

Psychosocial Aspects of Athletic Injuries as Perceived by Athletic Trainers

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Context: Despite the Psychosocial Strategies and Referral content area, athletic trainers (ATs) generally lack confidence in their ability to use this information.

Objective: The current study's primary purpose was to determine (a) perceived psychological responses and coping behaviors athletes may present to ATs, (b) psychosocial strategies ATs currently use with their athletes, (c) psychosocial strategies ATs deem important to learn more about, and (d) ATs' current practices in referring athletes to counseling or sport psychology services.

Design: Mixed-methods study.

Setting: Online survey containing both quantitative and qualitative items.

Patients or Other Participants: A total of 215 ATs (86 male, 129 female), representing a response rate of 22.50%.

Main Outcome Measure(s): The Athletic Training and Sport Psychology Questionnaire.

Results: Stress/anxiety (4.24 ± 0.82), anger (3.70 ± 0.96), and treatment adherence problems (3.62 ± 0.94) were rated as the primary psychological responses athletes may present upon

injury. Adherence and having a positive attitude were identified as key determinants in defining athletes' successful coping with their injuries. The top 3 selected psychosocial strategies were keeping the athlete involved with the team (4.57 ± 0.73), using short-term goals (4.45 ± 0.67), and creating variety in rehabilitation exercises (4.32 ± 0.75). The top 3 rated psychosocial strategies ATs deem important to learn more about were understanding motivation (4.29 ± 0.89), using effective communication (4.24 ± 0.91), and setting realistic goals (4.22 ± 0.97). Of the sample, only 59 (27.44%) ATs reported referring an athlete for counseling services, and 37 (84.09%) of those who had access to a sport psychologist ($n = 44$) reported referring for sport psychology services.

Conclusions: These results not only highlight ATs' current use of psychosocial strategies but also their desires to increase their current knowledge and understanding of these strategies while caring for injured athletes.

Key Words: psychology, clinical skills, professional preparedness, athletic training

Key Points

- Athletic trainers appear to be mindful of the psychological ramifications that athletes often experience as a result of their injuries.
- Although athletic trainers apparently used some psychosocial strategies within injury rehabilitation, they also stressed the importance of learning more about these strategies.

Traditional rehabilitation programs are designed to ensure an athlete's full return to preinjury levels of physical fitness, but a growing body of research highlights the importance of also addressing psychological responses within the rehabilitation context.^{1–6} One of the ways in which the injured athlete's psychological response to sport injuries has been explained is through the Integrated Model of Response to Sport Injury Rehabilitation.⁷ According to the model, an individual athlete's cognitive appraisal of the injury (ie, how the athlete views the situation), as well as the athlete's emotional (ie, how he or she feels about the injury) and behavioral (ie, how he or she acts and reacts to the injury situation) responses are influenced by a range of personal (eg, injury characteristics and individual differences) and situational (eg, sport, social, and environmental influences, including social support and the sports medicine team) factors. The model recognizes the interaction among the cognitive appraisal and emotional and behavioral responses as a dynamic and bidirectional

cyclic process, which in turn has an effect on both physical and psychological recovery outcomes.⁷

Thus far, a wealth of evidence exists in support of the model. Most athletes appear to be psychologically affected (emotional response) when injured,^{8–10} and these psychological responses can have a significant influence on the quality and speed of the sport-injury rehabilitation process.^{3–5} Support for the use of psychosocial strategies (a behavioral response) during sport-injury rehabilitation has also been documented in the literature. For example, goal setting, imagery, positive self-talk, and relaxation strategies have been useful in helping athletes cope with pain, stress, and anxiety and address self-efficacy, self-esteem, and confidence-related apprehensions, as well as concerns with rehabilitation motivation and adherence.^{5,11,12} In addition, the role of sports medicine professionals (a situational factor) in influencing injured athletes' cognitive appraisal of the injury, emotional and behavioral responses, the rehabilitation process, and the physical and psychological recovery outcomes is also

important.^{13–18} Therefore, it has been suggested that sports medicine professionals, such as athletic trainers (ATs), play an integral part in the sport-injury rehabilitation process and that they are best suited to inform, educate, and assist injured athletes with the psychological and physical process of injury.^{4,19,20} Indeed, many sports medicine professionals believe they must address psychological aspects of injuries in order for their work to be effective.^{2,8,10,21}

Recognizing the importance of providing psychological support to injured athletes, the National Athletic Trainers' Association (NATA) Executive Committee for Education has recently released the 5th edition of the *Educational Competencies*, which includes the Psychosocial Strategies and Referral (PS) content area.²² These competencies and clinical integration proficiencies were, in part, specifically designed to ensure that ATs are exposed to information and applied learning situations that will increase their ability to provide psychological support to injured athletes and ensure a holistic approach to injury rehabilitation. According to the PS competencies, all ATs “must be able to recognize clients/patients exhibiting abnormal social, emotional and mental behaviors.”^{22(p116)} This should be coupled with the ability to implement psychosocial strategies, intervene, and refer when necessary²² (for more details on the PS content area, see the aforementioned reference).

As a result of changes to the educational content areas, it was believed that, with the addition of the Psychosocial Intervention and Referral content area²³ to athletic training education programs (ATEPs), ATs “would consider the psychological aspects of an injury within their scope of practice.”^{1(p5)} However, Stiller-Ostrowski et al²⁴ noted that, although the content is required by ATEPs, no specific and standardized guidelines are provided regarding the actual teaching of this information. As a result of the lack of consistent training, it can be presumed that ATs may lack confidence and readiness to address the psychosocial aspects of athletic injuries. Stiller-Ostrowski and Hamson-Utley¹ reported that ATs lacked confidence in their ability to make use of the techniques taught via the psychosocial content area within the context of injury rehabilitation. This lack of confidence, according to Kamphoff et al,²⁵ can be attributed to the fact that ATs perceive themselves to not be “fully trained in the implementation” of these skills within this context.^(p116) Additional research by Stiller-Ostrowski and Ostrowski²⁶ corroborated the above findings and revealed that ATs did not feel adequately prepared by their ATEPs to deal with psychological responses presented by injured athletes. Gordon²⁷ also noted that sports medicine professionals were concerned about their ability to deal with psychological responses, in addition to being able to use psychosocial strategies to address these responses, due to their lack of in-depth training in the area. Furthermore, Jevon and Johnston¹³ reported conflicts between formal and informal roles with regard to using psychosocial strategies as part of the rehabilitation process. Thus, it appears that, despite the stated intentions of the psychosocial content area, ATs still seem to lack knowledge and confidence in their ability to address some of the psychological responses with which injured athletes may present.

