A Review Study on the Development and Validation of Athletic Identity Measurement Scale

Anil Baloni, Research Scholar

Sri Satya Sai University of Technology & Medical Sciences, Sehore, M.P.

Dr. Minakshi Pathak, Professor

Sri Satya Sai University of Technology & Medical Sciences, Sehore, M.P.

Abstract

The purpose of this research is to review the literature that is related to the Athletic Identity Measurement Scale (AIMS) and to build a foundation to examine the athletic Identity. This research begins with defining athletic identity, then followings with describing how athletic identity has been measured with a unidimensional scale (i.e., AIMS1) and multidimensional scales (i.e., AIMS3 and AIMS4). Next, the social psychology literature is reviewed, in addition to literature related to the Sport Identity Index (SII). Finally, the literature is synthesized and a conceptual framework is presented that proposes a more comprehensive Athletic Identity Measurement Scale (AIMS-Plus) consisting of multidimensional scale (i.e., AIMS5).

Keywords: Athletic Identity, Athletic Injury, Athletic Performance, Validation.

Introduction

Since the late nineteen-eighties, athletic identity has been linked to a variety of attitudes and behaviors. Similar to how an athletic director manages, evaluates, and modifies their department an athlete manages, evaluates, and modifies their identities, the athlete role specifically. This self-organization and direction is based on continuing interaction with their environment and the people in it. The term identity has been described as the "parts of (the) self-composed of the meanings that (we) attach to the multiple roles (we) typically play in (our) highly differentiated (American) society" (Stryker & Burke, 2000, p.284). This identity is part of a larger self-concept, which is characterized as a self-description (i.e., subjective measure) more than a self-evaluation (i.e., objective measure) and defined as the assortment of roles, attributes, and behaviors that adequately describe ourselves to establish self-esteem and self-worth (Duda, 1999). This description of self-concept is utilized more in sociology studies than psychology or philosophy because it provides a framework for the construct of identity (Duda, 1999). Our identities, such as family, friendship, athletic, academic, religious,

and romantic, are maintained and changed by the degree of our positive feelings, which are a product of self-esteem and the amount of social support received from others.

In sport, the interaction between an athlete and their environment (e.g., family, friends, coaches, and the media) describes the self-perception theory that states behavior is given credibility by the positive or negative reinforcement advocating or opposing our behavior (Duda, 1999). As self-concept is a description of the person we are, the ideal self would be the person that we would like to become. For example, an athlete believes that becoming a professional basketball player is realistic but will require sacrifice in other areas of life (e.g., family, friendship, academic, religious, or romantic). This overemphasis on sport involvement may influence their participation in other social activities. In addition, this type of athlete is vulnerable to identity foreclosure resulting in the development of a strong and exclusive athletic identity. Identity foreclosure is the degree a person commits to a role without engaging in behavior that allows for exploration of other identities that results from demands and expectations of the environment or by individual choice (Murphy, Petitpas, & Brewer, 1996).

Evaluative statements about such phenomena as, but not limited to, identity foreclosure, commitment to sport, mood disturbance, academics performance, sport performance drug usage, sport career expectations, transition out of sport, and reinforcement of gender ideologies may be explained to some extent by the construct of athletic identity. Therefore it is important to define athletic identity in order to associate sport-related occurrences to this construct. Brewer, Van Raalte, and Linder (1990, p.2) originally defined athletic identity as "the degree to which an individual identifies with the athlete role." Since their presentation at the 1990 North American Society of Sport and Physical Activity Conference, several scholars have modified the athletic identity definition but maintained the key components of the concept. The following is a list of these definitions describing athletic identity: "the strength and exclusivity of an individual's identification with the athlete role" (Good, Brewer, Petitpas, Van Raalte, & Mahar, 1993, p.2); "the degree to which an individual identifies with the athlete role (Smith, Hale, & Collins, 1998, p.66) and "looks to others for acknowledgement of that role" (Martin, Mushett, & Smith, 1995, p.114); "one aspect of the self-concept and the degree to which an individual identifies with the athletic role" (Lantz & Schroeder, 1999, p.547); "the degree athletes identify with the athletic role" (Hurst, Hale, Smith, & Collins 2000, p.432); and "the extent to which a person identifies with the athlete role" (Horton & Mack, 2000, p.102). Therefore, the researcher would like to define athletic

identity as the degree of importance, strength and exclusivity attached to the athlete role that is maintained by the athlete and influenced by their environment.

