

Role of Sport Medicine Professionals in Addressing Psychosocial Aspects of Sport-Injury Rehabilitation: Professional Athletes' Views

Monna Arvinen-Barrow, PhD, CPsychol*; William V. Massey, PhD, CC-ASSP†; Brian Hemmings, PhD, CPsychol‡

*University of Wisconsin-Milwaukee; †Concordia University Wisconsin, Mequon; ‡St Mary's University, Twickenham, United Kingdom

Context: Research from the sport medicine professional's (SMP's) perspective indicates that SMPs are often required to address psychosocial aspects of injuries during treatment. However, only a few authors have investigated injured athletes' experiences with these concerns.

Objective: To explore injured professional athletes' views on the role of SMPs in the psychosocial aspects of sport-injury rehabilitation.

Design: Qualitative study.

Setting: Professional association football and rugby union clubs.

Patients or Other Participants: Ten professional, male football (n = 4; 40%) and rugby union (n = 6; 60%) players (age = 22.4 ± 3.4 years).

Data Collection and Analysis: We collected data using a semistructured interview guide, and the data were then transcribed and analyzed following the interpretative phenomenological analysis guidelines. We peer reviewed and triangulated the established emergent themes to establish trustworthiness.

Results: Athletes in our study viewed injuries as “part and parcel” of their sports. Despite normalizing sport injuries, athletes reported frequent feelings of frustration and self-doubt throughout the rehabilitation process. However, athletes' perceived the role of SMPs in injury rehabilitation as addressing physical concerns; any intervention aimed at psychosocial outcomes (eg, motivation, confidence) needed to be subtle and indirect.

Conclusions: The SMPs working with injured athletes need to understand the psychosocial principles that underpin athletes' sport-injury processes and the effect psychosocial reactions can have on athletes. Moreover, SMPs must understand the self-regulatory processes that may take place throughout injury rehabilitation and be able to apply psychological principles in natural and subtle ways to aid athletes' self-regulatory abilities.

Key Words: athlete–sport medicine professional expectations, psychosocial rehabilitation, qualitative research, sport psychology

Key Points

- Even though injured athletes viewed injuries as “part and parcel” of their sports, they experienced a range of psychosocial responses, including frustration and feelings of self-doubt.
- Injured athletes viewed the role of sport medicine professionals as attending to the physical aspect of the injury. Therefore, any psychosocial interventions should be subtle.

Several researchers^{1–5} have suggested that sports medicine professionals (SMPs; ie, athletic trainers, physiotherapists), who are in regular contact with athletes during treatment, are in an ideal position to inform, educate, and assist with both the psychosocial and physical processes of injury. Indeed, it appears that SMPs are the first to attend to the injured athletes' needs⁶ and are often present immediately after an injury has taken place—a time when the levels of pain and confusion experienced by the athlete are at their worst. Yet, despite a belief by SMPs that psychosocial strategies are necessary to increase the effectiveness of injury rehabilitation^{7–10} and evidence to suggest the efficacy of such approaches,^{11–13} many SMPs feel inadequately trained to address the psychosocial aspects of injuries and to implement psychosocial strategies.^{14,15}

When investigating the influences of the sport medicine team on the psychosocial aspects of athletes' sport injuries, research documenting the perceptions of the injured athletes is limited. In their study of Australian physiotherapists and professional male basketball players, Francis et al¹⁶ found that both the physiotherapists and the professional basketball players generally felt that psychological aspects were an important part of rehabilitation and that communication and motivation were important parts of the rehabilitation process. Yet neither the physiotherapists nor the basketball players perceived the use of psychological skills, such as relaxation techniques and imagery, as particularly useful during the process of injury rehabilitation.¹⁶ Other investigations of SMPs' views yielded similar findings. For example, 99.7% of sport medicine physiotherapists surveyed in the United Kingdom⁸ and 74.4% of the US athletic trainers¹⁷ surveyed believed that, to some extent, all athletes

are psychosocially affected by their injuries.⁸ In both studies, the key strategies used with athletes were creating variety in rehabilitation exercises and short-term goal setting. In addition, SMPs are reported^{2,18–22} to have central roles in dealing with injured athletes' typical psychosocial responses to injuries and in influencing their overall recovery. Ideally, an athlete will have access to a range of allied health professionals during rehabilitation, including a sport psychologist²³; however, very rarely do athletes outside of professional sport have access to such services,^{8,17,24} thereby highlighting the need for the SMP to develop competencies in the psychosocial aspects of injury rehabilitation.

For example, Petitpas and Danish²⁵ reported that SMPs working with injured athletes need to attend to the person as well as to the physical needs. Ray et al²⁶ also noted that SMPs are an important source of emotional first aid to athletes during injury recovery, and they should be using a range of psychosocial counseling techniques and strategies (eg, goal setting and social support) with injured athletes. Furthermore, Harris et al²⁷ acknowledged that SMPs should be skilled enough to recognize a range of psychosocial reactions experienced by injured athletes; should have the skill set to intervene (ie, use basic psychosocial strategies); and, in case of clinical concerns (eg, depression, substance abuse, eating disorders), should recognize the need for referral. Recently, the Education Council of the National Athletic Trainers' Association released the fifth edition of *Educational Competencies*²⁸ for athletic trainers. Derived from growing evidence in this area, it states that all athletic trainers should understand the theoretical background of psychosocial aspects of patient care and the use of psychosocial strategies, should be able to implement psychosocial strategies in their work with injured athletes, and should intervene and refer when necessary.

Given the educational competency requirements for athletic trainers and the evidence in support of the need to address psychosocial aspects of injuries for all SMPs, the role of self-regulation as part of the psychosocial needs of athletes during injury rehabilitation must be considered. Athlete *self-regulation*—the ability of the athlete to manage his or her thoughts, feelings, and behaviors and to delay gratification to achieve a longer-term objective^{29,30}—may be affected by a physical injury. In particular, researchers^{8,9,16,17,31} have demonstrated that athletic injuries elicit stress, fatigue, and negative emotions, all of which can undermine an individual's ability to self-regulate future behavior.^{32,33} Although self-regulation strategies, such as planning and monitoring goals and ongoing evaluation, are beneficial to sport performance,^{34–36} SMPs must understand how those strategies might be implemented within a sport-injury rehabilitation program. Similarly, because Massey et al³⁷ reported that self-regulation was important in overcoming the pain and stress of daily training in combat sport, how an athlete self-regulates behavior through the pain and stress of injury rehabilitation should be considered.

