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Are Athletes Addicted to Their Identity? The Development and Validation of the Athletic Identity Addiction (AIA) Scale

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Abstract

The purpose of this study was to develop a reliable and valid instrument for assessing the extent to which athletic identity is related to the tenets of addiction. Specifically, it was investigated whether athletes experience a behavioral addiction regarding their participation and involvement in sport. A total of 576 athletes (118 student-athletes, 458 former student-athletes) were included within a two-phase study. The first phase entailed crafting and testing the instrument, while the second phase focused on refining the instrument for validity and reliability. Results indicated a four-factor solution comprising the Athletic Identity Addiction (AIA) scale: (1) mood alteration, (2) withdrawal, (3) life conflict, and (4) relapse. Concerns within the Exploratory Factor Analysis (EFA) led us to remove salience and tolerance before reaching the final model. Each of the four factors established within AIA is substantiated by previous studies outlining challenges faced by athletes. This research provides insight into deep-seeded issues of athletic identity, indicating the importance of sport managers in developing appropriate means for aiding athletes in transitioning from elite sport participation. Findings also provide future, alternative perspectives for researchers to examine athletic identity.

Keywords: Athletic Identity; Behavioral Addiction; College Athletes; Former Athletes

Athletic identity and challenges faced by athletes' dedication toward their sports have been well documented (Lally & Kerr, 2005). For many athletes, athletic identity tends to be more salient, or most importantly, compared to other important personal interests and passions, often resulting in developmental and career disadvantages (Woodruff & Schallert, 2008). Perhaps most alarming from this research have been the instances where athletes struggle to transition away from their athletic-centric identities when they retire from competition (Douglas & Carless, 2006; Park, Tod, & Lavalee, 2012), especially those who have competed at more elite levels of sport (Ryba, Ronkainen, & Selänne, 2015). As such, researchers have lamented athletic identity becoming so salient that athletes often disregard all other identities, creating a toxic environment of isolation and separation from others (Adler & Adler, 1991).

Salience of athletic identity entails the likelihood of an individual prioritizing their athletic role in their conceptions of self to the detriment of other important life roles (Ryba, Stambulova, & Selänne, 2017; Stets & Burke, 2000). This salience is a primary factor in the difficulties observed in transitioning to other roles once athletes' playing careers have concluded. Particularly, this phenomenon has been observed with U.S. collegiate athletes (Clift & Mower, 2013; Murphy, Petitpas, & Brewer, 1996). In this context, research has shown that athletes tend to neglect academic and social role sets at the expense of their athletic roles (Bimper, 2014; Foster & Huml, 2017; Paule & Gilson, 2011). Even outside college athletics, athletes have shown to neglect school work and prominent events with friends and family, such as weddings and major holidays (Carless & Douglas, 2013a; Ryba et al., 2017).

While previous research has extensively identified the concerns of salient athletic identies, we argue that research has yet to fully understand the underlying issues contributing to this salience. This has limited the degree to which practitioners may effectively aid

in athletes' management of and transition to non-sport roles. With this research we adopted a novel approach to understanding athletic identity salience for elite-level athletes by drawing upon the constructs of behavioral and substance addiction. We theorize that athletes may exhibit symptoms of addiction related to their athletic identities. Previous studies in athletic identity have created indirect connections with concepts discussed in behavioral addiction research (Murphy et al., 1996), but have yet to explicity explore these relationships. This approach potentially could shed light on underlying issues of athletic identity salience and the difficulties faced by athletes transitioning out of their sport.

This research was aimed at developing an instrument to measure the extent to which athletic identity is related to the tenets of addiction. We sampled current and former college athletes in the U.S. to establish and validate the Athletic Idenity Addiction (AIA) scale. Results established a valid and reliable measurement of AIA, consisting of four constructs of withdrawal, life conflict, relapse, and mood alteration. We argue this approach and our findings yield theoretical and practical insights for practitioners to better support current and former athletes transititioning into non-playing careers. The implications of this research are further discussed in subsequent sections.