Measuring Athletic Identity – A Unidimensional Scale

The examination of both sport and athletic identity from unidimensional to multidimensional perspectives has been accomplished with approximately thirty-seven empirical studies. The Athletic Identity Measurement Scale (AIMS; Brewer, Van Raalte, & Linder, 1993) requires participants, both athletes and non-athletes, to rate themselves on a 10-item instrument with responses ranging from "strongly disagree" to "strongly agree" on a 7-point scale. These items are summed to produce a single self-evaluation score that represents their athletic identity. This unidimensional approach of the AIMS is basically a frequency count of both positive (i.e., items 1, 2, 3, 4, 5, 6, 7 and 9) and negative (i.e., items 8 and 10) self-perceptions of the athlete role and self (Duda, 1999) – refer to table 2.1. In addition, it is assumed that equal value to the specific elements of the self have been given by the individual responding to the statements of the AIMS (Duda, 1999).

Table 1. Items of the AIMS that evaluate the positive and negative self-perceptions of the athlete role

Item #	Positive Statement
1	I consider myself an athlete.
2	I have many goals related to sport.
3	Most of my friends are athletes.
4	Sport is the most important part of my life.
5	I spend more time thinking about sport than anything else.
6	I need to participate in sport to feel good about myself.
7	Other people see me mainly as an athlete.
9	Sport is the only important thing in my life.
Item #	Negative Statement
8	I feel bad about myself when I do poorly in sport.
10	I would be very depressed if I were injured and could not compete in sport.

This version of the Athletic Identity Measurement Scale does not attempt to measure the different athletic domains (i.e., social identity, self-identity, exclusivity, negative affectivity, and positive affectivity), thus, ignoring data that would provide additional information about the self-concept and behaviors of the individual. Indeed, there have been several studies (Brewer, Boin, & Petitipas, 1993; Brewer & Cornelius, 2002; Hale, James, & Stambulova, 1999; Hurst, Hale, Smith, & Collins, 2000; Martin, Eklund, & Mushett, 1997; Martin,

Mushett, & Eklund, 1994; Martin, Mushett, & Smith, 1995; Smith, Hale, & Collins, 1998; Martin, 1999; Ryska, 2002; Ryska, 2003) that do not support a unidimensional approach to measuring athletic identity and its associated phenomena.

Construction And Validation of the Aims

Brewer, Van Raalte, and Linder's (1990) conceptualization of athletic identity, which was presented at the North American Society for the Psychology of Sport and Physical Activity Conference, stated that a person with strong athletic identity ascribes great importance to their involvement in sport and has knowledge of their self-perceptions in the athletic domain. Brewer and his colleagues hypothesized a relationship existed between strength of athletic identity and the positive and negative outcomes of sport participation and in order to test this relationship, a scale had to be developed and its preliminary validation had to be confirmed. Their initial study developed and confirmed validity of the Athletic Identity Measurement Scale by surveying two hundred forty-three undergraduate student non-athletes (n=124 females and n=119 males) of an introductory psychology course. Each participant completed the AIMS, Perceived Importance Profile (PIP-Sport), and an adoption of the Crowne-Marlowe Social Desirability Scale (CMSD) twice over a 14 to 16-day period.

The following results of the study utilizing a non-athlete sample were reported by Brewer, Van Raalte, and Linder (1990): 1) preliminary components factor analysis indicated that the AIMS is unidimensional, 2) support for internal consistency (alpha coefficient =.93), 3) test-retest reliability of .89 after 14-days, 4) construct validity of .83 when correlated with a measure of perceived importance of sport competence, and 5) high AIMS scores are not related to socially desirable answers via non-correlation with the CMSD scale. Thus, testing a non-athlete sample found the AIMS to be a reliable, internally consistent instrument providing support for the claim that the AIMS does assess identification with the athlete role. In addition, males scored significantly higher on the AIMS than their female counterparts, maybe illustrating how our society emphasizes sport participation for males while not crediting females for their sport participation (Brewer, Van Raalte, & Linder, 1990).

Under the assumption that the AIMS is a unidimensional measurement, the following empirical research has provided evidence that strong identification with the athlete role results in both positive and negative consequences due to sport participation. All empirical studies applying the AIMS as a unidimensional model are listed in the order reviewed.