Although SMPs have a role in the psychosocial aspects of injury rehabilitation and training programs need to help SMPs develop psychosocial competencies,³⁸ limited evidence exists regarding injured athletes' expectations of sport-injury rehabilitation,³⁹ particularly the role of SMPs in addressing psychosocial aspects of injuries and their use of psychosocial interventions. Not knowing how injured

athletes perceive the role of the SMPs in addressing psychosocial aspects of injuries during rehabilitation can be problematic for 3 main reasons: (1) if athletes do not perceive addressing psychosocial aspects of injuries as the role of SMPs, then implementing psychosocial strategies as part of physical rehabilitation can have a negative effect on the overall relationship between the SMP and the athlete; (2) if a poor relationship develops during rehabilitation and psychosocial strategies are used unnecessarily or inappropriately, it can affect overall rehabilitation and recovery; and (3) if athletes feel SMPs should not be addressing psychosocial factors during rehabilitation, the SMPs may be unnecessarily trained in something athletes are not expecting from them in the practice of their work. Therefore, the purpose of our study was to explore professional athletes' experiences with and expectations of the psychosocial aspects of sport-injury rehabilitation, with the aim of gaining an insight into their views about the role of SMPs in addressing the psychosocial aspects of sport-injury rehabilitation.

METHODS

Design

The qualitative approach best suited for our study was interpretative phenomenologic analysis⁴⁰ (IPA): “If a researcher is interested in exploring participants' personal and lived experiences, in looking at how they make sense and meaning from those experiences, and in pursuing a detailed idiographic case study examination, then IPA is a likely candidate for consideration as a research approach.”^{41(p48)} Interpretative phenomenologic analysis has roots in phenomenology because it involves a detailed examination of the participant's' personal world,⁴² and IPA draws from hermeneutics—the theory of interpretation and understanding of texts. In addition, IPA is influenced by symbolic interactionism, in which the meanings that are assigned to events by the individual are a central part of the process of understanding, and those meanings are only realized through a process of social engagement and interpretation. Therefore, IPA uses an inductive (ie, bottom-up) approach to research questions⁴³ because the participants are the experts in their own thoughts, perceptions, and feelings, which are presented through telling stories and talking about their experiences. According to Reid et al,^{43(p20)} “IPA... offers psychologists the opportunity to learn from the insights of the experts—research participants themselves.”

Participants

We contacted a sample of officials from professional association football and rugby union clubs in the United Kingdom and asked them to pass information on to their male players. As a result, several previously injured players contacted 1 of the researchers (M.A.-B.) and agreed to take part in the study. We then interviewed a convenience sample of 10 professional association football (n = 4; 40%) and rugby union (n = 6; 60%) players (age = 22.4 ± 3.4 years). All participants were employed full time within their sport, had a history of sport-related injuries (minor to severe), had recently recovered from a severe sport-related injury, and on average, had their subsequent sport

Table. Interview Questions

1. Could you tell me how you got involved with your sport?
2. What are your most memorable sporting moments?
3. Could you tell me about your injury experiences?
4. In your own words, could you tell me how your sport injury has impacted your life?
5. Can you tell me the brief history of your own experiences in attending physiotherapy treatment for rehabilitation?
6. After your injury, apart from physiotherapists, who else did you go and see?
7. In your own words, what do you expect from the physiotherapy treatment?
8. Did you discuss your expectations and aspirations with your physiotherapist?
9. Could you tell me how did you feel during your physiotherapy treatment?
10. Did you discuss these feelings with your physiotherapists?
11. What are your experiences of getting psychological support from the physiotherapist?
12. What are your views on physiotherapists using psychological intervention techniques as part of the rehabilitation process?
13. What is your opinion on combining physical and psychological rehabilitation?
14. If it were possible to do so, in hindsight, what aspects of your rehabilitation would you change (if any)?

participation restricted because of the injury for 19 weeks (range = 6–40 weeks). The most recent injuries among the athletes included hamstrings injuries ($n = 2$; 20%), broken thumbs ($n = 2$; 20%), discectomy ($n = 2$; 20%), broken leg ($n = 2$; 20%), torn knee cartilage ($n = 1$; 10%), and hernia ($n = 1$; 10%). At the time of the interview, all participants had recently returned to their sport (within the prior 2–3 weeks) and continued to receive treatment from their SMPs (not the same person for all athletes in this study) to ensure a successful transition back to playing. None of the athletes had received support from a sport psychologist during their sport-injury rehabilitation process.

Interview Protocol

We developed a semistructured interview protocol by following the guidelines set by Smith⁴⁴ and Smith and Osborn.⁴² We designed the interview questions (see the Table) broadly for open-ended answers to provide participants with an opportunity to tell us about their experiences and expectations, rather than guiding the interview in any predetermined direction. The first part of the interview focused on the athlete's past experiences of sport involvement and offered an opportunity for him to provide background information regarding his sporting career. We used the questions "Could you tell me how you got involved in your sport?" and "What are your most memorable sporting moments?" as ice breakers to begin the interview. Those questions were followed by questions about the athlete's past injury experiences, including the role of SMPs in those experiences. The second part of the interview emphasized an athlete's personal experiences and views of the psychosocial aspects of rehabilitation.

Consistent with previous research using IPA in sport,²¹ we carried out a pilot interview with an international-level association football player who had fully recovered from a severe sport-related injury. The interview lasted 40 minutes, was transcribed verbatim, and was subsequently analyzed. Based on the analysis, we reworded some of the

questions to ensure participants' understanding and re-ordered them to ensure logical progression from 1 topic to another; the revised questions were then tested in a second pilot interview lasting 25 minutes. Based on the pilot interviews, we made a few alterations to the interview protocol, mainly in the form of paraphrasing questions so they were more "participant friendly" and to ensure they were framed and organized in a manner that was consistent with IPA tradition.