Theoretical Framework

Athletic Identity

This study builds upon and extends the tenets of athletic identity, which are rooted in identity theory. Identity theory entails "the categorization of the self as an occupant of a role, and the incorporation, into the self, of the meanings and expectations associated with that role and its performance" (Stets & Burke, 2000, p. 225). An individual's surrounding social structure is important in defining roles and building hierarchical systems that make certain roles more attractive and salient to the individual than others (Stryker, 1980; Stryker & Serpe, 1994). The process of forming an identity requires a person classifying her or himself into social constructs within which one most closely identifies (McCall & Simmons, 1978). Once individuals assume roles, they interpret feedback from their environment and social context regarding the meaning of their roles to others and generally assume identities within the role-sets that provide positive reinforcement (Burke, 1980). This generally is termed as identity salience and can result in a role being enacted in an improper context (Adler & Adler, 1991). For example, college athletes often enact the role of athlete within academic contexts such as classrooms (Adler & Adler, 1991).

As a means for assessing athletic identity, an instrument known as Athletic Identity Measurement Scale (AIMS: Brewer, Van Raalte, & Linder, 1993) was established. AIMS was designed to assess "the strength and exclusivity of identification with the athlete role" (Brewer et al., 1993, p. 242). AIMS initially was a uni-dimensional instrument that since has been modified to be multi-dimensional (Brewer, Cornelius, & Van Raalte, 2010), and is one of the most frequently used measurements for assessing athletic identity (Ronkainen, Kavoura, & Ryba, 2016). Additional concepts since have been introduced to measure athletic identity, some in conjunction with academic identity, the proverbial "teammate" of athletics for athletes participating in college sports. These measurements, such as Student-Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ: Gaston-Gayles, 2005), Baller Identity Measurement Scale (BIMS: Harrison, Rasmussen, Connolly, Janson, Bukstein, & Parks, 2010), Life After Sports Scale (LASS: Harrison & Lawrence, 2004), or the Academic and Athletic Identity Scale (AAIS: Yukhymenko-Lecroart, 2014), provide a unique context for how student-athletes balance various identity and responsibilities between their athletic and academic needs, including career transition. The majority of these scales are focused on student-athlete populations, highlighting a need for further examination into populations beyond college sports.

Built upon these concepts, athletic identity is a cognitive structure guiding role-related information (Brewer et al., 1993). Athletic identity research primarily has focused on the salience of athletic roles among athletes, generally at the expense of other important roles in their lives (Brewer et al., 2010; Rohrs-Cordes & Paule-Koba, 2018). Athletes

have suggested this pressure often comes from their surrounding social environments, such as family, friends, coaches, and even media outlets (Ronkainen et al., 2016). The ascribed value of sport within our society and the rewarding of positive athletic performances likely have created pressures on athletes to perceive non-sport related activities as secondary concerns compared to the requirements of being successful as an athlete (Carless & Douglas, 2013a; Douglas & Carless, 2009). This prioritization results in other important roles, such as friendships, hobbies, and post-athletic career plans, being engulfed by athletic roles (Adler & Adler, 1991; Woodruff & Schallert, 2008).

Athletic identity salience has been shown to be negatively associated with developmental, social, and emotional aspects of athletes' lives (Lally & Kerr, 2005; Douglas & Carless, 2009). In this regard, athletes may be more likely to have decreased optimism in their post-athletic career options (Foster & Huml, 2017; Tyrance, Harris, & Post, 2013) and delay exploring other career options until all athletic-related options are exhausted (Murphy et al., 1996). For others, struggles may occur when faced with unexpected changes impacting playing performance, such as pregnancy or catastrophic injury (Brewer et al., 2010). Furthermore, the lack of autonomy during their time within sport also may lead to difficulties outside sport, as time management skills and eating disorders have shown problematic in athletic retirement (Busanich, McGannon, & Schinke, 2014). Indeed, athletes have been found to struggle with transitioning to non-athlete roles when their careers have come to abrubt ends (Rohrs & Paule-Koba, 2018; Warriner & Lavallee, 2008), as identity confusion can be prevalent as athletic roles still may be enacted despite not being relevant or appropriate in other settings (Warriner & Lavallee, 2008).

