
RESEARCH NOTE

JOURNAL OF SPORT & EXERCISE PSYCHOLOGY, 1999, 21, 167-173

© 1999 Human Kinetics Publishers, Inc.

A Psychometric Evaluation of the Rehabilitation Adherence Questionnaire

**Britton W. Brewer, Joanne M. Daly, Judy L. Van Raalte,
and Albert J. Petitpas**
Springfield College

Joseph H. Sklar
New England Orthopedic Surgeons

Rehabilitation programs are prescribed for many of those who incur the estimated 3 to 17 million sport- and recreation-related injuries sustained annually in the United States (Booth, 1987; Kraus & Conroy, 1984). Failing to adhere to sport injury rehabilitation programs can have an adverse impact on rehabilitation outcomes (Hawkins, 1989; Meani, Migliorini, & Tinti, 1986; Satterfield, Dowden, & Yasamura, 1990). Similarly, there is evidence that high levels of adherence to rehabilitation are associated with more favorable outcomes (Brewer et al., 1998; Derscheid & Feiring, 1987; Quinn, 1996; Tuffey, 1991). Consequently, researchers have attempted to identify predictors of adherence to sport injury rehabilitation. As noted in a recent review of the literature (Brewer, 1998), factors related to sport injury rehabilitation adherence include personal characteristics (e.g., personality), situational characteristics (e.g., social support for rehabilitation, perceived injury severity), cognitive responses (e.g., causal attributions), emotional responses (e.g., mood disturbance), and behavioral responses (e.g., instrumental coping).

In one of the first empirical investigations of adherence to sport injury rehabilitation programs, Fisher, Domm, and Wuest (1988) administered the Rehabilitation Adherence Questionnaire (RAQ) to athletes who had completed injury rehabilitation. The RAQ is a self-report inventory with subscales designed to assess (a) perceived exertion, (b) pain tolerance, (c) self-motivation, (d) support from significant others, (e) scheduling, and (f) environmental conditions. Fisher et al. found that high scores on each of the subscales were associated with better adherence to clinic-based sport injury rehabilitation protocols.

The RAQ has been used in two additional retrospective, clinic-based studies. Byerly, Worrell, Gahimer, and Domholdt (1994) found that higher scores on the subscales for pain tolerance and support from significant others were related to better rehabilitation adherence. Fields, Murphey, Horodyski, and Stopka (1995) obtained positive associations between rehabilitation adherence and scores on the

Britton W. Brewer, Joanne M. Daly, Judy L. Van Raalte, and Albert J. Petitpas are with the Center for Performance Enhancement and Applied Research, Department of Psychology, Springfield College, Springfield, MA 01109-3797. Joseph H. Sklar is with New England Orthopedic Surgeons, Springfield, MA 01104.

subscales for pain tolerance, self-motivation, support from significant others, and scheduling.

Despite some consistency in the findings of studies using the RAQ, particularly with respect to the subscales for pain tolerance and support from significant others, research with the RAQ is limited in two important ways. First, because of their retrospective designs, the studies could not establish a time-order relationship (a prerequisite for inferring causality) between the psychological factors assessed by the RAQ and rehabilitation adherence. Second, because no reliability and validity data have been reported for the RAQ, it cannot be assumed that the RAQ subscales are stable or consistent measures or that they measure what they are intended to measure. Therefore, the purpose of this investigation was to examine the psychometric properties of the RAQ using a prospective research design.

Phase 1

Method

Participants. Participants were 31 individuals (19 males and 12 females) who, as a result of sport participation, had acquired knee injuries requiring either arthroscopic or open surgery (e.g., ACL reconstruction, meniscectomy, patellar realignment). To meet selection criteria, participants had to (a) be enrolled in a clinic-based rehabilitation program, (b) have been in physical therapy for at least 1 week, (c) have at least 1 week of rehabilitation appointments remaining, and (d) identify themselves as either recreational or competitive athletes.

Measures. The RAQ is a 40-item self-report inventory with six subscales: perceived exertion (2 items), pain tolerance (11 items), self-motivation (8 items), support from significant others (10 items), scheduling (6 items), and environmental conditions (3 items). Item responses are made on a four-point agree/disagree Likert scale (i.e., *strongly agree*, *agree*, *disagree*, and *strongly disagree*). It was modified slightly for the current study. All items were changed to read in the present rather than past tense to make them suitable for a prospective research design. Items on the RAQ subscale for support from significant others that mentioned "teammates" were altered to include "teammates, family, or friends." This modification was necessary to make the RAQ applicable to athletes participating in individual sports.

To assess the criterion-related validity of the RAQ, three measures of adherence to rehabilitation were administered. First, patient attendance at rehabilitation sessions was monitored. For each participant, a ratio of sessions attended to sessions scheduled was calculated. Attendance has been used as an adherence measure in previous sport injury research (e.g., Byerly et al., 1994; Fields et al., 1995).

Second, adherence during rehabilitation sessions was assessed with the Sport Injury Rehabilitation Adherence Scale (SIRAS; Brewer, Van Raalte, Petitpas, Sklar, & Ditmar, 1995). The SIRAS is a three-item measure in which rehabilitation practitioners rate participants' intensity of effort on rehabilitation exercises, frequency of following practitioner instructions and advice, and receptivity to changes in the physical therapy program during that day's appointment on five-point Likert-type scales. Scale anchors for the three items are *minimum effort/maximum effort*, *never/always*, and *very unreceptive/very receptive*, respectively. Cronbach's alpha coefficients of .81 (Brewer et al., 1995) and .82 (Daly, Brewer, Van Raalte, Petitpas,