Procedure

Our study followed the ethical principles set by the British Psychosocial Society,⁴⁵ and the study was approved by the relevant university's ethics committee before data collection began. Before the interviews, we gave the participants an information sheet about the research. At the start of each interview, the participant completed a demographic sheet, and we spent approximately 30 minutes on general discussion to build rapport with the participant. All interviews were conducted face-to-face by the lead author (M.A.-B.) in a private room at the athlete's training grounds. The researcher used a tape recorder for the interviews, switching it on after the general discussion. On average, the taped interviews lasted 40 minutes (range = 20–55 minutes). Although the interviews followed the topic guidelines, the researcher deviated from the guide to ensure that both parties had an opportunity to expand on any issues they felt important.

Analysis

We transcribed the interviews verbatim and used pseudonyms to ensure anonymity. Following the IPA procedures described by Smith et al.,⁴⁶ we first conducted an in-depth familiarization of the data by reading and rereading the transcripts several times. Then, we randomly selected 1 of the interview transcripts (participant with the pseudonym Alex) to start the analysis. In the left margin, the first author annotated the transcript to ensure the researchers' full understanding of the participants' account. In addition, the first author also noted preliminary comments, associations, and summaries in the left margin. Using the preliminary notes as a guide, she documented emergent associations and themes in the right margin. Then she created a master file of the emergent themes from the transcript by using the MindGenius Education Enterprise program (version 2005; MindGenius Ltd, East Kilbride, South Lanarkshire, United Kingdom). That computerized formation provided us with a clear visual display of the emergent themes.

We then repeated the procedure for all of the remaining transcripts, using the master list generated from Alex's transcript as a template for the subsequent transcripts. We modified the template to account for any differences among original themes that emerged from Alex and the other participants. We compared the lists of themes from each participant to look for connections among the participant responses. We then collated the identified themes and combined them with actual quotes from the transcripts. This procedure enabled us to cluster the subordinate themes into the overarching superordinate themes. We dropped some of the themes because of a lack of support from most of the transcripts.

During the course of the analysis and to ensure interrater reliability, we peer reviewed and triangulated the transcripts and emerging themes and agreed on the final themes. All reviewers involved in data analysis and triangulation had postgraduate-level training in qualitative methods and specialized in either the psychology of sport injuries or health psychology. In addition, we gave each participant the chance to review and comment on his interview transcript, but none of the participants took that opportunity.

RESULTS

Based on the IPA analysis, we found commonalities in the athletes' views of the role of SMPs in addressing psychosocial aspects of rehabilitation. Overall, the athletes in this study expected to be injured and considered injuries part of the job. For instance, Joe stated that "being professional, it's the job, and injury is part of the job." Tony also viewed injury as "part and parcel of the game; you have just got to accept it, and get over it, and just... do what you have been told to do basically." In support, Alex elaborated, "I don't know what the stats are, but I'm sure every single player is going to have an injury at 1 stage or another, whether it be small or big...; not everyone is injury prone, but whatever they call it, it's just part and parcel of the game."

Psychosocial Responses to Injuries

Despite athletes' perceptions that injuries were part of their sport, all the athletes noted that sport injuries had an emotional effect on their lives. When discussing his reactions to the injury, Robert replied, "Um, initially I was shocked; I mean I'm a big guy, and I think I'm superman, so when I broke my leg, I couldn't believe it; it took a while just to, just to... [...] to sink in." Depending on the individual athlete, the emotional responses varied from feelings of initial "shock/disbelief" and feelings of "sinking" to "feeling low" and "depression," being "upset," "guttled," and "annoyed." Four athletes saw the injury as an opportunity to assess and appreciate their career and skills in a realistic manner, and 3 athletes reported changes in their mood during the course of the injury. In addition to these responses, the 2 most recurrent emotional responses identified by the injured athletes themselves were self-doubt and frustration.

Self-Doubt. Many injured athletes recognized the increased levels of self-doubt and worry about their career and ability to play again as part of the process of rehabilitation. When asked about the effect of his injury on his life, Robert stated, "There was a stage where I never thought I'd be... [the] same as I was prior to my injury, you know." Similar responses emerged from most of the athletes, but often statements about self-doubt were quickly followed by comments about how injuries were "part and parcel of the job" and athletes just need to accept them and get back to being able to play.

Frustration. In addition to feelings of self-doubt, another prominent reaction to injuries was frustration. Most players indicated frequent feelings of frustration because of their injuries. Some of the main causes of frustration were boredom with the repetitive rehabilitation exercises and not being able to do what they wanted. Tony noted, "Because

you're just doing the same old stuff, you are just bored and frustrated, and you think, 'humph, I've had enough of this,' you know." Daniel, who had undergone a hernia operation, said, "I knew it would be painful if I did anything, but I couldn't do anything, so it was a bit frustrating." In a similar manner, Joe talked about his frustration in relation to his thumb injury:

It was very frustrating because the only thing it was stopping me from doing was from passing and catching a ball and making tackles, but I could run, I could swim, I could bike, everything; I just couldn't, you know, have that contact, that sharp contact, so that was frustrating.

Based on the responses, it was clear that, in addition to the physical injury, psychosocial repercussions affected the athletes, most notably self-doubt and frustration. Because SMPs are often the first to intervene and usually act as the athletes' main point of contact for the duration of the rehabilitation,⁴⁷ we examined the athletes' views of the role of the SMP in addressing the psychosocial aspects of rehabilitation, along with the physical rehabilitation.

Sport Medicine Professional as the Primary Treatment Provider

The athletes in our study appeared to have very well-defined expectations and views of what they perceived the SMP's role to be during injury rehabilitation. For many athletes, that role was related to the physical aspects of the injury and to communication between the SMP and the athlete.

Diagnose Me, Treat Me, and Make Me Fit Again. During the actual process of rehabilitation, all athletes expected the SMPs to provide them with correct diagnoses and appropriate treatments and to do the best they could to ensure the athletes returned to full fitness as soon as possible. Ryan indicated that, for him, the key was to "diagnose it [the injury] early, and do the right treatment straight away." Tony stated that SMPs should display "real interest in trying to find out what it is... but they are determined to get me back right as soon as they can." Jason expected nothing less than "them [the SMPs] to give 100%," and Joe wanted to "get back on the field as quick as possible. It doesn't really matter how they do it... as long as they do it." Joe's feelings were also shared by Mark and Daniel, who just wanted "to get on with it" as it relates to injury rehabilitation. Thus, athletes did not want to be pitied but rather they wanted the SMP to give them the tools necessary to move forward.