These difficulties seem to suggest that athletic identity may be resultant of deep-seeded psychological issues for which athletes may be ill-equipped to manage (Murphy et al., 1996). We argue that previous research has yet to provide explanations of the core reasons that athletes often struggle to properly compartmentalize and ultimately transition out of athletic roles. Based on well-established

"symptoms" outlined in the extensive athletic identity literature, we theorize the tenets of athletic identity salience coincide with behavioral addictions (Grant, Potenza, Weinstein, & Gorelick, 2010). In the following section, we explain the rationale for this conclusion.

Literature Review

Addiction and Identity

The central aspect of addiction is that the loss of control over a behavior is associated with negative consequences (Potenza, 2006). Scholars have argued any activity with an immediate reward system available to the participant has the potential become an addictive act (Heirene et al., 2016). Indicators of addiction may include salience (importance of the role/activity for the individual), mood modification, increased levels of tolerance for achieving desired highs, withdrawal, personal conflict, and relapse (Griffiths, 2005; Szabó, 2010). Addiction research traditionally has focused on substance abuse and the difficulties of progressing toward recovery (Potenza, 2006), but has broadened to include behavioral activities not confined to substance abuse (Grant et al., 2010). Prominent examples of behavioral addictions can include sex, gambling, internet usage, and even "healthy activities" such as exercise (Allegre, Therme, & Griffiths, 2007; Heirene, Shearer, Roderique-Davies, & Mellalieu, 2016; Salguero & Moran, 2002; Terry, Szabó, & Griffiths, 2004).

Research has established six unique aspects of behavioral addiction: salience, mood alteration, tolerance, withdrawal, life conflict, and relapse (Salguero & Moran, 2002; Terry et al., 2004). We argue that many of these are noticeable within athletic identity research. The salience of athletic roles, regardless of their other relevant talents, has been found in multiple studies (Murphy et al., 1996; Woodruff & Schallert, 2008). The success, or the lack thereof, of individual athletes and teams has been found to have profound effect on athletes' dispositions (Warner & Dixon, 2015). Others have found an increased amount of time required by athletes to fulfill their internal desires to compete in and win athletic competitions (Carless & Douglas, 2013b). Following a significant injury or retirement,

athletes have reported feelings of withdrawal from their sport, showcasing the salient role they possess as an athlete (Warriner & Lavallee, 2008). Athletes also have reported significant life conflicts, such as limited opportunities to explore academic opportunities, socialize with non-athlete peers, or spend time with family (Clift & Mower, 2013; Douglas & Carless, 2009). Lastly, athletes also have discussed potential relapses following retirement, leading to the re-pursuit of their sport at similar levels of when they were competing at an elite level, even when other roles within their lives now require greater time commitments and lead to difficulties finding a balance (Carless & Douglas, 2013a). Relapses are not exclusive to chemical relapse and have been reported in non-drug addictions (Heirene et al., 2016). Because of these strong connections between behavioral addiction and athletic identity, further examination into the development and testing of an instrument that can measure athletic identity addiction is needed.

Research has recognized that addicts struggle with identity issues in the process of recovery (Shienbourne & Smith, 2009). People who suffer from addiction tend to view themselves within the constructs of their addictive contexts (Reith, 2004). Meaning, their identities are formed and reinforced within the social constructs of their addictions' context. For example, gambling addicts often see themselves as "gamers," so transitioning away from that lifestyle can be difficult as it requires suppression or abandonment of their core identities (Reith, 2004). Identity constructs can be especially difficult to change when performing an activity, such as exercising, that is perceived as a positive activity in society, but creates negative ramifications when participating reaches extreme levels. The feedback received from operating within the confines of addiction identity continually reinforces sense of self, thereby contributing to the recurrent cycle of actions within the addictive framework (Bailey, 2005). For example, athletes could perceive involvement in athletics as a form of social status, opportunity for lucrative earnings, or a "healthy" outlet for competing. We contend this process is the root cause for athletes who struggle to balance various role identities.

