment from athletes during injury rehabilitation is a relevant concern for SMPs. Extensive literature suggests that athletes' active involvement and adherence in the rehabilitation process leads to successful coping with injury,^{32,34-36,44} as well as positive rehabilitation outcomes (e.g., enhanced recovery).⁴⁵

In addition to facilitating Personal Commitment, SMPs should be concerned with ways to nurture a Facilitative Environment (offering social support, listening and being positive)^{8,40}

and apply their SMP Expertise (through injury education, use of targets/goal setting, answering questions and cutting edge treatments/exercises).⁴⁰ Furthermore, it is possible that Personal Commitment, Facilitative Conditions, and SMP Expertise influence each other; for example, SMPs may enhance Personal Commitment through demonstrating expertise as well as fostering a facilitating environment. In this manner, the EAAT questionnaire may be a useful tool to aid SMPs in understanding the preconceived expectations by athletes who have just incurred an injury. This understanding up front could provide useful information for SMPs who are interested in building a quality relationship with the injured athletes that they are treating. Moreover, this approach would allow SMPs to continue to meet individual and group needs as well as to help athletes form realistic expectations about their treatments. Although generalizations cannot be made, the results of this study suggest that SMPs may need to approach athletes from different sports and countries by first determining their existing beliefs and expectations. Then, to further foster a Facilitative Environment and enhance Personal Commitment, SMPs must ensure that the fulfillment of those expectations are realistic within the athlete's current cultural context. In addition, previous findings have suggested that expectations and attitudes (i.e., Personal Commitment and Facilitative Conditions) may differ by gender^{10,11} as well as previous rehabilitation experience.¹⁰

This study is not without its limitations and several are noteworthy. First, generalizability of the results from the present study may be limited because a convenient sample was used for obtaining participants. All participants from the US in this study were collegiate athletes, but the participation criterion of "athlete" was more inclusive with the sample of Finnish and UK participants. As mentioned previously, the structure and culture of sports among universities in

Finland and the UK is different, and consequently, athletes who had completed the survey included those who compete at various levels of competition (e.g., collegiate, professional, and recreational club athletes) and identified themselves as “athlete” regardless of whether they were attending college or not. This apparent lack of homogeneity among the sample can be seen as one disadvantage of the study. However, it also has an advantage to illustrate the apparent structural and cultural differences in how sports are organized among these different countries.

Another limitation was due to the researchers having limited control over the demographic characteristics gathered from the participants (e.g., age, ethnicity). Some institutional review boards had limited the type of demographic information that was allowed to be collected in order to preserve anonymity, especially with high profile athletes. Therefore, it was difficult to determine whether the current study precludes the researchers from knowing whether participants are represented in different cultural contexts (i.e., international students who were not in their native countries), and if their expectations may have varied from the majority (native participants) that had been sampled in each country. Given that the sample countries in this study were conveniently selected, it is suggested that future research should investigate the expectations of athletes from countries other than those investigated in this study, as well as assess athletes who are not residing in the country of their origin.

Another example of the present study’s limitations may have been the length of the EAAT questionnaire. The EAAT is a 66-item self-report questionnaire, and as such, some participants may have experienced questionnaire fatigue in their responses, and thus, did not provide accurate or truthful answers to the questions that were presented later.⁴⁶ Given the length of the EAAT, and in order for it to be a useful practical tool for SMPs, it may be worthwhile to

develop a shortened form in order to enhance the applied relevance of the measure. It may also be beneficial to expand upon the knowledge currently gained through the current study as well as other survey research^{10,11} by using qualitative methodology, and conducting cross-cultural interviews with athletes and coaches about their expectations concerning sport medical services.

As noted earlier in the Results section, the magnitude of the effect size was small for both analyses and as such, can be seen as another limitation of the study. A small magnitude of the effect size indicates that the strength of the relationship between the variables may not be strong enough,⁴⁷ and interpretation along with discussion of the meaningfulness of these results should be done with caution. Future research should address this drawback by including a larger, yet more equally-balanced sample of athletes who have differing levels of competitive experiences from various countries in order to gain a better understanding of possible cultural differences.

Conclusions

In conclusion, based on research findings to date, culturally-competent care of an injured athlete begins with acknowledgement of the athlete's differences based on gender, country of origin, and sport type. To facilitate sport-injury rehabilitation, care providers should factor in the athlete's own Personal Commitment, perceptions of Facilitative Conditions and perceptions of SMP Expertise. Those working with US athletes would likely benefit from considering the importance of sport participation to them academically, socially, and economically when providing a supportive rehabilitation environment. Likewise, when working with Physical Contact athletes, clinicians need to also demonstrate that their expertise in the recovery process meets the expectations of the injured athlete.