The SMP-Athlete Communication: Psychosocial and Physical Expectations. Despite the athletes being open about how they felt during injury and what they expected the role of SMPs to be in their injury rehabilitation, they rarely discussed those feelings and expectations with their SMPs. In fact, when it came to discussing how the athletes felt about the injury or rehabilitation, they assumed that the SMPs already knew. For instance, Alex commented, "Sometimes I'll say, 'Look, I'm quite frustrated,' but I suppose they know." Similarly, Duncan said, "...I didn't discuss it [his emotions and expectations] with him; I just kind of expected it, which sounds a bit arrogant now really, but that's kind of what I was thinking; thinking that I'm

injured.” Ryan stated that he, too, did not discuss his feelings with the SMP because “He can just pick up on it; a lot of them just pick up on the way you feel—that you can’t be asked, you can’t be bothered because you’re really struggling today.”

Although our results suggest that the athletes rarely discussed their personal expectations, emotions, feelings, and worries with their SMPs, all athletes believed that open and honest communication was vital for recovery. Much of that communication was based on discussions about pain and how much a particular rehabilitation technique was hurting the athlete. For example, Jason indicated that it was important to tell the SMP about the pain you are feeling “because you are the only person who knows.” The reasons why pain emerged as a dominant topic for discussion during treatment can possibly be explained through the athletes’ views on the SMP’s role in treating sport injuries. As we demonstrated earlier, athletes’ expectations of the SMPs in the rehabilitation process were physically oriented and focused solely on the actual physical injury. According to Joe, “I don’t think... I think that their role is to, is to have a hands-on approach in a physical way rather than a mental way.”

The SMP’s Role in Addressing Psychosocial Aspects of Rehabilitation: Simple and Subtle Strategies

Based on our results, athletes felt that it was not necessarily the role of the SMPs to explicitly deal with psychosocial aspects of rehabilitation. In a similar manner, the athletes did not recall their SMPs using any psychosocial strategies during their rehabilitation because most of them were not sure if a psychosocial component existed as part of their rehabilitation. Joe, for instance, did not know whether he was receiving psychosocial support from the SMP, “I don’t think... no, um..., psychologically, um, I don’t see it; um, I don’t think there’s any psychological back-up, but maybe it is or maybe it isn’t, you kind of don’t know...” Similarly, Ryan did not recall any explicit psychosocial support, “I didn’t think that they... they don’t really do this psychology side, or you don’t think of it in that way... they motivate you, yes; so, I suppose that’s a part of it.” Additionally, other athletes talked about their experiences of receiving psychosocial support, but again, that support seemed very subtle. For example, Duncan felt that his SMP helped him to stay positive by making jokes and highlighting the areas where he had made progress.

The SMPs Set “Me” Targets. Our results indicated that the psychosocial support the athletes received was subtle. Most athletes in our study did not recall any explicit experiences of receiving psychosocial support during injury rehabilitation; however, many of them described their SMPs setting targets (ie, goals) for them to work toward. Duncan found this process very useful because it gave him something to work toward. In his experience, it was the SMP who set the dates for different physical goals (eg, running again, sprinting again, a date for his first game). Mark set physical and performance goals with his SMP. Tony also regarded goal setting as important but emphasized the importance of goal flexibility:

They’re not the be all and end all, you know? ... It is not definite; if you’ve not reached that target, you have not

failed that target, we will just adjust it. Then, hopefully, we ... might be able to do that, you know; hopefully, maybe in a couple of weeks you may be able to start running....

The athletes in our study appeared to know the importance of setting goals, yet evidence of systematic goal setting was sparse. Most athletes explained they had to “move the goal posts” on a number of occasions because of setbacks and obstacles that had emerged during the rehabilitation process, thus, demonstrating an understanding of setting flexible goals.^{48,49} The athletes also explained how different physical activities and targets could be structured through the use of goal setting. Goal setting was often dictated by the SMPs, rather than being a mutual planning process between the injured athlete and his SMP.

The SMPs: A Source of Social Support. The athletes also discussed the SMP as an important source of social support, although they did not explicitly call it *social support*. This type of support was best received when it was presented in a subtle manner. For example, Joe talked about how his SMP would motivate him and keep him informed after a hard session, whereas Christian valued the “telling-off” from his SMP and his coaches when he showed signs of noncompliance by choosing to miss a rehabilitation session. For Joe, the support from his SMP was viewed as friend-like behavior: “It’s almost a friendly thing in as much as if a brother or sister would say ‘come on, you can do it,’ or ‘push it a bit harder’; it’s not seen, by me anyway, as a psychosocial thing.” Christian also felt that merely being interested in how the players were doing was viewed as supportive and having formal meetings to address psychosocial issues was seen as not necessarily part of the SMP’s remit:

They are interested in the players and how we get on, like as to how we’re doing. ... [T]hey’re intrigued as to how we are getting on, that’s supportive, but in terms of like, er, sitting down and chatting about your injuries; er, there’s only so much they can do.

On the other hand, Ryan did not feel that SMPs were in a position to provide motivational support and perhaps that SMPs sometimes came on too strong: “Sometimes, I have been, few times, and I feel like, oh God, the physios are trying to motivate you, but you feel like they’re having a go at you.”

Athletes in our study perceived their injuries as being part of their job and reported a range of psychosocial reactions to injuries. As such, we feel addressing both physical and psychosocial aspects of injuries during rehabilitation should be important. However, it also appeared that these athletes had very clear views about the role of SMPs in addressing the psychosocial aspects of sport injury and rehabilitation. In principle, they perceived the role of the SMPs to be the primary provider: to treat the physical injury and not to dabble with the psychosocial aspects of injury. Thus, although a stigma may still exist as it relates to psychosocial “help” for athletes, our results indicate that the most effective SMPs were able to use subtle interventions to assist athletes in rehabilitation, without making them feel as if they were receiving psychosocial services.

