Psycholinguistic Analysis of Emotional Disclosure: A Case Study in Sport Injury

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The present study features a psycholinguistic analysis, using Pennebaker’s (1989) emotional disclosure paradigm, of an athlete’s experience in recovering from injury. “GL,” a male athlete rehabilitating from anterior cruciate ligament reconstruction, participated in a 9-week testing protocol. A 3-day intervention was used, consisting of three 20-minute writing sessions, which promoted disclosure of negative emotions associated with injury and rehabilitation. In addition, measures of stress, mood disturbance, and self-esteem were administered from pre- to postintervention and at follow-up. Results revealed decreases in stress and mood disturbance, as well as an increase in self-esteem. Analysis of writing samples revealed increased use of linguistic markers indicating affective awareness. Findings also highlighted the importance of emotional disclosure and cognitive integration in reducing stress and enhancing understanding of injury.

Athletic injury is a highly stressful event in a competitive athlete’s career, and various psychological factors have been identified as contributing to a successful or unsuccessful rehabilitation experience. Many researchers have found that during rehabilitation, athletes experience negative mood states, depressive symptoms, and low self-esteem (Bianco, 2001; Gould, Udry, Bridges, & Beck, 1997; Tracey, 2003). Although there are relatively few interventions available that attempt to improve the psychological experience of sport injury (Cupal, 1998), there are various theoretical models for describing the psychological processes associated with injury and rehabilitation (Brewer, 1994; Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998; Williams & Andersen, 1998). These frameworks highlight the importance of thoughts and emotions during rehabilitation and the relationships between variables that affect recovery outcomes. A fundamental principle of these models is the stress response, which shows that successful rehabilitation from injury is dependent upon cognitive appraisals of the event and consequent behavioral and emotional reactions.

Tracey (2003) examined athletes’ emotional response during long-term injury rehabilitation using principles of the stress response. Her findings supported much of the past research on the psychology of sport injury (e.g., Bianco, Malo, & Orlick, 1999; Gould et al., 1997; Leddy, Lambert, & Ogles, 1994). Tracey found

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that athletes, particularly in the initial stages of their rehabilitation, experienced a variety of emotions, including depression, frustration, and decreased self-esteem. Over time, though, athletes reported perceiving the injury as a positive challenge and an experience in which they learned more about themselves. Yet, no explanation was provided as to how or why this change occurred. Other studies examining emotional responses to long-term injury rehabilitation have also reported that athletes experience elevated concern for the consequences of their injury, such as a loss of independence, losing their place within the team, or no longer having a strong “athletic” identity, and that these factors contribute to greater injury stress (Brewer, Van Raalte, & Linder, 1993; Howe, 2004). Little work has been done, however, to examine how athletes cope with these emotional traumas during injury rehabilitation.

The present authors, in an earlier study (Mankad, Gordon, & Wallman, 2009), examined athletes’ perceptions of their emotional climate and the ways that these perceptions affected expression of injury-related emotions. Athletes reported symptoms that were consistent with traumatic stress and grieving, but they perceived their sport environment to be emotionally inhibitive, which led them to strive for a stoic, nonemotional response. Athletes felt compelled to embrace in-group values of positivity and mental toughness by engaging in thought suppression, despite experiencing emotional trauma as a result of their injury. In an effort to hide negative emotions, athletes engaged in avoidance behaviors and used suppressive coping strategies during their recovery. They also employed various emotional labor (i.e., acting) strategies (see Hochschild, 1983) in which they suppressed felt emotions and displayed desirable emotions to give the impression of positivity and confidence. For these athletes, inhibition of genuine emotions and control of outward expression was a fundamental coping mechanism that was crucial in governing acceptable overt behavior within the team environment.