Method

Our study sought to develop the Athletic Identity Addiction (AIA) scale. Such a scale would potentially allow sport managers to identify and assist athletes needing assistance to lessen their athletic identity or transition away from their sport. To develop and confirm the reliability and validity of AIA, our study was completed in two phases. The first phase entailed crafting and testing the initial instrument. The second phase focused on refining the instrument and establishing the necessary standards for validity and reliability through confirmatory factor analysis. This process follows the step-by-step process reported by Hinkin (1995) for designing and testing new instruments.

Sampling Procedures

In accord with previous studies (e.g., Clift & Mower, 2013), this study drew from the population of current and former U.S. collegiate athletes. Current college athletes were sought because research has shown that athletes reach their athletic identity apex when entering their college years (Woodruff & Schallert, 2008). Although this group likely is in the throes of peak identity salience, coaches and athletic departments have significant control of athletes' schedules (Clift & Mower, 2013), which could make it difficult to discern between addiction symptoms and scholarship requirements. Accounting for this, former athletes also were recruited to participate in this study. This also would be useful for identifying potential continuance of athletic identity and behavioral addiction following the completion of their formative sport years (Carless & Douglas, 2013a).

The target population was recruited in two different ways. Upon securing permission from various athletic departments, current athletes were randomly sampled from NCAA Division I and II athletic departments. Surveys were sent to athletic administrators who then distributed them to the entirety of their athlete populations. Former athletes were recruited using Qualtrics' paneling services to identify and collect responses from former athletes. Population parameters were presented to Qualtrics, such as participating in college or professional sports, who then recruit participants fitting within those

Domain Construction & Item Generation

To create AIA, we implemented a deductive approach by reviewing both the athletic identity and behavioral addiction literatures. We examined definitions for athletic identity (Brewer et al, 1993; Ronkainen et al., 2016) and established standards for behavioral addiction (Salguero & Moran, 2002; Terry et al., 2004). To combine the two theoretical concepts, we designed the AIA sub-scales around the previously established behavioral addiction aspects: salience, mood alteration/escape, tolerance, withdrawal, life conflict, and relapse (Salguero & Moran, 2002; Terry et al., 2004). Next, the athletic identity measurement scale (AIMS; Brewer et al., 1993; Brewer & Cornelius, 2001) was used as a guide to revise the items to focus on the concept of athletic identity. We then examined the modified items to ensure each fit within the created sub-constructs and captured the theoretical underpinnings of athletic identity addiction. Following the review of relevant literature and previously established scales, a total of 46 items were created.

Item & Sub-Scale Evaluation

Initially, items were evaluated for: 1. Face/content validity, 2. internal consistency reliability, and 3. convergent validity. To test for face and content validity, a panel of experts (n = 7), consisting of athletic administrators, current and former student-athletes, and scholarly experts, examined the items and sub-constructs of the initial AIA instrument (Cresswell, 2012). The panel was charged with reviewing the items to identify redundant wording and items possessing double-meaning that may result in confusion for the participants (Cresswell, 2012). Additionally, the panel ensured the items incorporated the construct of athletic identity addiction, in order to increase the instrument's content validity. This review reduced the total number of items to 20 items across six sub-constructs. Next, all items were converted to 7-point Likert-scale survey questions, ranging from 1 (strongly disagree) to 7 (strongly agree), and were pilot-studied with a group of sport management graduate students, including a panel of current student athletes (n = 25). The initial version of the instrument is provided in Table 1. This pilot study was implemented for initial readability and survey flow from the perspective of future participants.

Upon completion of the expert reviews and pilot study, the instrument was distributed to the target population in two phases. For the first phase, results were examined using internal consistency reliability (cronbach's alpha) and principal axis factoring. Principal axis factoring (PAF) was used intead of principal component analysis in order for the model to account for measurement error, in addition to PAF being previously established as a more accurate measurement for latent constructs (Izquierdo, Olea, & Abad, 2014). For PAF, a Kaiser-Meyer-Otkin (KMO) and Bartlett's Test of Sphericity were used to assess sampling adequacy for performing principle component analysis (DeVellis, 2012). Recommended standards call for KMO to be .50 or higher and both tests to be statistically significant (Hutcheson & Sofroniou, 1999; Tabachnick & Fidell, 2007). We used an oblimin rotation of PAF results because of the expectation of correlation between the items (Tabachnick & Fidell, 2007). Additionally, Stevens (2009) recommends only maintaining items that contribute a .40 or higher correlation score within the corresponding factor, meaning each item accounts for at least 15% of the variance explained within the factor. Stevens (2009) also establishes a minimum eigenvalue score of 1 for maintaining a factor within the Exploratory Factor Analysis (EFA).