DISCUSSION

Drawing from our results, it is evident that injured athletes in this study appraise their injuries as “part and parcel” of the sport, and psychosocial aspects of injury and the rehabilitation process were not something athletes often considered. Although the athletes appeared to pay little attention to their emotional responses to injury, they openly discussed prominent feelings of self-doubt and frustration, suggesting a discrepancy between their feelings and how important they perceived those feelings to be. Given that those emotional responses can affect both the physical and psychological functioning of athletes during injury rehabilitation,⁵⁰ SMPs need to understand the possible range of emotions and learn how to work effectively with athletes to enhance both the physical and psychological aspects of injury rehabilitation.

The disparity between athletes’ emotional responses and the importance of addressing psychosocial aspects of injury during rehabilitation was further highlighted by an apparent stigma about receiving “psychological help” throughout the rehabilitation process. Previous researchers^{51,52} demonstrated a stigmatization of mental health services, which might be exacerbated in sport professionals, such that attending to physical injuries remains normative, and athletes are expected to remain mentally tough in the presence of physical pain and stressful situations.⁵³ Thus, although scholars such as Hamson-Utley⁵⁴ have argued for holistic treatment approaches and both physical and psychological processes are important to injury rehabilitation,^{55,56} SMPs may require a more complex skill set to understand the psychological processes that occur during injury rehabilitation and to be able to address those issues in a subtle, nonthreatening manner.

For holistic and effective treatment in injury rehabilitation, client adherence rates to rehabilitation programs remain a notable concern in the literature^{57–59} because nonadherence to a rehabilitation program increases the risk of a subsequent injury.⁶⁰ Motivation for participating in an injury-rehabilitation program is an often-cited factor in treatment adherence, compliance, and subsequent rehabilitation outcomes (see, eg, Beneka et al¹¹ and Brewer⁶¹). In our study, SMPs’ subtle use of strategies aimed at increasing an injured athlete’s self-regulation was vital to the rehabilitation process. Researchers^{32,62,63} have argued that self-regulation has a prominent role in human behavior, yet it is a limited resource that is expended with use³⁰ and is adversely affected by negative emotions (eg, self-doubt, frustration), stress, and fatigue. Therefore, it is logical to consider the role of self-regulation in the injury-rehabilitation process. Germane to our study and consistent with the results of previous research,^{33,37} participants supported the use of goal setting and social support as self-regulatory strategies facilitated by SMPs to enhance the rehabilitation process.

Good communication between the SMP and the athlete was considered vital by the athletes in our study; however, the athletes seldom discussed with their SMP the feelings of self-doubt, frustration, or other emotional concerns they had during the rehabilitation process. Instead, the athletes typically made the assumption that the SMPs knew how they felt, calling attention to the need for SMPs to initiate an open line of communication with the athletes they serve. Furthermore, interpersonal

interactions can affect an individual’s level of self-regulatory capacity,³³ and SMPs need to establish a pattern of communication that will not increase levels of self-doubt or frustration for the athlete undergoing rehabilitation. Athletes in our study talked openly to their SMPs about any concerns or unhappiness they may have experienced in relation to physical aspects of rehabilitation, such as whether any particular exercise was too painful. Thus, SMPs should consider an approach in which they are actively engaged in dialogues regarding the physical processes of injury, while being attuned to the possible psychosocial processes of injuries, such as cognitive and emotional reactions and barriers that may undermine the rehabilitation process.^{8,17,50}

Based on our results, we feel there are several points of note. First, the athletes reported their SMPs set targets for them throughout their rehabilitation and that they found this practice beneficial. Therefore, we recommend that SMPs use systematic goal setting during rehabilitation for several reasons: (1) previous authors have consistently supported the use of goal setting, monitoring, and evaluating to aid in self-regulation^{32,33,37}; (2) during goal setting, physical, psychological, performance, and lifestyle goals can be easily planned to complement each other^{64,65} and become a natural part of the holistic approach to rehabilitation; (3) goal setting, when implemented appropriately, involves dialogue between the athlete and the SMP—thus facilitating communication,⁶⁶ trust, and rapport; and (4) athletes are central in the goal-setting process,⁶⁴ which can help them feel more in control of the injury and the rehabilitation—both situations in which athletes typically feel powerless and rely heavily on SMPs to show them the “route” to successful recovery. Moreover, setting goals is a vital part of an athlete’s everyday life, and a range of studies^{67,68–71} have highlighted the importance of also setting goals during injury rehabilitation. In particular, setting goals during injury rehabilitation has been suggested to have a positive effect on the athlete’s psychosocial and physical healing.⁶⁵ In addition, effective goal setting has the potential to facilitate increased levels of effort, persistence, and commitment⁷² and to encourage rehabilitation adherence,⁷³ which, in turn, can positively affect the athlete’s emotional responses (ie, reduced frustration and feelings of self-doubt) and facilitate a successful return to sport.

Another useful technique that can be implemented during sport-injury rehabilitation by SMPs is social support. Udry^{74,75} identified 4 types of social support applicable to sport-injury rehabilitation: emotional, informational, tangible, and motivational. Other investigators, including Arvinen-Barrow et al,²¹ Taylor and Taylor,⁶⁵ and Mitchell et al,⁷⁶ supported these recommendations about the extent to which the different types of social support should be used and by whom, factors that often depend on the individual athlete’s personal and situational factors. Given our results, we suggest that social support be an integral part of all sport-injury rehabilitation. When athletes perceive that they are cared for, their motivation and self-regulation toward rehabilitation will likely increase,⁷⁷ and their coping responses to the situations that arise during the rehabilitation will be more adaptive. Because of the close nature of the athlete–SMP relationship, SMPs are in an ideal position to provide athletes with a sense of support and, as such, should understand the

different types of social support and how to apply them within a sport-injury context. The SMPs should also recognize their own role as a possible source of social support and to understand the importance of other people as a source of social support,⁴⁷ which might mean that their own role as a source of social support could be diminished or become redundant.