Few researchers have empirically examined the potentially detrimental effects of inhibited trauma and elevated stress associated with athletic injury on athletes’ psychological rehabilitation. In health psychology, however, psychological stress, trauma, and thought suppression have long been associated with decrements in mental and physical health (Pennebaker, 1989; Petrie, Booth, & Pennebaker, 1998; Smyth, 1998). An increasing number of studies have demonstrated that writing about emotionally traumatic experiences can elicit beneficial psychological and physical effects. The standard written disclosure paradigm was developed by Pennebaker (1989), and it involves having participants write about emotional topics for 3–5 consecutive days, for periods of 15–30 min each day. Although participants often experience distress immediately after disclosure, they typically have found this writing exercise to be therapeutic. They have also reported notable long-term improvements in mood, lowered depressive symptoms, and improved physical health. Researchers using Pennebaker’s model have demonstrated the importance of story-making when writing about traumatic events, suggesting that forming narratives about traumatic events allows one to disinhibit emotions and consolidate disorganized thoughts associated with the event (Gergen & Gergen, 2006; Pennebaker & Seagal, 1999). Furthermore, Pennebaker, Mayne, and Francis (1997) have examined linguistic predictors of health improvement and found that participants who increased their use of words associated with insight and
causal relationships (e.g., understand, realize, because, reason) improved their health significantly.

The written disclosure paradigm was also found to be a powerful alternative to psychotherapy, yielding similar cognitive benefits, such as reduced stress, as well as enhanced immune function and long-term improvements in mood and well-being (Frisina, Borod, & Lepore, 2004; Graybeal, Sexton, & Pennebaker, 2002; Pennebaker, 1997; Pennebaker & Seagal, 1999). The effectiveness of the writing paradigm in producing beneficial psychological and physical changes is particularly relevant when considering the case of injured athletes whose rehabilitation is comprised of both physical and psychological factors. During interviews conducted by the present authors, it was found that injured athletes were unlikely to disclose or discuss injury-related emotions. Moreover, the opportunities available for athletes to discuss these emotions were limited, and there was a strong cultural bias toward perceiving those who seek psychological counseling to discuss emotions as mentally weak. From the evidence presented, it would seem that Pennebaker’s (1989) writing paradigm may offer an appropriate and feasible intervention to use within the context of a competitive sporting environment.

The purpose of this study, therefore, was to explore the acceptability and effectiveness of the written emotional disclosure paradigm within the context of professional sport. A pilot case-study approach was adopted to examine whether an injured athlete within the elite sport environment would embrace the writing paradigm as part of rehabilitation and engage in it diligently. Specifically, the aim of this study was to explore the reactions of “GL,” an elite male gridiron football player who was currently rehabilitating from long-term injury. GL was chosen for this investigation because of the “tough” nature of his sport and the hypermasculine climate in which he was rehabilitating (Howe, 2004; Messner, 1992). Given the exploratory nature of this study, no specific hypotheses were presented; however, it was anticipated that results would support previous findings within the health psychology literature (i.e., that GL would show observable changes in stress, mood state, and self-esteem). In addition, it was hoped that analysis of GL’s written text would highlight positive changes in markers indicating cognitive integration and affective awareness.

Method

Participant

GL was a 26-year-old male Australian, state-level gridiron football player. He had suffered a tear to his anterior cruciate ligament (ACL) during an early game of the competitive season. Because of an initial misdiagnosis by his medical doctor, GL did not receive surgery on his knee until several months after the injury. At the time of his involvement in the study, GL was 4 months postsurgery, and he had missed 20 official team practices and 7 competitive games. He was not taking any regular medication during this time, and he was walking unimpeded by crutches or a cast. According to his orthopedic surgeon, GL still had approximately 5–8 months of physical rehabilitation remaining before he could resume normal training activities.
Measures

GL was administered a battery of questionnaires to assess his psychological well-being. These measures examined indices of stress, total mood disturbance, and self-esteem. Demographic information was also collected from GL, including age, sex, type of injury, dates of injury and surgery, prognosis, number of training sessions and competition days missed due to injury, current rehabilitation exercises, and current medications. GL was also informally asked at the beginning of every session whether any significant nonrehabilitation life events had taken place in the preceding weeks. This information provided the authors with an indication of any confounding factors that could potentially influence any of his questionnaire responses.

