

VALIDATION OF THE QUALITY AND IMPORTANCE OF RECREATIONAL SPORTS SCALE

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Introduction

Recreational sports programs are an important component of the overall undergraduate experience. The impact of involvement in out-of-class activities on a student's collegiate experience has been well-documented (Astin, 1984; Abrahamowicz, 1988; Kuh, 1993; Kuh, 1995). Numerous benefits have been found to be associated with involvement in out-of-class activities, including gains in student learning (Kuh, 1994), enhanced affective development (Pascarella, 1985), ease of social integration (Bryant, et al., 1994; Christie & Dinham, 1991), and increased retention rates (Astin, 1977; Pascarella & Terenzini, 1991; Tinto, 1987).

The importance of documenting outcomes of recreational sports involvement for college students has become quite clear in recent years (Ross & Young, 1997). Competition for university funding for student affairs related programming on campus and stakeholders' demands for results are pushing campus recreational sports programs to document outcomes. Central to this focus on documenting benefits is the availability of psychometrically sound tools to assess program impacts. In order to be effective, instruments should be comprehensive of the multitude of benefits of recreational sports participation, yet manageable to administer, and appropriate for the intended target population. The purpose of this paper is to describe the development and validation of a self-report instrument designed to measure the benefits of participation in collegiate recreational sports programs.

Methods

In the early 1990's, the National Intramural Recreational Sports Association developed the Quality and Importance of Recreational Services (QIRS) survey based on an extensive review of the literature on student development outcomes and the impact of out-of-class activities on a student's collegiate experience. The QIRS survey assessed student involvement and satisfaction with campus recreational programs and facilities, and their relationship to recruitment, retention, outcomes, and satisfaction with the institution. The QIRS survey was developed by the NIRSA, in conjunction with the National Center for Assessment (NIRSA, 1991) and was initially pilot tested to 591 seniors at a comprehensive doctoral granting institution and then to five different institutions and over 2,586 students. Responses to the instrument questions are normally distributed and the psychometric properties of the benefits scale suggest it is reliable (NIRSA, 1991, 2000). However, despite the extensive review of background literature, and the rigor in which the QIRS survey was pilot tested, the researchers failed to confirm the factor structure of the scale and subsequent studies using the scale have failed to do this as well. Therefore the purpose of this study is to use Principal Components Analysis (PCA) to confirm the underlying dimensions (construct validity) of the QIRS survey and Confirmatory Factor Analysis to determine the fit of the model.

In order to test the factor structure of the QIRS survey, a modified version of the instrument (NIRSA; 1991, 2000) was administered randomly on-site to students

participating in various recreational sports programs (club sports, intramurals, strength and conditioning, aquatics, group exercise classes, and informal drop-in recreation activities) over a three week period at a comprehensive post-secondary institution.

Results

Seven hundred and eighteen (N=718) surveys were collected over the three week period. The Benefits scale of the QIRS survey was evaluated using Principal Component Analysis (PCA) and Confirmatory Factor Analysis (CFA). PCA was used to confirm the underlying dimensions (construct validity) of the benefits of campus recreation and CFA was used to determine the fit of the model. Multiple indices were used to determine the model fit of the instrument, including overall chi-square, root-mean-square error of approximation (RMSEA), the Bentler-Bonett normed fit index (NFI), and the comparative fit index (CFI).

Using PCA with a varimax rotation, the data confirmed a three factor model of the 20 items included on the instrument. The factors each had eigenvalues greater than 1.0 and in the order of variance explained, were labeled social, fitness, and intellectual skills. These three factors accounted for 68.59 percent of the variance in the benefit model.

Social benefits were comprised of questions such as: group cooperation skills, respect for others, feeling a sense of belonging, and leadership skills. Fitness benefits asked questions about: feeling of physical well-being, sense of accomplishment, sense of adventure, sports skills, fitness, physical strength, stress reduction, balance-coordination skills, and self-confidence. Intellectual benefits asked questions about: communication skills, problem solving skills, study habits, time management skills, understanding written information, and ability to handle several tasks at once. Higher scores on each benefits scale indicated benefiting more within that area.

Model fit was evaluated using the four previously mentioned fit indices. The results of the CFA on the three factor model produced a good fit. Using maximum likelihood estimates, the overall chi-square was 1382.01 ($p < 0.001$) indicating a good model fit. The RMSEA value was 0.10 indicating an adequate model fit. NFI and CFI values greater than 0.95 indicate an excellent model fit. The NFI value for this model was 0.97 and the CFI was 0.97, thus indicating an excellent model fit. These findings suggest that the scale composition represents the underlying factor structure of the benefits model very well.