Finally, we feel the apparent disparity between the perceptions of injured athletes and SMPs about typical emotional responses to injuries and the lack of communication about those responses can be problematic. Clear evidence in the literature^{78,79} indicates that an injured athlete's emotional responses can affect subsequent behavior and self-regulatory capacity during rehabilitation. For example, feelings of self-doubt may limit the motivation or self-regulation needed to engage in rehabilitation activities as planned. Although that lack of engagement can manifest as nonadherence, which has typically been addressed by goal setting, intervention is likely to be ineffective if it fails to address the cause of the disengagement (ie, self-doubt). Thus, by maintaining open and honest lines of communication, SMPs may be better able to identify psychosocial barriers to rehabilitation, thereby enhancing the effectiveness of any physically based intervention.

In a similar manner, understanding and being aware of an athlete's feelings of frustration, and, in particular, the cause of the frustration is important. Feelings of frustration can have many causes, including, among others, simply being injured, not being able to play, or continued pain. Depending on the cause of frustration, the most beneficial psychosocial strategy can vary; thus, the lines of communication must always be open. For example, if an athlete is frustrated because of the injury or inability to play, then adding variety in rehabilitation exercises and setting goals for alternative activities may be the most beneficial. However, if an athlete is frustrated because of recurrent pain, then relaxation techniques or other pain-reducing methods would be more appropriate.

Although the athletes in our study did not specifically discuss their emotional responses to injury with their SMPs, they did openly discuss their pain levels. Therefore, SMPs should consistently check on the pain an athlete is experiencing because that may have implications for various psychosocial responses that could affect motivation and self-regulation, such as self-doubt regarding rehabilitation or frustration with the process. Given the integral role injured athletes assign to SMPs in their rehabilitation, it is vital that SMPs be competent in handling the range of responses—both physical and psychosocial—to injury rehabilitation.

Limitations

Our study is not without its limitations. Because we used qualitative methods, the findings cannot be generalized to the population of all injured athletes. The athletes in our study received rehabilitation treatment from a club SMP on a daily basis, and therefore, their experiences might be different from those attending private-practice sessions less often. Also, a professional athlete might experience sport psychology differently from athletes at lower levels of competition. Moreover, we used a cross-sectional design

that did not allow for data collection during the life cycle of the injury but was instead retrospective. In addition, the injuries experienced by our study participants were mainly acute bone and tissue injuries, which might not be comparable with other types of injuries (eg, cognitive injuries, chronic injuries).

CONCLUSIONS

In our study, all athletes experienced psychosocial responses to sport injury, but seeking help to address these was influenced by a stigma. We believe it is important for SMPs working with injured athletes to understand the psychosocial principles that underpin the sport-injury process of athletes and the effect psychosocial reactions can have on the athlete. We think SMPs should be able to apply psychological principles to their work with natural and subtle methods. They also need to understand the underpinnings of self-regulation and how these might affect the rehabilitation and recovery process. Understanding how setting goals and eliciting social support can facilitate athletes' self-regulatory capacities can assist SMPs in providing psychosocial support that is subtle and a natural part of the rehabilitation process.

REFERENCES

1. Gordon S, Potter M, Ford IW. Toward a psychoeducational curriculum for training sport-injury rehabilitation personnel. *J Appl Sport Psychol*. 1998;10(1):140–156.
2. Gordon S, Potter M, Hamer P. The role of the physiotherapist and sport therapist. In: Crossman J, ed. *Coping With Sport Injuries: Psychological Strategies for Rehabilitation*. New York, NY: Oxford University Press; 2001:62–82.
3. Pearson L, Jones G. Emotional effects of sports injuries: implications for physiotherapists. *Physiotherapy*. 1992;78(10):762–770.
4. Wiese DM, Weiss MR. Psychological rehabilitation and physical injury: implications for the sportsmedicine team. *Sport Psychol*. 1987;1(4):318–330.
5. Wiese DM, Weiss MR, Yukelson DP. Sport psychology in the training room: a survey of athletic trainers. *Sport Psychol*. 1991;5(1):15–24.
6. Wiese-Bjornstal DM, Smith AM. Counseling strategies for enhanced recovery of injured athletes within a team approach. In: Pargman D, ed. *Psychological Bases of Sport Injuries*. Morgantown, WV: Fitness Information Technology; 1993:149–182.
7. Larson GA, Starkey C, Zaichowsky LD. Psychological aspects of athletic injuries as perceived by athletic trainers. *Sport Psychol*. 1996;10:37–47.
8. Arvinen-Barrow M, Hemmings B, Weigand D, Becker CA, Booth L. Views of chartered physiotherapists on the psychological content of their practice: a national follow-up survey in the UK. *J Sport Rehabil*. 2007;16(2):111–121.
9. Hemmings B, Povey L. Views of chartered physiotherapists on the psychological content of their practice: a preliminary study in the United Kingdom. *Br J Sports Med*. 2002;36(1):61–64.
10. Ford IW, Gordon S. Perspectives of sport trainers and athletic therapists on the psychological content of their practice and training. *J Sport Rehabil*. 1998;7(2):79–94.
11. Beneka A, Malliou P, Bebetos E, Gioftsidou A, Pafis G, Godolias G. Appropriate counselling techniques for specific components of the rehabilitation plan: a review of the literature. *Phys Train*. 2007. http://ejmas.com/pt/2007pt/ptart_beneka_0707.html. Accessed August 14, 2008.