Previous work gaining insight into sports medicine professionals' views on the psychological content of their practice is limited.^{2,8–10,28} Thus far, the only study in the

United States addressing these issues was conducted by Larson et al.² They surveyed practicing ATs (n = 482) using the Athletic Training and Sport Psychology Questionnaire (ATSPQ). A total of 226 ATs (47%) perceived that the athletes they treat experience psychological trauma as a result of their athletic injuries. Moreover, according to Larson et al,² even though ATs used a variety of psychosocial strategies, they wanted more in-depth training to be better able to use these strategies within the context of sport-injury treatment and rehabilitation. Similar studies have recently been conducted with sports medicine professionals working with injured athletes in the United Kingdom,^{8–10,28} but their findings may not be directly applicable to the US sample due to differences in professional training and professional titles. Because Larson et al² performed their research more than 15 years ago and given the recent inclusion of psychosocial content areas within ATEPs, further study is warranted to gain greater insight into ATs' perceptions of the psychological aspects of athletic injuries in the United States.

Thus, the aim of the current study was to extend the work by Larson et al² by surveying practicing ATs to determine (a) perceived psychological responses and coping behaviors athletes may present to ATs, (b) psychosocial strategies ATs currently use with their athletes, (c) psychosocial strategies ATs deem important to learn more about, and (d) ATs' current practices in referring athletes to counseling or sport psychology services.

METHODS

Research Design and Setting

A mixed-methods research design was used to sample ATs via an online survey consisting of both quantitative and qualitative items.

Participants

Athletic trainers were selected due to their involvement and work with injured athletes. Access to participants was obtained by contacting the NATA through the District III secretary. The NATA can, for research purposes, generate a randomly selected sample of ATs (n = 1000) who maintain active membership in the organization during any particular year—in this case, 2010. Athletic trainers in the sample were employed in the following settings in the United States: (a) high school, (b) high school or clinic, (c) clinic, (d) college or university, (e) professional sports, or (f) other.

Instrumentation

The ATSPQ is a self-report questionnaire that aims to measure ATs' perceptions of the psychological content of their working practice. The ATSPQ is adapted from instruments developed by Wiese et al²⁰ and Brewer et al²⁹; each of these groups carried out a pilot study on their instruments. No psychometric properties for the questionnaire were reported by Larson et al,² Arvinen-Barrow et al,⁸ Lafferty et al,⁹ Hemmings and Povey,¹⁰ or Heaney.²⁸ Although Larson et al (1996) did not report psychometric properties, it is believed that they were able to establish face and content validity through the use of a pilot study on the

instrument with 18 ATs. According to Larson et al.,² these ATs critiqued the questionnaire based on relevance and appropriateness of content. Comments provided were then used to make subsequent amendments and clarifications to the questionnaire.

Furthermore, although no reliability properties have been reported for the ATSPQ, all of the studies conducted in the United Kingdom have yielded findings comparable with those of Larson et al.² More specifically, none of the authors have reported any emerging comments from the respondents or identified any other core problems arising with the reliability or validity of the measure. For the purposes of this study, however, due to the lack of reported reliability properties, Cronbach α values were calculated to establish internal reliability for the main sections of the questionnaire scored on a Likert scale. Results from the analyses revealed acceptable and good levels of internal consistency with the following Cronbach α values: perceived psychological responses athletes may present to ATs scale (0.75), psychosocial strategies ATs currently use with their athletes scale (0.89), and psychosocial strategies ATs deem important to learn more about scale (0.95).

The ATSPQ is divided into 4 sections, and it is concerned with 4 main psychological aspects of the sport-injury rehabilitation process: (a) perceived psychological responses and coping behaviors athletes may present to ATs, (b) psychosocial strategies ATs currently use with their athletes, (c) psychosocial strategies ATs deem important to learn more about, and (d) ATs' current practices in referring athletes to counseling or sport psychology services. In addition, the questionnaire contains a section on participants' demographic information and 2 questions related to ATs' perceptions addressing the importance of and their personal readiness to attend to psychological aspects of injuries. For more details on the measure, see Larson et al.²

Procedures

Before this study, written approval from the Institutional Review Board for the Protection of Human Subjects was granted. Once permission was received, a list of e-mail addresses of current ATs ($n = 1000$) was obtained from the NATA. A cover letter was then e-mailed to all prospective participants describing the purpose of the study in addition to guiding them to the ATSPQ posted on SurveyMonkey (Palo Alto, CA). Volunteers were informed that participation in the study was completely confidential, and their responses would be anonymous. Approximately 1 month after the initial e-mail was sent out, prospective participants were sent a follow-up e-mail either thanking them for their participation or encouraging them to complete the questionnaire if they had not already done so.

Data Analysis

Due to the nature of the questionnaire, a mixed-methods approach to data analysis was adopted. Descriptive statistics (means and standard deviations) and frequencies (where appropriate) were calculated using SPSS (version 18.0; SPSS Inc, Chicago, IL) for all the closed-ended question responses. Mean scores were calculated for the questions that used Likert scales. Analyses of variances were conducted to identify differences based on sex, age, education, work

setting, access to sport psychology services, and previous experience with sport psychology courses. No statistically significant differences were revealed for any of these responses. As a result, the responses were collapsed across the entire sample. A thematic analysis was conducted on the open-ended responses to the following questions: "List the top 4 behaviors exhibited by athletes who successfully coped with their athletic injury," and "List the top 4 behaviors that are present in those athletes who do not cope successfully with an athletic injury," using the steps described by Braun and Clark.³⁰ First, the responses (622 for the first open-ended question and 506 for the second) were transcribed, and both the first and second authors familiarized themselves with the data. Initial codes, based on both reviewers' ability to identify interesting features of the data, were then generated. Once all the data were coded, they were organized into broader-level themes. Findings from equivalent questions in previous research^{2,8} were used as a guideline to form themes. Themes were then refined, reviewed, and eventually named by reviewers and the third author until mutual agreement on the emergent themes was achieved.