Following EFA, the second phase consisted of performing confirmatory factor analysis (CFA). In order to test the model, a second order CFA was utilized, requiring the initial items to have their loading fixed to a specific latent construct. We followed Hu and Bentler's (1999) recommendations for model fit, which advocates for a CFI (comparative fit index) and TLI (Tucker-Lewis index) close to .95 (or greater), a .08 or below SRMR (standardized root mean of the residual), and a RSMEA (root-mean squared error of approximation) close to .06 (or less).

Table 1

Athletic Identity Addiction Scale

Salience

My sport is the most important part of my life (S1)

When I am not playing my sport, I am thinking about my sport (S2)

I think about my sport while participating in other important activities (e.g., class, homework, or job) (S3)

I plan my daily activities around the time I spend with my sport (S4)

Mood Alteration/Escape

When I feel stressed, I play my sport as a way to escape (MA1)

I use my sport as a way to escape the problems of everyday life (MA2)

Tolerance

I have increased the amount of time that I spend playing or training for my sport (T1)

To feel challenged, I must play my sport against people whose skills are similar to mine (T2)

I do not enjoy playing my sport against people who have less skills than I do (T3)

I do not enjoy playing my sport with people who have less competitive attitudes compared to mine (T4)

Withdrawal

When I cannot play my sport, I feel restless or irritable (W1)

I feel I am missing out on something if I am unable to play my sport during its regularly sched-uled times (W2)

When I miss my scheduled times for playing my sport, I think about my sport (W3)

When I miss opportunities to play my sport, I feel regret or guilt that I did not or could not play (W4)

Life Conflict

I have not attended important events (when I was supposed to attend) to play my sport (e.g., class, work, family) (LC1)

My dedication to my sport has resulted in strained or lost personal relationships with people who are/were close to me (LC2)

My participation in my sport has resulted in a negative outcome in another important aspect of my life (e.g., failed class, fired from a job) (LC3)

My participation in my sport has resulted in family problems in my life (LC4)

Relapse

If I stop playing my sport for a period of time, when I start back playing, I always end up playing as often as I was previously (R1)

If I stop playing my sport for a period of time, when I start back playing, I play as competitively as I previously had (R2)

Results

Phase 1

To perform the EFA and internal consistency reliability analysis, we collected data from both current (n = 49) and former collegiate athletes (n = 201), resulting in a total of 250 participants. The sample primarily was female (53%), Caucasian (58%), and participated in team sports (70%). For the former athletes, the average time since retiring was 2.6 years (SD = 5.4).

First, we examined the internal consistency reliability scores of the AIA sub-constructs, which included salience, mood alteration/escape, tolerance, withdrawal, life conflict, and relapse. Cronbach alpha scores for each factor ranged from .45 (tolerance) to .81 (withdrawal). All factors besides tolerance reached the .70 threshold recommended by Nunnally and Bernstein (1994). This finding was initially concerning for the tolerance sub-constructs, but we retained it in the model to examine its results within the EFA. This initial inclusion of tolerance for the EFA was due to the prominent establishment of the construct within behavioral addiction research. The final EFA version included a total of 12 items across four factors, reaching the minimum standard outlined by Stevens (2009). The KMO was .77 and Bartlett's Test of Sphericity was statistically significant, fulfilling the standard assumption thresholds (Hutcheson & Sofroniou, 1999; Tabachnick & Fidell, 2007). Each factor possessed an eigenvalue of one or greater and the model explained 73.16% of total variance (Fabrigar et al., 1999). The final model is provided in Table 2.