Subsequently, to continue the process of instrument construction, validation, and association, Brewer, Van Raalte, and Linder (1991) conducted 3-studies to evaluate the construct validity of the Athletic Identity Measurement Scale and to begin associating athletic identity with sport related occurrences (i.e., positive or negative outcomes). The following information was presented at the North American Society for the Psychology of Sport and Physical Activity Conference. Study 1 had four hundred forty-nine undergraduate psychology student non-athletes, both males and females (n is unknown), completed the following questionnaires: AIMS, Rosenberg Self-Esteem Questionnaire (RSEQ), Self-Role Scale of the SII, and Sport Orientation Questionnaire (SOQ). The Sport Identities Index, SII will be discussed in detail later but the Self-Role Scale measures the involvement of the self in the sport role. As previous research indicated, this study demonstrated high internal consistency (alpha coefficient =.87) and males identified significantly higher with the athlete role than females. In addition, results indicated that the similar constructs of athletic identity and sport identity were highly correlated, and a moderate but significant correlation still existed between the AIMS and SOQ providing evidence of convergent validity. Further, a non-significant relationship between the AIMS and RSES confirmed independence of athletic identity from self-esteem.

The next study, Study 2, surveyed one hundred eighty undergraduate psychology student non-athletes, both males and females (n is unknown), and each participant completed the AIMS, RSEQ, and the femininity and masculinity scales of the Bem Sex Role Inventory (BSRI). The BSRI measures the masculine and feminine gender roles with 60-items (i.e., 20-masculine items, 20-feminine items, and 20-neutral items).

Consistent with the results in Study 1, the results of this study indicated a high internal consistency (alpha coefficient = .93) and no correlation between athletic identity and self-esteem. Again, males scored significantly higher on the AIMS than females. In addition, there was a significant relationship between athletic identity and masculine characteristics but not between feminine characteristics. Societal ideologies and the learned gender differences in athletics may in part explain the relationship between athletic identity and masculinity.

The final study, Study 3, had ninety intercollegiate football players (all males) of a Division III football team complete the AIMS in addition to measures of Physical Self- Perception (PSPP-Sport) and PIP-Sport scale. Also, prior to the competitive season, a rating of the athlete's skill level was obtained from the coach, which consisted of a 7- point scale anchored

by “much worse than average” and “much better than average.” According to Brewer, Van Raalte, and Linder (1991), the AIMS was correlated with the PIP-Sport (r = .42) but it is important to note that the perceived importance sport competence correlation of the athlete population was much lower than the non-athlete population (r = .83) of the 1990 study. These figures may be questionable but still provide evidence of construct validity. Also, there was not a correlation between athletic identity scores to PSPP-Sport score (r = .12) nor player skill rating. The lack of correlation between athletic identity and player skill rating could be due to the subjective nature of the assessment. However, Brewer, Van Raalte, and Linder (1991) stated that the three studies together provided support for the construct, convergent and discriminant validity of the AIMS. Both the 1990 and 1991 studies were published in an article titled “Athletic Identity: Hercules’ Muscles or Achilles Heel?” (Brewer, Van Raalte, & Linder, 1993).

Athletic Identity and Injury

Following the construction and validation of the AIMS, the majority of research has measured and discussed athletic identity with a unidimensional model. Therefore, it will be beneficial to review this literature to establish patterns with AIMS scores and athlete behavior. To date, research has examined the relationship between the strength and exclusivity of athletic identity and various athletic injuries, types of reactions to the injuries, and influence of social support and coping skills (Brewer, 1993; Green & Weinberg, 2001). According to Brewer (1993), cognitive models of stress suggest that individuals with specific cognitive vulnerabilities (e.g., patterns of self-identification with social roles) are susceptible to depression as a result of a traumatic episode (e.g., sport injury) in life but not if such an episode does not occur.

The first of four studies conducted by Brewer (1993) had one hundred nine undergraduate student non-athletes (n=61 males and n=48 females) complete the AIMS and the Profile of Mood States State – depression subscale (POMS-D) as part of a hypothesized injury group (n=85) or a control group (n=24). Results of the study implied a positive relationship existed between athletic identity and depressive reactions of the hypothesized injury group but not the control group. In conclusion, “the findings of this study are in accord with the hypothesis of specific vulnerability in that depressive response to a hypothetical career-ending athletic injury was positively associated with domain specific vulnerability characteristics (such as) a strong, exclusive identification with the athlete role” (Brewer, 1993, p.348).