**Stress.** The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979; Sundin & Horowitz, 2002) provides a concise measure of posttraumatic stress focusing on avoidance and intrusion symptoms (15 items). The scale includes common statements made after stressful life events are listed, and the respondent is asked how often these comments have been true “during the past 7 days.” Responses are indicated using a 4-point Likert-type scale, ranging from 1 (not at all) to 4 (often). The IES provides separate scores for Avoidance and Intrusion subscales, which have Cronbach’s $\alpha$ coefficients of .82 and .86, respectively.

**Mood State.** The Abbreviated Profile of Mood States (A-POMS; Grove & Prapavessis, 1992) is a 40-item self-report measure used to assess emotional experience. It includes Tension, Depression, Fatigue, Vigor, Confusion, Anger, and Esteem (i.e., esteem-related affect) subscales. The respondent is asked to indicate the degree to which he or she is experiencing specified emotions “right now” using a 5-point Likert-type scale, ranging from 0 (not at all) to 4 (extremely). Cronbach’s $\alpha$ coefficients for the various A-POMS subscales range from .66 to .95. In addition, the individual A-POMS subscale scores are combined to create a measure of total mood disturbance (TMD) as suggested by Grove and Prapavessis (1992).

**Self-Esteem.** The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1989) was designed to measure global self-esteem (10-items). Responses, which indicate level of agreement with a particular statement, are indicated using a 4-point Likert-type scale, ranging from 0 (strongly disagree) to 3 (strongly agree). The RSES includes Self-Competence and Self-Liking subscales, which have Cronbach’s $\alpha$ coefficients of .77 and .88, respectively. Item responses also are totaled to provide an overall self-esteem score, with higher scores indicating higher self-esteem.

**Text Analysis.** The Linguistic Inquiry Word Count 2007 (LIWC2007; Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007) was used to analyze text samples by targeting one word at a time and categorizing these words into psychologically relevant categories. The LIWC2007 dictionary is comprised of approximately 4,500 words and word stems. In addition to several descriptor categories (e.g., total word count) and standard linguistic dimensions (e.g., percentage of pronouns), there were 32 word categories that tapped into psychological constructs (e.g., affect, cognition). For the current study, only six of these psychological
constructs were analyzed via text analysis: (a) affective processes (e.g., happy, cried), of which positive emotion (e.g., love, nice) and negative emotion (e.g., hurt, sad) words are subcategories and (b) cognitive processes (e.g., understand, know, ought), which include insight (e.g., think, consider) and causation (e.g., because, effect) subcategory words. These six categories were selected based on past writing studies that showed an association between the words within these categories and psychological health outcomes (see Smyth, 1998, for a review).

**Design and Procedure**

The duration of the experimental protocol was 9 weeks, including six data collection time points. Phases of the study included (a) baseline, (b) 3-day intervention, and (c) follow-up. The effect of time was considered a potential confound for this study’s internal validity, since psychological indices can vary over time. The study design controlled for a maturation effect, however, by gathering data from GL at 4 months postoperation. This period was considered to be a stagnant phase of his rehabilitation and thought to be a period of low psychological change (see Tracey, 2003). To ensure that this assumption was correct, measures were taken at three time points (T1 to T3) over a 5-week baseline period before the start of the intervention. During baseline, the battery of questionnaires was administered every 2 weeks to ensure that there were minimal changes in the dependent variables of interest during the preintervention period. This was important to verify, so that any changes recorded postintervention could reasonably be associated with the intervention.

After the third and final baseline measures were collected in Week 5 (T3), the 3-day intervention period commenced immediately. GL took part in three 20-min writing tasks performed over 3 consecutive days. The writing task took place in a private room, at a single computer terminal. During each of the three writing sessions, GL was first given 5 min of “thinking time” to recall his injury experience, using the following instructions:

Before beginning your writing task, you will be given 5 minutes of “thinking time.” Use this time to think about your injury experience. In particular, focus on the negative emotions you have felt, or currently feel, related to the injury and rehabilitation experience—preferably those thoughts and emotions that you have not previously discussed with others.