RESULTS

Demographics

Of the 1000 e-mails sent, 45 (4.50%) were returned to the sender with error messages indicating incorrect addresses. Thus, of the 955 e-mails actually sent, 215 (22.51%) of the participants completed the survey. Respondents consisted of 86 men (40.00%; mean age = 30.85 ± 6.85 years) and 129 women (60.00%; mean age = 33.60 ± 8.41 years). Further analysis of the demographic information collected revealed that 138 ATs (64.18%) obtained their certification via an approved ATEP. Of the sample, 89 (41.39%) and 42 (19.53%) were employed in the collegiate or high school setting, respectively. A majority of the sample, 146 (67.90%) reported having a master's degree, and roughly half of the ATs ($n = 119$, 55.34%) had taken an undergraduate course in sport psychology. Conversely, only 63 (29.34%) reported taking a graduate course in the area of sport psychology. Additionally, ATs in the sample rated their overall level of preparedness in the psychosocial strategies area as unprepared (2.76 ± 0.64 ; 1 = *not prepared*, 4 = *very prepared*); however, they deemed it fairly important to be able to address psychological aspects of injuries (3.51 ± 0.55 ; 1 = *not important*, 4 = *very important*).

Psychological Effect of Sport Injuries

The results from the descriptive statistical analyses revealed that 160 ATs (74.41%) reported that athletes were psychologically affected as a result of their injuries. The ATs also indicated that athletes experienced a number of psychological responses to their injuries. The top 3 responses as rated by ATs were stress or anxiety (4.24 ± 0.80), anger (3.70 ± 0.96), and treatment adherence problems (3.62 ± 0.94 ; 1 = *never*, 5 = *often*; see Table 1).

Athletes' Coping Characteristics During Injury

The findings from the thematic analyses conducted for the 2 open-ended questions revealed that ATs detected a range of psychological characteristics in athletes who either

Table 1. Psychological Responses Associated With Athletic Injuries^a

| Psychological Response | Mean ± SD |
|--|-------------|
| Stress or anxiety | 4.24 ± 0.82 |
| Anger | 3.70 ± 0.96 |
| Treatment adherence problems | 3.62 ± 0.94 |
| Problems with confidence | 3.25 ± 0.97 |
| Depression | 3.25 ± 1.04 |
| Problems with motivation | 3.18 ± 0.95 |
| Problems with attention or concentration | 3.03 ± 1.0 |
| Problems with pain management | 2.94 ± 0.96 |
| Exercise addiction | 2.36 ± 0.94 |

^a 1 = *Never encounter condition*, 5 = *very often encounter condition*.

did or did not cope successfully with their injuries. The following sections will present the emergent themes for both successful and unsuccessful coping behaviors, along with corresponding examples for each.

Successful Coping Behaviors. A total of 182 responses coded within the first theme displayed a positive attitude. These responses primarily dealt with the belief that injured athletes, upon sustaining an injury, had a positive disposition regarding their injury and the impending treatment and rehabilitation: *positive outlook on treatment and rehabilitation*. The second theme, adherence and treatment compliance, included 149 responses. These responses alluded to the diligence of injured athletes in their approach to treatment and rehabilitation. A sample response within this theme was *showing up to treatment as planned*. The third theme, seeking out social support, contained 38 responses. These responses were specific to injured athletes seeking out social support from a variety of sources while they were injured: for example, *seeking support from friends and family members*. The fourth thematic cluster, using psychosocial strategies, consisted of 26 responses, including *setting goals for my rehabilitation*. The fifth and final thematic cluster, other, contained 208 responses that were incomplete or unrelated to successful coping behaviors or could not be classified into any of the previously mentioned thematic clusters. Examples within this cluster included *competitiveness, liked their job, and faith*.

Unsuccessful Coping Behaviors. The first theme, poor adherence and attendance, contained 75 responses referring to athletes not attending rehabilitation, completing their exercises, or complying with activity restrictions. A sample response within this cluster was *athlete is not compliant with treatment and rehab*. The second theme, displayed a negative attitude, contained 73 responses related to injured athletes holding a negative view of their injury, the situation, or low confidence. An example response was *poor attitude*. Theme 3, avoidance and withdrawal, had 70 responses suggesting that injured athletes avoided ATs, coaches, and teammates. A response within this theme was *avoid team functions*. Theme 4 addressed poor effort and motivation and had 69 responses implying that injured athletes displayed a lack of drive in rehabilitation or in their sport context (or both). A typical response was *unmotivated*. The fifth thematic cluster, negative affect, had 63 responses that referred to injured athletes displaying emotions including anger and symptoms of depression and anxiety. A sample response was *mood swings*. The final thematic cluster, other, contained 156

Table 2. Psychosocial Strategies Currently Used with Injured Athletes^a

| Psychosocial Strategy | Mean ± SD |
|--|-------------|
| Keeping the athlete involved with the team | 4.57 ± 0.73 |
| Using short-term goals | 4.45 ± 0.67 |
| Creating variety in rehabilitation exercises | 4.32 ± 0.75 |
| Encouraging effective communication | 4.26 ± 0.84 |
| Encouraging positive self-thoughts | 4.23 ± 0.89 |
| Reducing stress and anxiety | 3.71 ± 0.97 |
| Enhancing self-confidence | 3.61 ± 1.04 |
| Improving social support | 3.60 ± 1.02 |
| Reducing depression | 2.97 ± 1.13 |
| Teaching emotional control strategies | 2.69 ± 1.07 |
| Using/teaching relaxation strategies | 2.68 ± 1.14 |
| Using mental rehearsal/visualization | 2.64 ± 1.20 |
| Teaching muscular relaxation strategies | 2.60 ± 1.16 |

^a 1 = *Never use*, 5 = *100% of the time*.

responses that encompassed a wide variety of topics, including poor pain management, lack of social support, blaming others, fear of reinjury, and not understanding the injury.