The second study involved one hundred thirty-one social psychology student non- athletes (n=27 males, n=89 females, and n=15 unspecified). The protocol of this study was similar to the previous study and had participants complete the AIMS and POMS-D but this time hypothesizing that they had either "suffered a career ending injury" or "failed an academic course". Brewer's (1993) hypothesis that stated "athletic identity would be positively associated with depression for injury subjects but not for course failure subjects" seemed to be incorrect. There was an association between high athletic identity and depression caused by hypothetical injury and course failure but course failure subjects had significantly higher POMS-D scores than injury subjects. This difference may have been due to the fact that the majority of study participants were students (i.e., non-athletes) not athletes and in general, students have a tendency to value their academic progress and success more than athletes.

One hundred twenty-one athletes (n= 81-males and n=40 females) with actual injuries who were patients at a sport medicine clinic participated in the third study. Each athlete completed the AIMS, Social and Athletic Readjustment Rating Scale (SARRS), and POMS-D questionnaires. In addition, each physician rated the severity of the athlete's injury on a 3-point scale (i.e., 1 = mild, 2 = moderate, and 3 = severe) and injury status of the athlete on a 7-point scale (i.e., 1 = acutely injured to 7 = completely recovered). As predicted, athletic identity scores were significantly related to depression scores and injury severity but were not significantly related to injury status. These conflicting results could have been due to the type of evaluative scores being utilized.

The athlete provided both athletic identity and depression scores, while a physician provided injury severity and injury status scores of the athlete. In addition, the more obvious is that athletic identity, depression and injury severity evaluations are objective measurements, while injury status is a speculation and subjective measurement.

The fourth study had ninety intercollegiate football players (all male; 15-injured and 75-uninjured athletes) of a Division II football team complete a series of questionnaires similar to the previous study. "Athletic identity was positively related to depression of injured (athletes) and negatively related to the depression for uninjured (athletes)" (Brewer, 1993, p.358). In addition, the foremost predictor of depression was the interaction of AIMS and injury status. Results for all four studies consistently demonstrated that a strong, exclusive athletic identity was linked to depressive reactions related to negative occurrences (e.g., athletic injury) (Brewer, 1993). It would be eight years before the next study examining

athletic identity as it related to injury and mood disturbance, however, Green and Weinberg's (2001) study produced similar results.

Green and Weinberg (2001) examined the relationship among athletic identity, coping skills, social support, and the psychological impact of an injury. The hypotheses tested were 1) higher athletic identity will result in a more negative psychological reaction to injury; 2) higher coping skills and social support will reduce the negative psychological impact of an injury; and 3) athletes with higher athletic identity and low coping skills and social support will be affected most from injury. The initial results of Green and Weinberg's (2001) study indicated that athletes with very low AIMS scores experienced extremely high levels of helplessness and sadness due to injury. Other than that, the study reported no significance relationships between athletic identity and the coping skills and social support variables. However, these results were most likely the product of a weak research design due to sample size (n=30), level of participation (i.e., recreational to competitive), age range of the sample (i.e., 19 – 70 years), and the number of questionnaires and items (i.e., 5-instruments and 140-items) for such as small sample.

Athletic Identity and Performance

Next, researchers examined the relationship between athletic identity and performance, specifically, negative outcomes such as a poor season, positive outcomes such as increased motivation and playing experience, and neutral outcomes such as time of season and year in school. Antshel (1995) compared the time of season (i.e., preseason, mid-season, championship season, and post-season) to the athletic identity of fifty collegiate swimmers (n=28 females and n=22 males). The athletes completed both the Athletic Identity Measurement Scale (AIMS; Brewer, Van Raatle, & Linder, 1993) and Sport Identities Index (SII; Curry & Weaner, 1987) four separate times during the season. Statistical analyses indicated that collegiate swimmers had a higher athletic identity during the championship season and post-season compared to the preseason and mid-season. Therefore, time of season would be an extraneous variable for the researcher to control. Additional results of the study implied differences existed in the following relationships: 1) athletic identity to gender with males scoring higher than females on the AIMS; 2) athletic identity and year in school with freshman and seniors being higher athletic identifiers than sophomores and juniors; and 3) moderate skill and experience level athletes had higher athlete identity in contrast to high skill and experience level athletes.