Further examination of PCA and CFA modification indices of the model indicated that two of the items were highly correlated. The item measuring fitness and the item measuring strength were highly correlated ($r = 0.83$) suggesting that the model would be a better fit by allowing those items to correlate in the CFA. In addition, the item titled self-confidence loaded moderately on all three factors. Modification indices suggested that removing this item from the model would also allow for a better fit. The data was then re-analyzed using CFA after removing self-confidence and allowing fitness and strength to correlate. Using maximum likelihood estimates, the chi-square was 1079.64 ($p < 0.001$), indicating a good model fit. The RMSEA value decreased to 0.09 indicating an adequate fit, but better than the original model. The NFI and CFI values both increased to 0.98 indicating an excellent model fit, as in the original results, but slightly better. Cronbach's alpha reliability coefficients were used to examine the internal

consistency of the scale. Cronbach's alpha for the social, fitness, and intellectual skills were .892, .900, and .894 respectively.

Discussion

The purpose of this study was to examine the underlying factor structure of the benefits scale of NIRSA's Quality and Importance of Recreational Services survey. The results from PCA and CFA indicated that the three factor model was a good fit and a valid instrument in measuring the benefits of collegiate recreational sports participation. PCA and CFA analyses suggested that by allowing fitness and strength to correlate, the fit of the model would be improved. The PCA and CFA analyses also suggested that removing self-confidence from the model creates a better overall model fit. However, theoretically, self-confidence has been recognized as a benefit from participating in campus recreation (Collins, Valerius, King, & Graham, 2001; Haines, 2001; Kanters & Forrester, 1997a, 1997b).

The problem in this model may lie in the interpretation of self-confidence. Since self-confidence loads moderately on all three factors, it could be assumed that subjects developed self-confidence in social, fitness, and intellectual skills. In fact, Hattie (1992) determined that self-confidence is associated with seven self-concepts. These self-concepts are academic self-concept, ability self-concept, class self-concept, peer self-concept, family self-concept, social self-concept, and physical self-concept. Academic self-concept is defined as feelings about school work. Ability self-concept can be described as feelings about academic skills. Class self-concept deals with feelings about relative position in peer group and peer self-concept is the ability to get along with other people. Family self-concept relates to perceptions of family support. Social self-concept is the general perception of how one is viewed by others physical self-concept describes perceptions about physical attributes (Hattie). Based on previous research that participation in campus recreational sports contributes to improving self-confidence (Collins, Valerius, King, & Graham, 2001; Haines, 2001; Kanters & Forrester, 1997a, 1997b), this model may be improved by including three unique self-confidence items specifically related to each of the three factors (social, fitness, and intellectual). Social exchange theory (Blau, 1964), and Astin's theory of involvement (1984) provide theoretical frameworks that both justify examining the benefits of recreational sports participation as well as demonstrate the implications for post secondary institutions. The tenets of social exchange theory posit that individuals will: a) attempt to maximize rewards while at the same time minimize costs (make participation decisions based upon maximizing benefits while minimizing the time and effort in achieving those benefits), b) predict present outcomes based upon past experiences, and c) maintain interactions in which rewards exist (i.e. continue recreational sports participation as long as they continue to benefit) (Blau). The college student development literature presents evidence which suggests that the, "amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement in that program" (Astin, p. 298). This theory of student involvement is central to understanding the impact that out-of-class experiences, such as involvement in campus recreational sports activities, have on the student experience. The more students are involved and personally developing, the likelier they are to persist, a key goal of post secondary institutions in their retention efforts.

Practical Implications

As more and more colleges place recreational sports departments under the administrative auspices of student affairs, student services, student life, etc... the need becomes apparent to link the benefits of recreational sports programs with broader institutional and higher education goals. This instrument quantifies the benefits of recreational sports involvement in three major areas supported by the literature which will allow recreational sports professionals to further justify increased allocations of funds to support their programs (Nesbitt, 1993). With all the attention given to outcomes assessment (Ewell, 1991) it is, “disappointing that the contributions of out-of-class experiences to learning and personal development have received so little attention, particularly given that students attach so much importance to such experiences” (Kuh, 1993, p.301). There is more to discover about the contributions of out-of-class experiences to student learning and personal development. For example, studies that attempt to link various out-of-class experiences (e.g. recreational sports participation) with specific outcomes would be useful to institutional decision makers responsible for weighing the merits of allocating resources to such activities (Kuh).

One of the challenges that campus recreational sports professionals face is the lack of empirical research that documents the extent to which participation in recreational sports impacts college students (Barcelona and Ross, 2002). The issue of assessment for collegiate recreational sports professionals is crucial. If measurement instruments are not psychometrically sound and comprehensive of the multitude of benefits of recreational sports involvement then linkages to broader institutional goals cannot be made. In order to assess the impact of recreational sports involvement, researchers need to develop instruments that assess the positive impacts of physical activity in the context of the institutions broader goals. Recreational sports departments are being held increasingly accountable for documenting the tangible outcomes of their programs and services on campus. The ability to perform valid and reliable measurement is essential to demonstrate impact since the demand for effective measurement in recreational sports programs and services has never been greater. Given the need to demonstrate the positive outcomes and program impacts, recreational sports professionals are becoming increasingly aware of the necessity to utilize or develop psychometrically sound instruments that can be used in their assessment and outcome measurement efforts. The results from this study provide support that the Quality and Importance of Recreational

Services survey is one such psychometrically sound instrument that the field of recreational sports can utilize to document the impact that they are having on campuses.

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