GL was then instructed to type continuously for 20 min:

For the next 3 days, I would like you to write about the negative thoughts, emotions, and feelings associated with your injury experience. You will be given 20 minutes to write on each of the 3 days. In your writing, I want you to really let go and explore your very deepest emotions and thoughts regarding this event. You can write about the same experiences on all 3 days or about different experiences each day. Whatever you choose to write, however, it is important that you really delve into your deepest emotions and thoughts, preferably those that you have not discussed with others. The only rule we have is that you write continuously for the entire 20 minutes. When writing, don’t worry about grammar, spelling, or sentence structure. Just write. This
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is a safe and confidential environment. Sometimes people feel a little sad or depressed after writing about their injury. If that happens, it is completely normal. Most people say that these feelings go away in an hour or so. If at any time over the course of the experiment you feel too upset or distressed, please see me immediately. I will be sitting just outside the room.

On Days 2 and 3 of the writing intervention, GL was again given 5 minutes of “thinking time” and was instructed similarly at the beginning of each writing session. Immediately before and after each writing session, the A-POMS was administered as a manipulation check to assess whether GL was engaging in emotional disclosure and showing direct changes in mood state. Immediately after the final writing session on Day 3, the battery of questionnaires was administered again, and this served as the first postintervention time point (T4). Follow-up measures were collected over a 4-week period (T5 and T6), during which time the battery of questionnaires continued to be administered every 2 weeks, as in baseline.

Data Analysis

To evaluate the effectiveness of the intervention in detail, a single-subject design was used, focusing on repeated measurement of GL’s stress, mood, and self-esteem. Given the repeated nature of the baseline measures, a conventional nonexperimental control comparison was not used. Instead, the individual acted as his own control, with baseline measures serving as the control comparison (Hrycaiko & Martin, 1996). To assess potential changes in GL’s cognitive processes, his writing samples were analyzed and various markers of cognitive change were targeted.

Results

The results from this case study showed observable changes in GL’s psychological state, as well as cognitive changes demonstrated in his writing. The psychological data are presented in Table 1, using a prepost format to illustrate general changes in the dependent variables of interest. Fluctuations and patterns of relevance within the T1 to T6 time points are discussed within text. The linguistic analyses of writing samples are presented in Table 2, and they show changes in linguistic markers across the 3-day intervention period.

Stress

GL completed the IES at six time-points (T1 to T6), and changes were evident in both the Avoidance and Intrusion subscales, though only avoidance scores showed a decline that could have corresponded with the intervention. During baseline, (preintervention points T1 to T3), Avoidance scores remained consistently high and then abruptly decreased postintervention by 34.24%, as illustrated in Figure 1, during data periods T5 and T6. Intrusion scores, though they showed a decrease from pre- to postintervention of almost 50%, demonstrated a steady pattern of decline throughout the duration of the study. It is possible that the intervention
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may have enhanced this downward trend, but given the observational nature of the data, it is not possible to distinguish between a standard time effect and a manipulation effect. Overall, however, when comparing averages, GL’s stress indices showed a negative trend from pre- to postintervention, as seen in Table 1.

**Table 1 Pre- and Postintervention Results for Stress, Mood, and Self-Esteem**

<table>
<thead>
<tr>
<th>Time</th>
<th>Preintervention (T1 to T3)</th>
<th>Postintervention (T4-T6)</th>
<th>% of Pre-Post difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>2.92 .07</td>
<td>1.92 .73</td>
<td>34.24</td>
</tr>
<tr>
<td>Intrusion</td>
<td>2.95 .50</td>
<td>1.48 .50</td>
<td>49.83</td>
</tr>
<tr>
<td>Mood State</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>2.20 .80</td>
<td>.87 .23</td>
<td>60.45</td>
</tr>
<tr>
<td>Anger</td>
<td>2.52 1.20</td>
<td>.29 .15</td>
<td>88.49</td>
</tr>
<tr>
<td>Vigor</td>
<td>1.06 .10</td>
<td>1.00 .51</td>
<td>19.10</td>
</tr>
<tr>
<td>Tension</td>
<td>1.56 1.13</td>
<td>.11 .10</td>
<td>92.95</td>
</tr>
<tr>
<td>Esteem</td>
<td>1.20 .60</td>
<td>1.07 .12</td>
<td>10.83</td>
</tr>
<tr>
<td>Confusion</td>
<td>1.67 .12</td>
<td>.33 .23</td>
<td>80.24</td>
</tr>
<tr>
<td>Depression</td>
<td>2.06 .59</td>
<td>.22 .39</td>
<td>89.32</td>
</tr>
<tr>
<td>Total Mood Disturbance</td>
<td>147.33 20.60</td>
<td>98.33 6.66</td>
<td>33.28</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>48.67 5.03</td>
<td>55.67 6.66</td>
<td>14.38</td>
</tr>
</tbody>
</table>