Use of Psychosocial Strategies

Athletic trainers in the sample appeared to favorably use psychosocial strategies. Of the 13 specific strategies listed, ATs rated 5 strategies with a mean score of 4.23 or higher (1 = *never use*, 5 = *use 100% of the time*), indicating frequent use (see Table 2). The top 3 strategies listed were *keeping the athlete involved with the team* (4.57 ± 0.73), *using short-term goals* (4.45 ± 0.67), and *creating variety in rehabilitation exercises* (4.32 ± 0.75). The lowest-rated strategy used was *teaching muscular relaxation* (2.60 ± 1.16).

Psychosocial Strategies ATs Would Like to Learn More About

Athletic trainers in this study expressed a clear desire to increase their current knowledge and understanding of psychosocial strategies in order to provide the best possible care and advice to injured athletes (see Table 3). Athletic trainers rated 8 of the 14 strategies as important, with a mean score of 4.08 or higher (1 = *not important*, 5 = *very important*). More specifically, the top 3 rated strategies were *understanding motivation* (4.29 ± 0.89), *using effective communication* (4.24 ± 0.91), and *setting realistic goals* (4.22 ± 0.97). The lowest-rated strategy was *teaching muscular relaxation* (3.68 ± 1.08).

Access and Referral to Counseling and Sport Psychology Services

Of the sample, a total of 44 ATs (20.46%) indicated having access to sport psychology services. Of these, 37 ATs (84.09%) reported making a referral for sport psychology services. Conversely, 59 ATs (27.44%) made referrals for counseling services. When ATs were asked about using a written procedure as a guideline for making these referrals, 27 (45.76%) and 11 (29.72%) reported doing so for counseling and sport psychology services, respectively.

Table 3. Psychosocial Strategies Athletic Trainers Would Like to Learn About^a

| Psychosocial Strategy | Mean ± SD |
|--|-------------|
| Understanding individual motivation | 4.29 ± 0.89 |
| Using effective communication | 4.24 ± 0.91 |
| Setting realistic goals | 4.22 ± 0.97 |
| Enhancing self-confidence of injured athlete | 4.16 ± 0.88 |
| Creating variety in rehabilitation exercises | 4.16 ± 0.99 |
| Enhancing listening skills of the athletic trainer | 4.16 ± 0.92 |
| Encouraging positive self-thoughts | 4.14 ± 0.96 |
| Reducing stress and anxiety | 4.08 ± 0.89 |
| Improving social support for injured athlete | 3.97 ± 0.97 |
| Reducing depression | 3.94 ± 1.03 |
| Teaching emotional control strategies | 3.91 ± 0.98 |
| Teaching concentration strategies | 3.79 ± 0.99 |
| Teaching the use of mental imagery | 3.70 ± 1.03 |
| Teaching muscular relaxation strategies | 3.68 ± 1.08 |

^a 1 = *Not important*, 5 = *very important*.

DISCUSSION

Although psychosocial aspects related to athletic training have been identified as essential components of entry-level athletic training education, many ATs still appear to desire more education and understanding in this area.¹ Findings from the current study suggest that ATs perceived injured athletes to experience a number of psychological responses as a result of being injured. The top 3 rated psychological responses were stress or anxiety, anger, and treatment adherence problems. According to the ATs, the 3 main characteristics of athletes who cope well with their injuries were positive outlook, adherence and treatment compliance, and showing up to treatment. Conversely, the 3 main characteristics of athletes who did not cope successfully with their injuries, as reported by the ATs, were poor adherence/attendance, noncompliance, and negative attitude. The sample also reported using a number of psychosocial strategies in their work with injured athletes. The top 3 psychosocial strategies were keeping the athlete involved with the team, using short-term goals, and creating variety in rehabilitation. Moreover, ATs also expressed a clear desire to learn more about motivation, using effective communication, and setting realistic goals. In addition, ATs reported having limited access to sport psychology services; however, those who did have access did appear to use these services in making referrals. Moreover, most of the ATs indicated not using a written procedure as a guideline for this process.

The finding that ATs in the current sample perceive injured athletes to experience psychological responses as a result of their injuries appears to be consistent with the findings of Larson et al.² Larson et al.² also noted that injured athletes typically experience stress or anxiety, anger, and treatment adherence problems when injured. Additional research further supports these findings.^{8–10,28,31–34} Such results are not surprising because athletes, especially students at the collegiate level, typically experience several stressors (eg, increased academic and athletic demands, public scrutiny, and competitive pressures) for which they may not have the necessary coping skills, and encountering an injury only adds to the existing stressors.³⁵ Moreover, these increased stress levels are likely to have a negative effect on an athlete's overall well being and self-worth, subsequently leading to increased levels of anxiety.³⁶

Understanding the influence of stress and anxiety on the injury-recovery process is of importance to those working with injured athletes. According to Williams and Andersen³⁷ and Wiese-Bjornstal et al.,⁷ an athlete's previous history of stressors, his or her personality characteristics, and existing coping resources act as antecedents to sport injuries. When combined with personal (eg, age, history of athletic injuries, injury severity) and situational factors (eg, playing status, time in season), it is likely that the preinjury stressors coupled with feelings of anxiety will affect an athlete's cognitive appraisal. Depending on how the athlete cognitively appraises the situation, the resulting emotional responses (anger as reported by the ATs in the current study) and behavioral responses to the injury can subsequently affect overall physical and psychological recovery outcomes.⁷

Given the potential effect on physical and psychological outcomes, we believe that ATs working with injured athletes must strive to know which stressors their athletes may be experiencing. Moreover, because stressors tend to be exacerbated by an injury, possibly resulting in increased anxiety levels, the AT's ability to determine the appropriateness of an injured athlete's emotional or behavioral response takes on added importance. Athletic trainers may want to use Lazarus's³⁸ BASIC ID (Behaviors, Affect, Sensation, Imagery, Cognitions, Interpersonal relationships, and Drugs) for preliminary help in determining the appropriateness of an injured athlete's emotional and behavioral responses. For example, identifying how an athlete *behaves* (eg, is not adhering to the rehabilitation), what *affect* he or she has (eg, athlete is disengaged and denying the implications of the injury), what *sensations* he or she is experiencing (eg, the injury causes a lot of pain), whether or not there is any evidence of use of *imagery* (eg, seeing themselves getting hurt again or getting better), and what effect this has on their *cognitions* (eg, use of negative self-talk), *interpersonal relationships*, (eg, withdrawal from friends, family, and teammates), and *drug* use (eg, increased use of alcohol or other substances) can help ATs make preliminary judgments as to whether or not the athlete's emotional and behavioral responses to the injury are appropriate and within the scope of typical responses, and therefore, potentially within the boundaries of ATs' professional competencies. Such a preliminary assessment should, however, be confirmed with a qualified mental health professional to determine if a referral is warranted.