References

1. Conn JM, Annest JL, Gilchrist J. Sports and recreation related injury episodes in the US population, 1997-99. *Inj Prev*. June 1, 2003 2003;9(2):117-123.
2. Uitenbroek DG. Sports, exercise, and other causes of injuries: Results of a population survey. *Research Quarterly for Exercise and Sport*. 1996;67:380-385.
3. Konttinen N, Mononen K, Pihlaja T, Sipari T, Arvinen-Barrow M, Selanne H. Urheiluvammojen esiintyminen ja niiden hoito nuorisourheilussa - Kohderyhmänä 1995 syntyneet urheilijat [Sport injury occurrence and treatment in youth sports - athletes born in 1995 as a target population]. *KIHUn julkaisusarja nro 25 (PDF-julkaisu)*. 2011:1-16.
<http://www.kihu.jyu.fi/tuotokset/haku/index.php?hae=Tee+haku#TOC2011>.
4. Appaneal RN, Levine B, Perna FM, Roh L. Measuring postinjury depression among male and female competitive athletes. *Journal of Sport & Exercise Psychology*. 2009;31:60-76.
5. Washington-Lofren L, Westerman BJ, Sullivan PA, Nashman HW. The role of the athletic trainer in the post-injury psychological recovery of collegiate athletes. *International Sports Journal*. 2004;8:94-104.
6. Ermler KL, Thomas CE. Interventions for the alienating effect of injury. *Journal of Athletic Training*. 1990;25:269e271.
7. Hovarth AO, Greenberg LS. *The working alliance: Theory, research, and practice* New York, NY: Oxford University Press; 1994.
8. Russell H, Tracey J. What do injured athletes want from their health care professionals? *International Journal of Athletic Therapy & Training*. 2011;16(5):18-21.

- 489 **9.** Andersen MB. Collaborative relationship in injury rehabilitation: Two case examples. In:
- 490 Pargman D, ed. *Psychological bases of sport injuries*. 3rd ed. Morgantown, WV: Fitness
- 491 Information Technology; 2007:219-236.
- 492 **10.** Clement D, Hamson-Utley JJ, Arvinen-Barrow M, Kamphoff C, Zakrajsek RA, Martin
- 493 SB. College athletes' expectations about injury rehabilitation with an athletic trainer.
- 494 *International Journal of Athletic Therapy & Training*. 2012;17(4):18-27.
- 495 **11.** Arvinen-Barrow M, Clement D, Bayes N. Athletes attitudes towards physiotherapist.
- 496 *International Journal of Multi-Disciplinary Studies and Sports Research*.
- 497 2012;2(July):324-334.
- 498 **12.** Hardin SI, Subich LM, Holvey JM. Expectancies for counseling in relation to premature
- 499 termination. *Journal of Counseling Psychology*. 1988;35:37-40.
- 500 **13.** Bandura A. *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and
- 501 Company; 1997.
- 502 **14.** Leffingwell TR, Rider SP, Williams JM. Application of the transtheoretical model to
- 503 psychological skills training. *The Sport Psychologist*. 2001;15:168-187.
- 504 **15.** Fisher AC, Hoisington LL. Injured athletes' attitudes and judgements toward
- 505 rehabilitation adherence. *Journal of Athletic Training*. 1993;28(1):48-54.
- 506 **16.** Feltham C, Horton I, eds. *Handbook of counseling and psychotherapy*. London: Sage
- 507 Publications; 2000.
- 508 **17.** Fitzgerald MH. Multicultural clinical interactions. *Journal of Rehabilitation*.
- 509 1992;April/May/June:38-42.

18. Johnson R, Shah SA, J, Beach M, Cooper L. Racial and ethnic differences in patient perceptions of bias and cultural competence in health care. *Journal of General Internal Medicine*. 2004;19:101-110.
19. Saha S, Komaromy M, Koepsell T, Bindman A. Patient-physician racial concordance and perceived quality and use of health care. *Arch Intern Med*. 1999;159:997-1004.
20. Dover Wandner L, Devlin AS, Christler JC. Sports-related pain: Exploring the perception of athletes' pain. *Athletic Insight*. 2011;3(1):41-57.
21. Nixon HL. Explaining pain and injury attitudes and experiences in sport in terms of gender, race, and sports status factors. *Journal of Sport and Social Issues*. 1996;20:33-44.
22. National Athletic Trainers' Association. *Athletic Training Educational Competencies*. 5th ed ed. Dallas, TX: National Athletic Trainers' Association; 2011.
23. Jyväskylä University of Applied Sciences. Koulutusohjelma: Fysioterapian koulutusohjelma (Syllabus: Physiotherapy degree syllabus). . 2013; https://asio.jamk.fi/pls/asio/asio_rakenne_julkaisu.rakenne_komp_osaamisalue?ckohj=SP&T&csuunt=99999&cvuosi=2S&caste=N&cark=2012-2013. Accessed March 10th, 2013.
24. Schinke RJ, Hanrahan SJ, Catina P. Introduction to cultural sport psychology. In: Schinke RJ, Hanrahan SJ, eds. *Cultural Sport Psychology*. Champaign; IL: Human Kinetics; 2009:3-12.
25. Marra J, Covassin T, Shingles RR, Branch Canady R, Mackowiak T. Assessment of certified athletic trainers's level of cultural competence in the delivery of health care. *Journal of Athletic Training*. 2010;45(4):380-385.