The final iteration of the EFA excluded potential constructs exhibiting a connection with salience and tolerance, which were previously established within the behavioral addiction literature. Salience items exhibited strong bi-variate correlations with items associated with other factor loadings, therefore lowering the total variance explained and obscuring the distinctiveness between factors. Tolerance items loaded across two separate factors on the initial EFA, therefore raising additional questions on its validity as a distinct factor. Because of these concerns, both factors were removed from CFA analysis.

Table 2

Summary of Items and Factor Loadings for Principal Axis Factoring with Oblimin Rotated Four-Factor Solution for the Athletic Identity Addiction Scale (N = 250)

	Factor Loading				
Item	1	2	3	4	Communality
Mood Alteration 1 (MA1)	-.01	-.04	-.01	**.87**	.77
Mood Alteration 2 (MA2)	.01	.07	.01	**.80**	.65
Withdrawal 1 (W1)	**.75**	.13	-.03	-.08	.59
Withdrawal 2 (W2)	**.83**	-.13	.15	.01	.70
Withdrawal 3 (W3)	**.78**	-.06	-.02	.16	.64
Withdrawal 4 (W4)	**.71**	.05	-.07	-.02	.57
Life Conflict 1 (LC1)	.14	**.58**	.13	.06	.44
Life Conflict 2 (LC2)	.06	**.83**	.06	.00	.72
Life Conflict 3 (LC3)	-.04	**.83**	-.03	-.02	.70
Life Conflict 4 (LC4)	-.11	**.75**	-.10	-.01	.57
Relapse 1 (R1)	-.03	.07	**.75**	-.06	.56
Relapse 2 (R2)	.00	-.05	**.83**	.07	.70
Eigenvalue	4.12	2.33	1.24	1.10	
% of variance	34.31	19.38	10.29	9.19	

Note. Boldface indicates highest factor loadings.

Phase 2

To perform bivariate correlations and CFA, we collected data from a second group of current (n = 69) and former (n = 257) collegiate athletes (total n = 326). The sample was primarily female (58%), Caucasian (58%), and participated in team sports (78%). For the former elite athletes, the average time since retirement was 2.5 years (SD = 4.7). Prior to performing the CFA, we examined bivariate correlations between items using IBM SPSS 24.0 to examine the amount of variance shared between each item. All reported associations were in the expected direction and would qualify as a moderate or greater correlation (Cohen, 1988). The results of the bivariate correlations are provided in Table 3. Next, we performed the CFA using IBM AMOS 22.0 to measure the relationship between the four measures to create a singular, latent factor named athletic identity addiction (Figure 1). To optimize model fit, we examined correlation scores between the error terms with model modifications being performed on two correlated item pairings: LC3 with LC4 and W1 with W2. Because these items were within the same measurement (Life Control and Withdrawal, respectively), similarity of the constructs between items, and the modifications are substantially meaningful, we allowed these items to correlate based on them being similarly worded items (Brown, 2014).

Our model reported model fit statistics for CFI (.960), TLI (.945), SRMR (.059), and RMSEA (.063), meaning our model fit was considered acceptable (Hu & Bentler, 1999). Factor loadings for the individual items for each of the factors were sufficient, ranging from .53 to 1.00 (Costello & Osborne, 2005). Internal consistency within the four measures also was achieved, with inter-item correlations ranging from .72 (Withdrawal) to .84 (Mood Alteration). To measure convergent validity of the model, we calculated average variance extracted (AVE), which is recommended to be .50 or higher (Fornell & Larcker, 1981). AVE scores ranged from .51 (Life Conflict) to .70 (Mood Alteration), therefore achieving acceptable standards for convergent validity. Lastly, each measure loading (Mood Alteration, Withdrawal, Life Conflict, and Relapse) was statistically significant at the p > .001 level. Table 4 provides an overview of model fit statistics, in addition to standardized solutions, AVE scores, and inter-item correlation scores for each measure.