Understanding the relationship between athletes' emotional and behavioral responses is important. In this study, poor adherence was reported as the third highest-rated response ATs perceived injured athletes to experience. Additionally, adherence and treatment compliance (or lack thereof) were also found to be determinant of whether or not an athlete coped successfully with his or her injuries. Larson et al.² reported rehabilitation and treatment compliance as the top-rated characteristic of athletes who cope successfully with injury, and Arvinen-Barrow et al.⁸ reported compliance as the second highest-rated characteristic. In a similar manner, both Larson et al.² and Arvinen-Barrow et al.⁸ reported lack of adherence or poor compliance (or both) with rehabilitation as the top characteristic of an athlete who does not cope successfully with his or her injuries. Other researchers have also found

that adherence rates are in the range of 30% to 70% for physiotherapy,³⁹ and within a similar range (38.6%) for athletic training.⁴⁰ Typically, one would expect injured athletes to be motivated to attend treatment and rehabilitation in order to return to sport participation as soon as possible. However, if the underlying feelings of stress and anxiety are not addressed appropriately during rehabilitation, the resulting strong emotions (eg, anger, frustration, or emotional withdrawal) can affect how the athlete behaves during rehabilitation. Therefore, lack of adherence may be symptomatic of a deeper emotional response with which the athlete is unable to cope, and as such, this should be addressed as a priority.

As previously mentioned, we believe that ATs should determine the appropriateness of an injured athlete's emotional and behavioral responses. If these responses are appropriate, yet the athlete still presents with adherence problems, the ATs may want to consider the following options. First, the ATs should make sure that they have adequately educated the athlete about the rehabilitation process and how the rehabilitation exercises are intended to aid in his or her return to activity. The ATs should also inquire as to whether the athlete has questions or concerns about the rehabilitation. This communication between ATs and athletes is important for building rapport.¹⁹ Athletic trainers can also assist the athlete in finding a rehabilitation buddy with whom the injured athlete could complete rehabilitation exercises.³⁶ Athletic trainers may also want to have the injured athlete interact with peer models who have successfully rehabilitated a similar injury.³⁶ Furthermore, Taylor and Taylor³⁶ proposed that peer models demonstrate to injured athletes that healing is possible, in addition to serving as an additional resource for practical advice and information relative to injury rehabilitation. Finally, ATs can set up a reward system whereby the injured athlete receives a nonmonetary reward (eg, a star on the goal sheet or the choice of picking a fun alternative rehabilitation activity) for attending a certain percentage of rehabilitation sessions.⁴¹ Conversely, if these strategies appear to be having little, if any, effect on the athlete's rehabilitation adherence, ATs may want to consider referring the athlete to a qualified mental health professional because adherence problems may be a sign of a more deeply rooted concern.

Recognizing that athletes experience psychological responses as a result of being injured, ATs in the current study reported using a range of psychosocial strategies. These results also appeared to be consistent with those of previous researchers,^{2,8,10,28} as the same 3 psychosocial strategies—keeping the athlete involved with the team, using short-term goals, and creating variety in rehabilitation—were the most popular strategies used by ATs and sports physiotherapists alike. Previous research^{36,42,43} within the psychology-of-injury literature also supports the successful use of all 3 aforementioned psychosocial strategies within injury rehabilitation.

Of all the psychosocial strategies listed, ATs appeared to most often use the strategy of keeping their injured athletes involved with the athletic team during injury rehabilitation. The use of this technique is important because an injury usually disrupts not only an injured athlete's activities of daily living but also the social support provided by normal team interactions. As a result, injured athletes may no longer practice, participate, or even travel with their teams

and instead may now have to schedule treatment and rehabilitation sessions in addition to doctors' appointments. The literature supports the inclusion of injured athletes within team activities as a valuable source of social support during injury, which can sometimes be a difficult period for athletes.³⁶ Moreover, remaining involved with the team can help emphasize to the injured athletes their value to their athletic team, which could possibly increase their commitment and motivation to return to sport participation. Podlog and Eklund⁴⁴ further suggested that ATs, along with coaches, are perfectly situated to assist athletes in staying connected to their team.

Goal setting was the second most used psychosocial strategy in the current study. According to the literature,⁴⁵ this skill appears to be the strategy most often endorsed by sport psychology and sports medicine professionals alike. By virtue of its applicability and relevance, goal setting is typically used by athletes during practice and competition. In a similar manner, goal setting is also 1 of the most commonly used psychosocial strategies during injury rehabilitation.⁴⁶ Furthermore, goal setting has positive effects on increasing an athlete's motivation, rehabilitation adherence, and compliance during rehabilitation,⁵ because it influences the effort an individual puts forth for the task and encourages the athlete to develop (new) strategies for achieving the goal.⁴⁷ Goal setting also provides athletes with a direction or path (ie, a return to sport participation) toward which they can direct their energies to ensure a safe and rapid return to a preinjury (or better) level of performance.³⁶

Finally, creating variety in rehabilitation exercises was reported among the 3 most commonly used psychosocial strategies within the context of injury rehabilitation. According to Taylor and Taylor,³⁶ the constant monotony of completing the same exercises during rehabilitation can have a detrimental effect on an injured athlete's motivation and eventual commitment to such a program. A variety of exercises not only serves to break up the monotony but also encourages athletes to pay attention to ensure that the new exercises are done properly.³⁶ Moreover, the effectiveness of this technique can be substantially increased if ATs solicit input from injured athletes with regard to possible exercises. This not only serves as an avenue to increase the rehabilitation program's creativity but also allows the injured athletes to regain some control over the rehabilitation process.