As illustrated in Table 1, negative mood state subscales of Fatigue, Anger, Tension, Confusion, and Depression, all showed a downward trend from pre- to postintervention, with the Anger and Tension subscales showing the greatest decline, falling 88.49% and 92.95%, respectively. Depression scores fell by a similar percentage (89.32%), resulting in a nil score by T6. The positive mood state subscale for Esteem increased slightly (10.83%) from pre- to postintervention. Despite these desirable changes, however, the only subscales to show a clearly observable shift in the opposite direction from their baseline trend at postintervention were Vigor and Confusion (see Figure 2). GL’s Vigor scores were in steady decline during baseline but then showed signs of improving immediately postintervention from T4 onwards. The Confusion subscale, comparatively, showed a clear plateau during T1 to T3 but then showed a distinct negative trend postintervention, declining 80.24% with negligible scores reported at T5 and T6.

TMD scores, a total of the A-POMS subscale scores, showed a negative trend during the baseline evaluations, which continued through the follow-up period. This trend indicated a steady decline in mood disturbance that was not clearly distinguishable from the effects of the emotional disclosure intervention. TMD was also calculated for GL before and after each writing session as a manipulation
## Table 2  Writing Analysis Results for the 3-Day Intervention Period

<table>
<thead>
<tr>
<th>Category</th>
<th>Word Count</th>
<th>Affect</th>
<th>Positive Emotion</th>
<th>Negative Emotion</th>
<th>Cognitive Mechanisms</th>
<th>Insight</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>752</td>
<td>4.65</td>
<td>2.13</td>
<td>2.53</td>
<td>13.3</td>
<td>1.06</td>
<td>0.53</td>
</tr>
<tr>
<td>Day 2</td>
<td>717</td>
<td>6.28</td>
<td>4.32</td>
<td>1.95</td>
<td>15.06</td>
<td>1.81</td>
<td>1.12</td>
</tr>
<tr>
<td>Day 3</td>
<td>842</td>
<td>6.53</td>
<td>3.44</td>
<td>3.09</td>
<td>17.81</td>
<td>2.26</td>
<td>1.54</td>
</tr>
<tr>
<td>SD</td>
<td>64.49</td>
<td>1.02</td>
<td>1.10</td>
<td>0.57</td>
<td>2.27</td>
<td>0.61</td>
<td>0.51</td>
</tr>
<tr>
<td>Difference (Day 1–3)</td>
<td>11.97</td>
<td>40.43</td>
<td>61.5</td>
<td>22.13</td>
<td>33.91</td>
<td>113.21</td>
<td>190.57</td>
</tr>
</tbody>
</table>

*Note.* The values represent percentages of total words categorized as: affect-related, positive emotions, negative emotions, cognitive mechanisms or processes, insightful words, and causal words, respectively.
check to determine whether the writing intervention was eliciting changes in mood state (see Figure 3). It was observed that GL’s TMD scores were consistently higher after each written disclosure session than they were before the session. Predisclosure scores became progressively lower, however, as the 3-day intervention progressed, while postdisclosure mood disturbance showed no such pattern. This finding suggests that, although GL’s results may not have indicated an intervention effect, he may have experienced a context-specific change in mood during the writing task. Nevertheless, he appeared to recover by the next day, which had the overall effect of lowering his TMD before the next session.