Figure 1

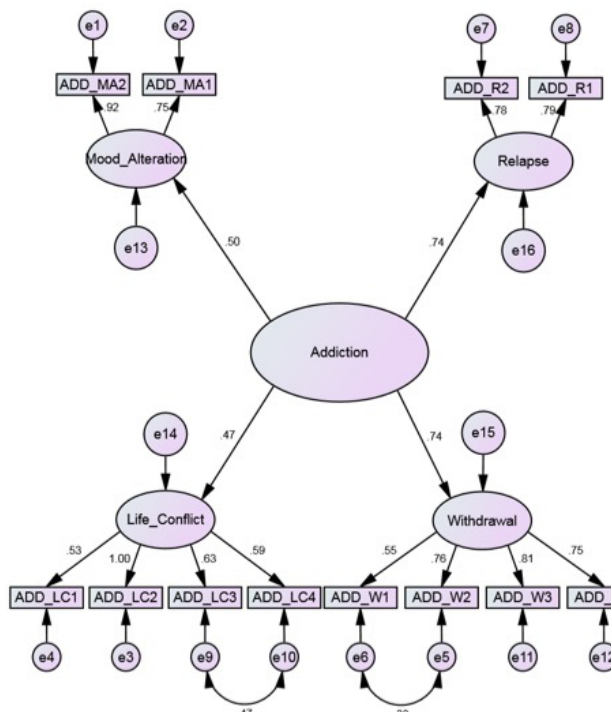Confirmatory Factor Analysis - Athletic Identity Addiction

Table 3

Intercorrelations for Dimensions of Athletic Identity Addiction Subscales

Items																				
Salience 1	--																			
Salience 2	.48	--																		
Salience 3	.45	.53	--																	
Salience 4	.38	.31	.48	--																
Mood Alteration 1	.27	.45	.36	.29	--															
Mood Alteration 2	.36	.48	.42	.32	.69	--														
Tolerance 1	.42	.35	.36	.41	.24	.38	--													
Tolerance 2	.34	.31	.29	.10	.21	.25	.40	--												
Tolerance 3	.09	.08	.06	.02	-.13	.04	.06	.16	--											
Tolerance 4	.08	.04	.11	.07	-.12	.05	.04	.06	.57	--										
Withdrawal 1	.33	.45	.30	.25	.28	.34	.28	.16	.15	.14	--									
Withdrawal 2	.36	.43	.36	.26	.26	.34	.34	.12	.13	.12	.04	--								
Withdrawal 3	.28	.41	.39	.28	.40	.39	.28	.16	.14	.11	.53	.67	--							
Withdrawal 4	.27	.44	.35	.36	.22	.38	.26	.09	.18	.23	.52	.50	.58	--						
Life Conflict 1	.11	.18	.21	.21	.05	.13	.17	.13	.21	.28	.35	.23	.20	.27	--					
Life Conflict 2	.18	.17	.24	.18	.05	.16	.20	.08	.23	.28	.30	.16	.21	.29	.51	--				
Life Conflict 3	.13	.08	.11	.01	-.05	.03	.05	.07	.27	.26	.15	.02	.03	.14	.35	.68	--			
Life Conflict 4	.18	.08	.09	.00	-.05	.11	.04	.15	.31	.30	.21	.03	.06	.13	.33	.53	.67	--		
Relapse 1	.21	.31	.27	.23	.25	.25	.27	.03	.04	.04	.26	.37	.35	.31	.20	.27	.05	.12	--	
Relapse 2	.17	.21	.31	.23	.23	.34	.23	.05	.03	.11	.19	.25	.26	.24	.22	.28	.08	.00	.62	--

Table 4

Standardized Solutions, Model Fit Statistics, Average Variance Explained, and Inter-Item Correlations for Confirmatory Factor Analysis (N = 326)

Measures	Factor 1	AVE	Inter-Item
Withdrawal	.74*	.52	.72
Relapse	.74*	.62	.79
Mood Alteration	.50*	.70	.84
Life Conflict	.47*	.51	.69

CFI = .960

TLI = .945

SRMR = .059

RMSEA = .063

*Note. *p* < .001.*

Discussion

The premise of this research was that athletic identity salience would coincide with the tenets of addiction. The findings of this study provide support for this thesis. Here, we developed and provided initial reliability and validity of a four-factor scale, indicating that athletic identities are related to the addiction tenets of mood alteration (9.99% of variance explained), withdrawal (29.15%), life-conflict (20.51%), and relapse (10.58%). As outlined within the literature review, each of these concepts is substantiated by previous studies outlining challenges faced by athletes. The implications of this research provide insight into the theoretical understandings of athletic identity, but perhaps more importantly, our findings have important practical consequences for those who work closely with athletes at various levels.