Although ATs in the sample appeared to favorably use psychosocial strategies in their work with injured athletes, they also expressed a clear need to learn more about these strategies. More specifically, ATs wanted to learn more about motivation, effective communication, and setting realistic goals. This finding, like those cited earlier, was consistent with the findings of Larson et al,² who noted that ATs also regarded further training in the above skills as important. The merits of motivation (creating variety in a rehabilitation program) and goal setting have already been mentioned, but ATs' desire for further training in effective communication warrants further discussion. Additionally, Wagstaff⁴⁸ asserted that, without adequate communication skills, the best-trained and most highly effective AT can be ineffective. According to Wiese and Weiss,¹⁹ good communication skills increase the chances of ATs being able to develop rapport with their injured athletes. In

developing rapport, ATs become more capable of gaining insight into individual differences among the athletes they work with and better able to use this information to understand athletes' emotional and behavioral responses to their injuries.⁴⁹ Effective communication skills can also be used to help an AT draw out athletes' concerns, thoughts, and feelings relative to the athletic injuries.⁵⁰ More specifically, Kottler and Brown⁵⁰ stated that communication skills such as questioning (use of closed-ended questions to elicit specific information), probing (use of open-ended questions to obtain broad information), confrontation (identifying discrepancies between words and behaviors), and summarizing (bringing the concepts together and putting them into perspective) can all be helpful to ATs in their work with injured athletes. Finally, because developing effective communication skills is rarely a component of ATEPs, we believe that ATs' desire to obtain further training in this area indicates their willingness to continually work on improving the level of care they provide to the athletes with whom they work.

The current sample rated the psychosocial strategy of muscular relaxation lowest, both in their use and in the importance of learning the strategy; existing research by Larson et al² and Lafferty et al⁹ rated the strategy similarly low as well. This finding is somewhat surprising considering that muscular relaxation strategies have been found to be beneficial in coping and controlling anxiety,³⁶ which along with stress, as noted above, was the most common athlete's response to injury. Moreover, muscular relaxation strategies such as progressive muscle relaxation⁵¹ could be beneficial in helping athletes cope with pain, which can influence the cognitive appraisal of the injury, as well as emotional (eg, feelings of stress and anxiety) and behavioral responses (eg, avoiding doing rehabilitation exercises that are painful) to an injury. Thus, it may be worthwhile for ATs to learn about how to implement muscular relaxation strategies as part of rehabilitation to help alleviate pain, which in turn can affect athletes' levels of stress and anxiety and general physical and psychological coping, ultimately influencing the overall rehabilitation process.

We also found that ATs, while reporting limited access to sport psychology services, did appear to use these services in making referrals. The apparent lack of access to sport psychology services appears to be consistent with previous literature,⁵²⁻⁵³ yet it is noteworthy that a high percentage (84.09%) of the ATs who had access to sport psychology services appeared to use them. We believe that this may have been a result of the increased exposure to psychosocial content within ATEPs. Moreover, this increased exposure may have resulted in ATs being more cognizant of the psychological effect that injuries may have on their athletes. More importantly, the ATs in the sample must be applauded for their ability to recognize the psychological and emotional responses with which their athletes presented and their willingness and ability to facilitate the appropriate referrals.

The ATs in the current sample did a good job of making use of sport psychology services, but we believe that of greater importance is the general lack of access to sport psychology services reported by the sample. One option to address this problem, especially in the collegiate setting, could be adding to their referral network a counselor or

psychologist who works at the student counseling centers. Very similar to having a general medicine physician and orthopaedic surgeon in the referral network, a counselor or psychologist can serve in a complementary role on the sports medicine team. Ideally, this individual should be knowledgeable in sport psychology. However, while the counselor or psychologist may not have direct expertise in sport psychology, he or she would be able to work with an AT to determine the appropriateness of an injured athlete's emotional response and possibly be able to assist in facilitating an efficient referral.

An area that must be improved, as revealed in the current study, is access to written procedures to guide the referral process for mental health and sport psychology services. Although previous researchers^{2,54} have also lamented a lack of written procedures to guide the referral process, we believe that having such guidelines could make an unfamiliar process more manageable and potentially increase the frequency with which referrals are made. It must also be mentioned that, with the adoption of the PS content area, which includes a section on mental health and referral, into ATEPs, future ATs are expected to have increasing access and familiarity with written procedures to guide the referral process. Alternatively, ATs could use the guidelines proposed by Brewer et al⁵⁵ to facilitate a referral. More specifically, ATs would, if placed in a situation that may warrant a referral, be best advised to assess (evaluate the athlete's response to his or her injury for signs of poor adjustment, which could be done thorough the BASIC ID process outlined earlier), consult (contact a mental health or allied health professional to discuss the athlete's response), conduct a trial intervention (implement a strategy or coping mechanism as suggested by the mental health or allied health professional to further evaluate if a referral is needed), make a referral (actually make the referral to the mental health or allied health professional), and follow up with the athlete (communicate with the athlete about the referral). These steps could be used as a basic written procedure to guide the referral of athletes for ATs who have access to either sport psychology or counseling services.

Application of Findings

Based on our results, we believe that ATs may be using psychosocial strategies they are more confident in using, instead of those that are most effective and appropriate. Evidence for this assertion was supported by the results, which indicated that although ATs identified stress and anxiety as the most common psychological response to injuries by athletes, the ATs listed stress- and anxiety-reducing techniques as the sixth most used strategy and saw this as the eighth most important psychosocial strategy to learn more about. Not only is it important to ensure that correct psychosocial strategies are used to address athletes' dominant responses to their injuries (eg, to use goal setting to address issues with adherence), it is also important to identify the underlying cause for any symptoms injured athletes may exhibit (eg, understand what is causing lack of adherence). For that reason, all practicing ATs must understand the relationship between an injured athlete's cognitive appraisal and emotional and behavioral responses. Additionally, understanding how preinjury factors

influence postinjury rehabilitation (eg, as outlined in the integrated model⁷) is vital in ensuring that appropriate psychosocial strategies are used for the athlete in question.