12. Flint FA. Specialized psychological interventions. In: Flint FA, ed. *Psychology of Sport Injury*. Leeds, UK: Human Kinetics; 1998:29–50.
13. Ievleva L, Orlick T. Mental links to enhanced healing: an exploratory study. *Sport Psychol*. 1991;5(1):25–40.
14. Hamson-Utley JJ, Martin S, Walters J. Athletic trainers' and physical therapists' perceptions of the effectiveness of psychological skills within sport injury rehabilitation programs. *J Athl Train*. 2008;43(3):258–264.
15. Stiller-Ostrowski JL, Hamson-Utley JJ. Athletic trainers' educational satisfaction and technique use within the psychosocial intervention and referral content area. *Athl Train Educ J*. 2010;5(1):4–11.
16. Francis SR, Andersen MB, Maley P. Physiotherapists' and male professional athletes' views on psychological skills for rehabilitation. *J Sci Med Sport*. 2000;3(1):17–29.
17. Clement D, Granquist MD, Arvinen-Barrow MM. Psychosocial aspects of athletic injuries as perceived by athletic trainers. *J Athl Train*. 2013;48(4):512–521.
18. Jevon SM, Johnston LH. The perceived knowledge and attitudes of governing body chartered physiotherapists towards the psychological aspects of rehabilitation. *Phys Ther Sport*. 2003;4(2):74–81.
19. Arvinen-Barrow M. *Psychological Rehabilitation From Sport Injury: Issues in the Training and Development of Chartered Physiotherapists* [thesis]. Northampton, UK: The University of Northampton; 2009.
20. Crossman J. Psychological rehabilitation from sports injuries. *Sports Med*. 1997;23(5):333–339.
21. Arvinen-Barrow M, Penny G, Hemmings B, Corr S. UK chartered physiotherapists' personal experiences in using psychological interventions with injured athletes: an interpretative phenomenological analysis. *Psychol Sport Exerc*. 2010;11(1):58–66.
22. Crossman J. Managing thoughts, stress, and pain. In: Crossman J, ed. *Coping With Sport Injuries: Psychological Strategies for Rehabilitation*. New York, NY: Oxford University Press; 2001:128–147.
23. Green LB. The use of imagery in the rehabilitation of injured athletes. *Sport Psychol*. 1992;6(4):416–428.
24. Lafferty ME, Kenyon R, Wright CJ. Club-based and non-club-based physiotherapists' views on the psychological content of their practice when treating sports injuries. *Res Sports Med*. 2008;16(4):295–306.
25. Petitpas A, Danish SJ. Caring for injured athletes. In: Murphy S, ed. *Sport Psychology Interventions*. Champaign, IL: Human Kinetics; 1995:255–281.
26. Ray R, Terrell T, Hough D. The role of the sports medicine professional in counseling athletes. In: Ray R, Wiese-Bjornstal DM, eds. *Counseling in Sports Medicine*. Champaign, IL: Human Kinetics; 1999:1–20.
27. Harris LL, Demb A, Pastore DL. Perceptions and attitudes of athletic training students toward a course addressing psychological issues in rehabilitation. *J Allied Health*. 2005;34(2):101–109.
28. National Athletic Trainers' Association. *Athletic Training Educational Competencies*. 5th ed. Dallas, TX: National Athletic Trainers' Association; 2011.
29. Baumeister RF. Ego depletion and self-control failure: an energy model of the self's executive function. *Self Identity*. 2002;1(2):129–136.
30. Gailliot MT, Baumeister RF, DeWall CN, et al. Self-control relies on glucose as a limited energy source: willpower is more than a metaphor. *J Person Soc Psychol*. 2007;92(2):325–336.
31. Heaney C. Physiotherapists' perceptions of sport psychology intervention in professional soccer. *Int J Sport Exerc Psychol*. 2006;4:67–80.
32. Bandura A. *Self-Efficacy: The Exercise of Control*. New York, NY: WH Freeman and Company; 1997.
33. Baumeister RF, Vohs KD, Tice DM. The strength model of self-control. *Curr Direct Psychologic Sci*. 2007;16(6):351–355.
34. Orlick T, Partington J. Mental links to excellence. *Sport Psychol*. 1988;2(2):105–130.
35. MacNamara A, Button A, Collins DJ. The role of psychological characteristics in facilitating the pathway to elite performance, part 1: identifying mental skills and behaviors. *Sport Psychol*. 2010;24(1):52–73.
36. MacNamara A, Button A, Collins DJ. The role of psychological characteristics in facilitating the pathway to elite performance, part 2: examining environmental and stage-related differences in skills and behaviors. *Sport Psychol*. 2010;24(1):74–96.
37. Massey WV, Meyer BB, Naylor AH. Towards a grounded theory of self-regulation in mixed martial arts. *Psychol Sport Exerc*. 2013;14(1):12–20.
38. National Athletic Trainers' Association. *Athletic Training Educational Competencies*. 4th ed. Dallas, TX: National Athletic Trainers' Association; 2006.
39. Clement D, Hamson-Utley JJ, Arvinen-Barrow M, Kamphoff C, Zakrajsek RA, Martin SB. College athletes' expectations about injury rehabilitation with an athletic trainer. *Int J Athl Ther Train*. 2012;17(4):18–27.
40. Smith JA. Beyond the divide between cognition and discourse: using interpretative phenomenological analysis in health psychology. *Psychol Health*. 1996;11(2):261–271.
41. Smith JA. Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qual Res Psychol*. 2004;1(1):39–54.
42. Smith JA, Osborn M. Interpretative phenomenological analysis. In: Smith JA, ed. *Qualitative Psychology: A Practical Guide to Research Methods*. Thousand Oaks, CA: Sage Publications Inc; 2003:51–80.
43. Reid K, Flowers P, Larkin M. Exploring lived experiences. *Psychologist*. 2005;18(1):20–23.
44. Smith JA. Semi-structured interviewing and qualitative analysis. In: Smith JA, Harre R, van Langenhove L, eds. *Rethinking Methods in Psychology*. London, UK: Sage Publications Inc; 1995.
45. The British Psychological Society. *Code of Ethics and Conduct*. Leicester, UK: The British Psychological Society; 2006.
46. Smith JA, Jarman M, Osborn M. Doing interpretative phenomenological analysis. In: Murray M, Chamberlain K, eds. *Qualitative Health Psychology: Theories and Methods*. London, UK: Sage Publications Inc; 1999:218–240.
47. Clement D, Arvinen-Barrow M. Sport medicine team influences in rehabilitation: a multidisciplinary approach. In: Arvinen-Barrow M, Walker N, eds. *The Psychology of Sport Injury and Rehabilitation*. Abingdon, UK: Routledge; 2013:156–170.
48. Gilbourne D, Taylor AH. From theory to practice: the integration of goal perspective theory and life development approaches within an injury-specific goal-setting program. *J Appl Sport Psychol*. 1998;10(1):124–139.
49. Gould D. Goal setting for peak performance. In: Williams J, ed. *Applied Sport Psychology: Personal Growth to Peak Performance*. Palo Alto, CA: Mayfield; 1986:133–148.
50. Wiese-Bjornstal DM, Smith AM, Shaffer SM, Morrey MA. An integrated model of response to sport injury: psychological and sociological dynamics. *J Appl Sport Psychol*. 1998;10(1):46–69.
51. Ben-Porath DD. Stigmatization of individuals who receive psychotherapy: an interaction between help-seeking behavior and the presence of depression. *J Soc Clin Psychol*. 2002;21(4):400–413.
52. Vogel DL, Wade NG, Hackler AH. Perceived public stigma and the willingness to seek counseling: the mediating roles of self-stigma and attitudes toward counseling. *J Counsel Psychol*. 2007;54(1):40–50.