Self-Esteem

GL’s self-esteem score increased by 14.38%, based on pre- to postintervention averages, presented in Table 1. During baseline, GL’s self-esteem scores remained fairly constant, with only slight fluctuations observed between time points. Similarly, during the intervention period (T3 to T4), GL’s self-esteem score did not change and remained low (see Figure 4). During the follow-up periods T4 to T6, however, there appeared to be a clear positive trend, and GL’s self-esteem score exceeded preintervention values, suggesting a possible delayed intervention effect.
Figure 2 — Seven A-POMS subscales are presented, showing scores throughout the 9-week protocol.

Figure 3 — The A-POMS was administered before and after each writing session (W1 to W3); Total Mood Disturbance (TMD) score was calculated for each time point within the 3-day intervention period.
Linguistic Analyses

Each of GL’s three writing samples were analyzed separately using the LIWC text analysis program (Pennebaker et al., 2007), as illustrated in Table 2. Six text dimensions were examined, based on recommendations from previous writing studies, as well as considering overall variables of interest. The percentage of total words categorized as affect-related, positive emotions, negative emotions, cognitive processes, insightful words, and causal words were examined. The broad category of affect words comprised positive and negative emotions, as well as incorporating other indicators of emotion-based text, such as words relating to anger (e.g., hate, annoyed), sadness (e.g., crying, sad), and anxiety (e.g., worried, nervous). The overall category of cognitive processes was included to assess the degree to which GL was actively thinking. It comprised words in the causation and insight categories, as well as words relating to discrepancies (e.g., would, should, could), tentative thinking (e.g., maybe, perhaps), certainty (e.g., always, never), and inhibition (e.g., block, constrain). Across the 3 days of writing, GL demonstrated overall increases in each of the six categories, although some categories demonstrated fluctuations during the 3-day period. The percentage of affective words, cognitive process markers, insight words, and causal words all consistently increased from Day 1 to Day 3. Despite showing a slight decrease during Day 2, the total word count for the writing sample on Day 3 (842) had increased markedly from that of Day 1 (752). The percentage of positive and negative emotion words, as well as anger words, also showed an overall increase despite falling slightly during Day 2 (see Table 2).
Discussion

The results from this case study provide preliminary evidence for the effectiveness of written emotional disclosure as a therapeutic tool within a sport injury setting. The opportunity for GL to write about the emotions associated with his injury appeared to have a positive effect on indices associated with rehabilitation from long-term injury. These findings reflect those presented by Pennebaker and colleagues in the health psychology and trauma recovery literature. Moreover, as proposed in Pennebaker and Seagal (1999), the likely mechanism by which GL benefited from the writing intervention was disinhibition of negative emotions and greater cognitive integration of the injury event. Inhibiting thoughts requires much physiological effort, which can have detrimental long-term consequences. By disclosing these negative emotions via the writing process, GL was able to give structure and meaning to his thoughts about the injury. It is likely that this process made the emotions associated with the injury more manageable and decreased GL’s cognitive confusion (Graybeal et al., 2002). Interestingly, sport psychology researchers have consistently suggested that the most effective way to attain psychological recovery after a physical injury is for athletes to internalize and accept the reality of their injury while taking personal control of the recovery process (Bianco et al., 1999; Tracey, 2003; Udry, 1997). Yet there has been no research to follow-up on these recommendations. Findings from the current study suggest that giving the athlete an opportunity to construct stories pertaining to his injury experience may allow this internalization and meaning-making process to take place, thus providing preliminary support for the assertions made by past researchers.