It must also be stated that, when comparing the current findings with those by Stiller-Ostrowski and Ostrowski,²⁶ who surveyed recently certified ATs' preparation in the Psychosocial Intervention and Referral content area,²³ it is quite clear that practicing ATs are still in need of, and wish for, further training in psychosocial aspects of their work. Greater emphasis should therefore be placed on teaching ATs the underlying theory of psychological aspects of sport injuries, as well as how the theory should inform practice when choosing and using psychosocial strategies with injured athletes.

Limitations and Future Directions

Despite a number of meaningful findings, our research was not without its limitations. Although the ATSPQ was the most appropriate measure for the purpose, by no means was it flawless. The terminology of the measure may have been problematic to some respondents. Because none of the psychosocial strategies were defined further in the questionnaire, the ATs surveyed might have misinterpreted some of the key terms used simply due to lack of formal training in sport psychology. For example, the ATs indicated using goal setting, but it is unclear whether or not the goal setting used followed goal-setting principles. Moreover, due to the descriptive nature of the questions, some vital and meaningful information may have been lost in the process,⁵⁶ and an understanding of the underlying reasons (eg, why use goal setting and stress and anxiety management techniques?) was not pursued. However, as the measure has been widely used across the world,^{2,4-6,28} the data obtained allowed comparisons with previous studies worldwide and, more importantly, comparisons with Larson et al² to explore whether or not the introduction of the psychosocial content to ATEPs has had any noticeable effect on ATs' views on the psychological content of their practice.

In addition to the concerns with the measure, the response rate of 22% was lower than expected. According to the literature,⁵⁷ expected response rates on Web-administered questionnaires should range from 40% (average) to 60% (very good). We did send a follow-up e-mail approximately 1 month after the initial e-mail, but no extra participants were obtained. The mixed-methods research design used may have influenced the low response rate because qualitative, open-ended responses typically require more participant involvement than standard quantitative items. Moreover, the low response rate may only represent the views of those who deem the psychosocial aspects of injury to be important and currently use psychosocial strategies and not the views of the AT sample as a whole. However, even so, the study addressed an important issue within this field, and with a sample size of $n = 215$, our results provided a meaningful initial evaluation of ATs' current perceptions of the psychological content of their practice. Still, due to the response rate, care should be taken when applying the results to the AT population as a whole. As stated earlier, participants who completed the questionnaire may have been more interested in psychosocial aspects related to

athletic training and therefore may have rated their abilities as higher than average. Future investigators should increase the sample size to improve the external validity. Although our results suggest that ATs were in favor of learning psychosocial strategies, ATs' continued exposure to and possible incorporation of this area into injury rehabilitation warrants further investigation. Additional studies should use focus group or 1-to-1 interviews to complement the survey and obtain valuable insight into the perceptions of psychosocial aspects of sport injury. Finally, an assessment of injured athletes' perceptions of ATs' use of psychosocial strategies could also provide unique insight into this area, as thus far research into athletes' perceptions of rehabilitation psychology is in its infancy.

In summary, ATs appear to be mindful of the psychological ramifications that injured athletes often experience as a result of athletic injuries. Very encouraging is the fact that despite ATs' apparent use of some psychosocial strategies within injury rehabilitation, they also stressed the importance of learning more about these strategies. However, a clear disparity exists between the athletes' recurrent psychological responses to injuries as perceived by ATs and the psychosocial strategies used by ATs. It appears that ATs may lack awareness of the typical psychological responses to injuries as outlined by Wiese-Bjornstal et al,³ and as such, their understanding of the underlying theory that guides the choice of appropriate psychosocial strategies may also need further training. Therefore, greater emphasis should be placed on ensuring that ATs possess appropriate levels of knowledge in the PS content area to ensure holistic care to injured athletes. Yet although ATEPS can provide increased exposure to this content, we also believe that practicing ATs should be afforded similar opportunities via continuing education. Moreover, these programs should provide opportunities for ATs to apply their theoretical knowledge to real-life situations. It is quite conceivable that such opportunities could increase ATs' abilities to recognize the psychological responses with which athletes may present, make appropriate referrals, and use psychosocial strategies consistent with addressing the injured athletes' concerns.

REFERENCES

1. 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.
2. Larson GA, Starkey C, Zaichkowsky LD. Psychological aspects of athletic injuries as perceived by athletic trainers. *Sport Psychol*. 1996;10(1):37-47.
3. Brewer BW. Review and critique of models of psychological adjustment to athletic injury. *J Appl Sport Psychol*. 1994;6(1):87-100.
4. Pearson L, Jones G. Emotional effects of sports injuries: implications for physiotherapists. *Physiotherapy*. 1992;78(10):762-770.
5. Ievleva L, Orlick T. Mental links to enhanced healing: an exploratory study. *Sport Psychol*. 1991;5(1):25-40.
6. McDonald SA, Hardy CJ. Affective response patterns of the injured athlete: an exploratory analysis. *Sport Psychol*. 1990;4(3):261-274.
7. 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.