Brewer, Shelby, Linder, and Petitpas (1999) conducted two studies that examined the relationship between athletic identity and a poor competitive season. Study 1 involved ninety varsity football players (all male) at a Division II university and that completed the AIMS at the beginning of the season and eleven weeks later at the end of the season. In addition, each participant had to rate their satisfaction with their performance during the season on a 7-point scale anchored by 1 = not at all satisfied to 7= very satisfied. To confirm the athletes satisfaction rating, an assistant coach rated the athletes season performance utilizing a 7-point scale with a scores ranging from 1 = much worse than expected to 7 = indicating much better than expected. Prior to discussing the results, it should be noted that only 39 out of the original 90-athletes completed both the preseason and postseason testing due to attrition (e.g., academic obligations, injury). A statistical analysis implied there was no significant difference between those who completed the study compared to those who failed to finish the study. As for the results, "a significant positive correlation was obtained between season satisfaction ratings (of the athlete) and the assistant coach's quality of season rating" (Brewer, Shelby, Linder, & Petitpas, 1999, p.154). The research hypothesis was supported by the results that indicate an athlete's athletic identity decreased as a result of being dissatisfied with their performance for the season.

As for Study 2, one hundred fifteen collegiate athletes (all male) from the sports of football (n=84), soccer (n=15), and cross-country (n=6) completed the athletic identity questionnaire at the beginning of the season and at the end of the season – approximately twelve weeks later. Again, participants were asked to respond to the following statement, "I was satisfied with my performance this season", on a 7-point scale anchored by "1" indicating strongly disagree and "7" indicating strongly agree. Both preseason and late season data were collected from 65 out of 105 athletes and following a statistical comparison, no significant differences existed between those who successful completed the study and those who failed to complete the study.

Results supported that season satisfaction was related to late season athletic identity. "Thus, the tendency for (athletes), who were dissatisfied with their season, to decrease with the athlete role to a greater extent than participants who were satisfied with their season" (Brewer, Shelby, Linder, & Petitpas, 1999, p.156-157). In conclusion, results of both studies indicated that participants' athletic identity decreased as a result of not being satisfied with their athletic performance. "Although athletic identity was fairly stable over the course of (both studies), the reductions of athletic identity by (athletes) who were not satisfied with

their performances during the season illustrate the malleability of self-structures in response to loss" (Brewer, Shelby, Linder, & Petitpas, 1999, p.157). Therefore, the importance, strength, and exclusivity of athletic identity will decrease as a result of a poor performance and increase as a result of a good performance. As a result, the potential and actual outcomes related to sport participation influence the relationship between the level of athletic identification and level of motivation.

Baysden, Brewer, Petitpas, and Van Raalte (1997) examined the relationship between athletic identity and the motivational variables of burnout, goal orientation, and commitment. One hundred collegiate athletes from a football team (n=64; all male) and wresting team (n=36; 35-males and 1-female) participated in the study and completed the AIMS, an adapted version of the Maslach Burnout Inventory (MBI), Task and Ego Orientation in Sport Questionnaire (TEOSQ), and Sport Commitment Model Survey (SCMS). Baysden and his colleagues (1997) reported significant correlation between AIMS scores and scores on the following subscales and scales: depersonalization and personal accomplishment of the MBI; ego orientation of the TEOSQ; and sport commitment, sport enjoyment, and involvement opportunities for the SCMS. Therefore, individuals that identify more with their athlete role experienced more sport-related motivation. These results are consistent with the previous research of Curry and Weiss (1989), Brewer, Van Raalte, and Linder (1993), and Antshel (1995) that found a positive relationship between athletic identity or sport identity and competitive and fitness motives, competitiveness and goal orientation and success during the season, respectively.

Conclusion

The Athletic Identity Measurement Scale requires participants (i.e., athletes and non-athletes) to rate themselves on a 10-item scale with responses ranging from "strongly disagree" to "strongly agree". Within the 10-items, there are three established factors (i.e., social identity, exclusivity, and negative affectivity) and a possible fourth factor (i.e., self-identity) and all factors are a possible self-description that provide self- evaluation of the athletic role via a summated score characterizing the self-concept (Martin, Mushett, & Eklund, 1994). In addition, the context of sport has also been considered a vehicle for developing positive psychological attributes (Martin, 1999) – a possible fifth factor (i.e., positive affectivity). Therefore, within the self-description profiles of the athlete, the self-concept is represented and possibly measured by five subcategories to assess athletic identity (Duda, 1999). The

item content of the AIMS is "designed to encompass social (e.g., "Most of my friends are athletes."), cognitive (e.g., "I have many goals related to sport."), and affective (e.g., "I feel bad about myself when I do poorly in sport.") elements of athletic identity" that access the thoughts and feelings central to the daily experiences of an athlete" (Brewer & Cornelius, 2002, p.104) but needs the dimensionality of the AIMS to be established and validated.

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