Athletic injury has only recently been defined or empirically examined as a trauma (Gallagher & Gardner, 2007; Gardner & Moore, 2006; Newcomer Appaneal, Perna, & Larkin, 2007), as athletes do report experiencing a great deal of traumatic stress when recovering from injuries. Moreover, injury events have been shown to elicit grief responses, and they can cause depressive mood states with the potential to hinder the athlete’s rehabilitation (Gardner & Moore, 2006; Tracey, 2003). The present study demonstrated that an injured athlete, despite completing regular physical rehabilitation, can display poor psychological rehabilitation for up to four months postsurgery. Within the competitive sport environment, athletes like GL may consider themselves to be rehabilitating well because they regularly attend rehabilitation sessions and receive adequate proprioceptive feedback regarding efforts and improvements in their physical recovery. Coaching staff and teammates are also interested in the athlete’s physical well-being and encourage the individual to continue their physical rehabilitation work. This exclusive focus on physical recovery, however, may actually mask potential problems associated with an athlete’s psychological rehabilitation.

Because of the emotionally inhibitive climate of sport and the nature of the accepted norms within this competitive environment, injured athletes often suppress the nonphysical side of their rehabilitation in favor of superficially discussing physical rehabilitation in a positive manner, so as to avoid negative evaluations from others (Howe, 2004; Messner, 1992). GL represents a characteristic example of a competitive athlete rehabilitating within such a climate. Despite not expressing any outward signs of disturbance, GL still reported relatively high
avoidance behaviors and experienced intrusive thoughts. In addition, he showed elevated mood disturbance and low self-esteem during the baseline phase of the study. Lingering traumatic stress, in the context of athletic injury rehabilitation, can translate to poor psychological recovery from injury. It can also have severe implications for a recovered athlete when considering such issues as returning to competitive sport, commitment to sport upon return, and trust in one’s body during intense competition. The manner in which an athlete deals with these issues may ultimately determine whether he or she remains actively involved in sport after recovery (Howe, 2004).

Interestingly, only a few of the psychological indices measured showed observable changes that coincided with the intervention phase. Most of the measures were high at the first baseline measure and showed a pattern of consistent decline throughout the nine-week period, indicating a time effect and potentially confounding any intervention effects. Therefore, when values were grouped and averaged according to pre- and postintervention time points, there were likely false prepost differences. This finding suggests that at four months postsurgery, GL may have been still grieving and demonstrating symptoms of continued traumatic stress. Yet an alternative explanation from the time effect may offer a better explanation for this pattern of results. Specifically, steady changes in GL’s stress, mood, and self-esteem could have been the result of his regular participation in the study, a phenomenon known as the Hawthorne effect. Before his involvement in the study, GL was receiving only physical rehabilitation and received no assistance with regard to his psychological issues. During the nine-week protocol, however, he was regularly asked to complete questionnaires that forced him to address these mental issues. This process may have provided GL with a type of regular “therapy” and elicited the positive responses commonly associated with therapy. Bianco and colleagues (Bianco, 2001; Bianco et al., 1999) reported that athletes often long for social support during rehabilitation but rarely find it within their sport environment. Participating in this study may have satisfied GL’s need for social and emotional support and, consequently, improved his rehabilitation experience simply by virtue of his involvement.

Given this alternative interpretation, it is important to consider the generalizability of the results from this study and acknowledge the limitations inherent in the single-subject paradigm. GL was chosen as a representative case for the sample population of interest (i.e., injured elite athletes). If the same intervention were tested on a larger representative sample, measuring the same variables of interest, the unique effects found in the case of GL might be absent, or they might manifest in different ways.

The most reliable evidence that GL was not rehabilitating optimally from his injury came in the form of his written narratives. GL expressed many concerns and identified several emotional barriers throughout the three days of writing, and he became more adept at using affective words to identify and describe his experience as the intervention continued. After the written disclosure intervention, GL demonstrated an enhanced cognitive understanding of his injury experience, a treatment gain that has been linked to enhanced psychological and immunological functioning (e.g., Graybeal et al., 2002; Pennebaker & Seagal, 1999). These findings, if replicated on a larger scale within sport, could have significant implications for the way competitive athletes rehabilitate from injury. For an athlete such
as GL, who was recovering from his trauma within a highly inhibitive and nondisclosing climate, the written form of disclosure had the utility of being therapeutically effective, while remaining noninvasive relative to his public environment. Therefore, the study of written emotional disclosure as a potential facilitator for enhanced psychological rehabilitation from sport injury merits further investigation.

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References