- 531 **26.** Coakley JJ. *Sport in society: Issues and controversies*. 11th ed. Boston, MA: McGraw-
532 Hill; 2014.
- 533 **27.** Martin SB, Akers A, Jackson AW, et al. Male and female athletes' and nonathletes
534 expectations about sport psychology consulting. *Journal of Applied Sport Psychology*.
535 2001;13(1):18-39.
- 536 **28.** Tinsley HEA. *Expectations about counseling*. Carbonale, IL, Southern Illinois
537 University; 1982.
- 538 **29.** Levant RF, Pollack WS, eds. *A new psychology of men*. New York, NY: Basic Books;
539 1995.
- 540 **30.** Chandler TJL, Goldberg AD. The academic All-American as vaunted adolescent role-
541 identity. *Sociology of Sport Journal*. 1990;7(3):287-293.
- 542 **31.** Kenow LJ, Kamphoff C. Socio-cultural aspects of injury and injury response. In:
543 Granquist MD, Hamson-Utley JJ, Kenow L, Stiller-Ostrowski J, eds. *Psychosocial*
544 *strategies for athletic trainers: An applied and integrated approach*. Philadelphia, PA:
545 FA Davis Publishers; in press.
- 546 **32.** Arvinen-Barrow M, Penny G, Hemmings B, Corr S. UK chartered physiotherapists'
547 personal experiences in using psychological interventions with injured athletes: an
548 interpretative phenomenological analysis. *Psychology of Sport & Exercise*.
549 2010;11(1):58-66.
- 550 **33.** Hemmings B, Povey L. Views of chartered physiotherapists on the psychological content
551 of their practice: a preliminary study in the United Kingdom. *British Journal of Sports*
552 *Medicine*. 2002;36(1):61-64.

- 553 **34.** Lafferty ME, Kenyon R, Wright CJ. Club-based and non-clubbased physiotherapists'
554 views on the psychological content of their practice when treating sports injuries
555 *Research in Sports Medicine*. 2008;16:295-306.
- 556 **35.** Larson GA, Starkey C, Zaichkowsky LD. Psychological aspects of athletic injuries as
557 perceived by athletic trainers. *The Sport Psychologist*. 1996;10(1):37-47.
- 558 **36.** Clement D, Granquist MD, Arvinen-Barrow M. Psychosocial aspects of athletic injuries
559 as perceived by athletic trainers *Journal of Athletic Training*. 2013;48(4):512-521.
- 560 **37.** Arvinen-Barrow M, Walker N, eds. *Psychology of sport injury and rehabilitation*.
561 Abington: Routledge; 2013.
- 562 **38.** Martin SB, Andersen MB. Helping intercollegiate athletes in and out of sport. In: Van
563 Raalte JL, Brewer BW, eds. *Exploring sport and exercise psychology*. 3rd ed.
564 Washington, DC: American Psychological Association; 2013.
- 565 **39.** Armentrout S, Kamphoff C, Thomae J. Photographic images in sports illustrated for kids:
566 An analysis of sport coverage and gender representation. *Manuscript submitted for*
567 *publication*. 2012.
- 568 **40.** Arvinen-Barrow M, Massey WV, Hemmings B. Role of sport medicine professionals in
569 addressing psychosocial aspects of sport-injury rehabilitation: Professional athletes'
570 views. *Journal of Athletic Training*. 2014;49:764–772.
- 571 **41.** Casa DJ, Anderson SA, Baker L, et al. The inter-association task force for preventing
572 sudden death in collegiate conditioning sessions: Best practices recommendations.
573 *Journal of Athletic Training*. 2012;47(477-480).

- 574 **42.** Douglas M. Pain is the fifth vital sign: Will cultural variations be considered? *Journal of*
575 *Transcultural Nursing*. 1999;10:285.
- 576 **43.** Trawalter S, Hoffman K, Waytz A. Racial bias in perceptions of others' pain. *PLOS*
577 *ONE*. 2012;7(11):1-8.
- 578 **44.** Arvinen-Barrow M, Hemmings B, Weigand DA, Becker CA, Booth L. Views of
579 chartered physiotherapists on the psychological content of their practice: A national
580 follow-up survey in the United Kingdom. *Journal of Sport Rehabilitation*. 2007;16:111-
581 121.
- 582 **45.** Brewer BW, Cornelius AE, Van Raalte JL, et al. Rehabilitation adherence and anterior
583 cruciate ligament reconstruction outcome. *Psychology, Health, & Medicine*. 2004;9:163-
584 175.
- 585 **46.** Rathod S, LaBruna A. Questionnaire length and fatigue: Does size really matter?
586 *ESOMAR. Worldwide Panel Research Conference 2005 Proceedings*. 2005.
587 [http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-](http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-and-fatigue.php)
588 [and-fatigue.php](http://www.esomar.org/web/research_papers/Web-Panel_1092_Questionnaire-length-and-fatigue.php). Accessed August 15, 2013.
- 589 **47.** Tomczak M, Tomczak E. The need to report effect size estimates revisited. An overview
590 of some recommended measures of effect size *TRENDS in Sport Sciences*.
591 2014;1(21):19-25.