53. Jones G, Hanton S, Connaughton D. What is this thing called mental toughness? An investigation with elite performers. *J Appl Sport Psychol.* 2002;14(3):211–224.
54. Hamson-Utley JJ. Psychology of sport injury: a holistic approach to rehabilitating the injured athlete. *Chin J Sports Med.* 2010;29(3): 343–347.
55. Kamphoff C, Thomae J, Hamson-Utley JJ. Integrating the psychological and physiological aspects of sport injury rehabilitation: rehabilitation profiling and phases of rehabilitation. In: Arvinen-Barrow M, Walker N, eds. *Psychology of Sport Injury and Rehabilitation.* Abingdon, UK: Routledge; 2013:134–155.
56. Brewer BW, Andersen MB, Van Raalte JL. Psychological aspects of sport injury rehabilitation: toward a biopsychological approach. In: Mostofsky DI, Zaichkowsky LD, eds. *Medical Aspects of Sport and Exercise.* Morgantown, WV: Fitness Information Technology; 2002: 41–54.
57. Taylor AH, May S. Threat and coping appraisal as determinants of compliance with sports injury rehabilitation: an application of protection motivation theory. *J Sports Sci.* 1996;14(6):471–482.
58. Udry E. Coping and social support among injured athletes following surgery. *J Sport Exerc Psychol.* 1997;19(1):71–90.
59. Brewer BW. Adherence to sport injury rehabilitation programs. *J Appl Sport Psychol.* 1998;10(1):70–82.
60. Granquist MD, Brewer BW. Psychological aspects of rehabilitation adherence. In: Arvinen-Barrow M, Walker N, eds. *Psychology of Sport Injury and Rehabilitation.* Abingdon, UK: Routledge; 2013: 40–53.
61. Brewer BW. Review and critique of models of psychological adjustment to athletic injury. *J Appl Sport Psychol.* 1994;6(1):87–100.
62. Baumeister RF, Heatherton TF, Tice DM. *Losing Control: How and Why People Fail at Self-Regulation.* San Diego, CA: Academic Press; 1994.
63. Muraven M, Shmueli D, Burkley E. Conserving self-control strength. *J Person Soc Psychol.* 2006;91(3):524–537.
64. Arvinen-Barrow M, Hemmings B. Goal setting in sport injury rehabilitation. In: Arvinen-Barrow M, Walker N, eds. *Psychology of Sport Injury and Rehabilitation.* Abingdon, UK: Routledge; 2013: 56–70.
65. Taylor J, Taylor S. *Psychological Approaches to Sports Injury Rehabilitation.* Gaithersburg, MD: Aspen; 1997.
66. Playford ED, Dawson L, Limbert V, Smith M, Ward CD, Wells R. Goal-setting in rehabilitation: report of a workshop to explore professionals' perceptions of goal-setting. *Clin Rehabil.* 2000;14(5): 491–496.
67. Bassett SF, Petrie KJ. The effect of treatment goals on patient compliance with physiotherapy exercise programmes. *Physiotherapy.* 1999;85(3):130–137.
68. Evans L, Hardy L. Sport injury and grief response: a review. *J Sport Exerc Psychol.* 1995;17(3):227–245.
69. Evans L, Hardy L. Injury rehabilitation: a goal-setting intervention study. *Res Q Exerc Sport.* 2002;73(3):310–319.
70. Evans L, Hardy L. Injury rehabilitation: a qualitative follow-up study. *Res Q Exerc Sport.* 2002;73(3):320–329.
71. Evans L, Hardy L, Flemming S. Intervention strategies with injured athletes: an action research study. *Sport Psychol.* 2000;14(2):188–206.
72. Brewer BW, Jeffers KE, Petitpas AJ, Van Raalte JL. Perceptions of psychological interventions in the context of sport injury rehabilitation. *Sport Psychol.* 1994;8(2):176–188.
73. Armatas V, Chondrou E, Yiannakos A, Galazoulas C, Velkopoulos C. Psychological aspects of rehabilitation following serious athletic injuries with special reference to goal setting: a review study. *Phys Train.* 2007. <http://www.ejmas.com/pt/ptframe.htm>. Accessed August 14, 2008.
74. Udry E. Support providers and injured athletes: a specificity approach [Paper presented at: The Association for the Advancement of Applied Sport Psychology; September 27, 1997; San Diego, CA]. *J Appl Sport Psychol.* 1997;9(suppl):S34.
75. Udry E. Staying connected: optimizing social support for injured athletes. *Athl Ther Today.* 2002;7(3):42–43.
76. Mitchell ID, Neil R, Wadey R, Hanton S. Gender differences in athletes' social support during injury rehabilitation. *J Sport Exerc Psychol.* 2007;29(suppl):S189–S190.
77. Ryan RM, Deci EL. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am Psychol.* 2000;55(1):68–78.
78. Walker N, Thatcher J, Lavalley D. Psychological responses to injury in competitive sport: a critical review. *J R Soc Promot Health.* 2007; 127(4):174–180.
79. Grindstaff JS, Wrisberg CA, Ross JR. Collegiate athletes' experience of the meaning of sport injury: a phenomenological investigation. *Perspect Public Health.* 2010;130(3):127–135.

Address correspondence to Monna Arvinen-Barrow, PhD, CPsychol, Department of Kinesiology, University of Wisconsin-Milwaukee, PO Box 413, Milwaukee, WI 53201. Address e-mail to arvinenb@uwm.edu.