8. Arvinen-Barrow M, Hemmings B, Weigand D, Becker C, Booth L. Views of chartered physiotherapists on the psychological content of their practice: a national follow-up survey in the United Kingdom. *J Sport Rehabil.* 2007;16(2):111–121.
9. 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.
10. 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.
11. Beneka A, Malliou P, Bebetos E, Gioftsidou A, Pafis G, Godolias G. Appropriate counseling techniques for specific components of the rehabilitation plan: a review of the literature. *Phys Train.* 2007;8:3–14.
12. Flint FA. Specialized psychological interventions. In: Flint FA, ed. *Psychology of Sport Injury.* Leeds, UK: Human Kinetics; 1998:29–50.
13. 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.
14. Arvinen-Barrow M. *Psychological Rehabilitation from Sport Injury: Issues in the Training and Development of Chartered Physiotherapists* [master's thesis]. Northampton, UK: The University of Northampton Press; 2009.
15. 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.
16. Crossman J. Psychological rehabilitation from sports injuries. *Sports Med.* 1997;23(5):333–339.
17. 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.
18. 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.
19. Wiese DM, Weiss MR. Psychological rehabilitation and physical injury: implications for the sportsmedicine team. *Sport Psychol.* 1987;1(4):318–330.
20. Wiese DM, Weiss MR, Yukelson DP. Sport psychology in the training room: a survey of athletic trainers. *Sport Psychol.* 1991;5(1):15–24.
21. 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.
22. National Athletic Trainers' Association. *Athletic Training Educational Competencies.* 5th ed. Dallas, TX: National Athletic Trainers' Association; 2011.
23. National Athletic Trainers' Association. *Athletic Training Educational Competencies.* 4th ed. Dallas, TX: National Athletic Trainers' Association; 2005.
24. Stiller-Ostrowski JL, Gould DR, Covassin T. An evaluation of an educational intervention in psychology of injury for athletic training students. *J Athl Training.* 2009;44(5):482–489.
25. Kamphoff CS, Hamson-Utley JJ, Antoine B, Knutson B, Thomae J, Hoenig C. Athletic training students' perceptions of the importance and effectiveness of psychological skills within sport injury rehabilitation. *Athl Train Educ J.* 2010;5(3):109–116.
26. Stiller-Ostrowski JL, Ostrowski JA. Recently certified athletic trainers' undergraduate educational preparation in psychosocial intervention and referral. *J Athl Train.* 2009;44(1):67–75.
27. Gordon S. Psychological aspects of recovery from sport injury. *N Z J Sports Med.* 2002;30:98–101.
28. Heaney C. Physiotherapists' perceptions of sport psychology intervention in professional soccer. *Int J Sport Exerc Psychol.* 2006;4(1):67–80.
29. Brewer BW, Van Raalte JL, Linder DE. Role of the sport psychologist in treating injured athletes: a survey of sports medicine providers. *J Appl Sport Psychol.* 1991;3(2):183–190.
30. Braun V, Clark V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3(2):77–101.
31. Leddy MH, Lambert MJ, Ogles BM. Psychological consequences of athletic injury among high-level competitors. *Res Q Exerc Sport.* 1994;65(4):347–354.
32. Milne MI, Hall CR, Forwell L. Self-efficacy, imagery use, and adherence to rehabilitation by injured athletes. *J Sport Rehabil.* 2005;14(2):150–167.
33. Roh JL, Perna FM. Psychology/counseling: a universal competency in athletic training. *J Athl Train.* 2000;35(4):458–465.
34. Morris T, Spittle M, Watt AP. *Imagery in Sport.* Champaign, IL: Human Kinetics; 2005.
35. Ferrante AP, Etzel EF. College student athletes and counseling services in the new millennium. In: Etzel EF, ed. *Counseling and Psychological Services for College Student-Athletes.* Morgantown, WV: Fitness Information Technology; 2009:1–42.
36. Taylor J, Taylor S. *Psychological Approaches to Sports Injury Rehabilitation.* Gaithersburg, MD: Aspen; 1997.
37. Williams JM, Andersen MB. Psychosocial antecedents of sport injury: review and critique of the stress and injury model. *J Sport Exerc Psychol.* 1998;10(1):5–25.
38. Lazarus AA. What is multimodal therapy? A brief overview. *Elementary School Guid Counsel.* 1978;13(1):6–11.
39. 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.
40. Byerly PN, Worrell T, Gahimer J, Domholdt E. Rehabilitation compliance in an athletic training environment. *J Athl Train.* 1994;29(4):352–355.
41. Marcus B, Forsyth LH. *Motivating People to be Physically Active.* Champaign, IL: Human Kinetics; 2003.
42. Evans L, Hardy L, Flemming S. Intervention strategies with injured athletes: an action research study. *Sport Psychol.* 2000;14(2):188–206.
43. Williams JM, Roepke N. Psychology of injury and injury rehabilitation. In: Singer RN, Murphy M, Tennant LK, eds. *Handbook of Research on Sport Psychology.* New York, NY: McMillan; 1993:15–45.
44. Podlog L, Eklund RC. The psychosocial aspects of a return to sport following serious injury: a review of the literature from a self-determination perspective. *Psychol Sport Exerc.* 2007;8(4):535–566.
45. Fisher AC, Mullins SA, Frye PA. Athletic trainers' attitudes and judgments of injured athletes' rehabilitation adherence. *J Athl Train.* 1993;28(1):43–47.
46. Arvinen-Barrow M. Back to basics: using goal setting to enhance rehabilitation. *Sport Exerc Med.* 2008;37:15–19.
47. Locke EA, Latham GP. *A Theory of Goal Setting & Task Performance.* Englewood Cliffs, NJ: Prentice Hall; 1990.
48. Wagstaff GF. A small dose of commonsense-communication, persuasion and physiotherapy. *Physiotherapy.* 1982;68(10):327–329.
49. Ray R, Wiese-Bjornstal DM. *Counseling in Sportsmedicine.* Champaign, IL: Human Kinetics; 1999.
50. Kottler JA, Brown RW. *Introduction to Therapeutic Counseling.* Pacific Grove, CA: Brooks/Cole; 1986.
51. Jacobson E. *Progressive Relaxation.* Chicago, IL: University of Chicago Press; 1938.
52. Voight M, Callaghan J. The use of sport psychology services at NCAA Division I universities from 1998–1999. *Sport Psychol.* 2001;15(1):91–102.

53. Cramer Roh JL, Perna FM. Psychology/counseling: a universal competency in athletic training. *J Athl Train*. 2000;35(4):458–463.
54. Gipson M, Foster M, Yaffe D, O'Carrol V, Bene C, Moore B. Opportunities for health psychology in sports medicine services and training. Paper presented at: Western Psychological Association/ Rocky Mountain Psychological Association Joint Annual Convention; April 1989; Reno, NV.
55. Brewer B, Petipas A, Van Raalte J. Referral of injured athletes for counseling and psychotherapy. In: Ray R, Wiese-Bjornstal D, eds. *Counseling in Sportsmedicine*. Champaign, IL: Human Kinetics; 1999: 127–141.
56. Hayes N. *Doing Psychological Research: Gathering and Analyzing Data*. Buckingham, UK: Open University Press; 2000.
57. Sheehan K. E-mail survey response rates: a review. *J Comput Med Commun*. 2001;6(2). <http://jcmc.indiana.edu/vol6/issue2/sheehan.html>. March 21, 2012.

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