The factors, which were loaded into our final EFA model and confirmed through CFA, suggest that athletes' experiences mimic the tenets of addiction. It is important to note that not all of the tenets of addiction loaded into our model. However, the ones that loaded have important implications for sport managers. First, our findings suggest that athletes experience mood changes associated with competing in their sports. In this regard, athletes saw participating in their sports and engulfing themselves in athletic roles as a means for escape. While this generally is understood in various sport literatures, it is interesting because mood alteration of this type is indicative of addiction. Previously, this has been seen as relatively innocuous but conceptualizing within the tenets of addiction suggests negative consequences. Playing a sport to relieve stress is not in itself necessarily detrimental, but if it leads to neglecting other aspects of people's lives it could in fact prove problematic for those with high levels of athletic identity salience.

Secondly, our findings suggested that athletes experienced withdrawal symptoms when they were unable to compete in their sports. These symptoms included irritability, excessive thought of their sports when they were unable to play, and feelings of loss or guilt when they were unable to play their sports. Feelings of withdrawal has been reported in previous studies examining athletic identity, but only in relation to athletes suffering a significant injury or forced retirement due to performance (Lally, 2007; Petrie et al., 2014; Rohrs-Cordes & Paule-Koba, 2018). The appearance of withdrawal as an established factor points to the possibility that withdrawal from sport may be more dynamic than scholars previously have reported (Ronkainen et al., 2016). If current and former atheltes still are experiencing withdrawal from their sport, this may speak to greater salience to sport than what previously has been reported. It also may mean athletes face a longer dependency related to sport than previously reported, even if the athlete has not formally competed for many years.

Third, athletes reported significant life-conflicts due to their sport interfering with other events. Our findings suggest athletes often face difficult choices of participating in their sport (games, practice, travel, etc.) or attending other important events, such as weddings, birthdays, or other family gatherings. More often than not, athletes choose to participate in their sport, with potential remorse later after their athletic identity recedes (Douglas & Carless, 2009). Many athletic events, especially within intercollegiate and professional levels, are purposely scheduled during major holidays in order to maximize television viewership. These decisions often are financially motivated for the athletic department, even with the understanding of the event disrupting important family events. Our findings also highlight conflicts outside of athletic events, as athletes still feel obligated to focus on their sport even outside of formally scheduled activities. These findings are similar to previously reported research on athletic identity, which has reported how athletes constantly face conflicts between athletic and non-athletic activities, often concluding with the athlete focusing on their sport (Beamon, 2012; Lally & Kerr, 2005).

Finally, athletes reported experiencing instances of relapse whenever they stopped playing their sports. In this regard, they would revert to similar amounts of time invested and similar competition levels when they went back to their sports. Individually, each of these factors may not seem harmful to athletes because sport

does provide social and psychological benefits. However, taken as a whole, these indicate that some athletes may be prone to becoming addicted to their athletic roles and identities. The pitfalls of role engulfment and overly salient athletic identities have been well-documented throughout the literature (see citations). Conceptualizing athletic identity salience within the constructs of addiction could offer explanation to numerous theoretical issues and aid practitioners in program development.

Implications and Future Research

Further, our findings offer potential explanations for why some athletes experience significant distress when they transition from sport. Previous research has shown that athletic identity salience differs from one athlete to the next (Adler & Adler, 1991; Huml, 2018). Generally, this variance has lacked adequate theorizing. If, as our study suggests, athletic identity constitutes addictive qualities, it would seem reasonable that some athletes are subjected to higher degrees of salience than others. This can be especially damaging for former athletes, who can endure depression, personal embarrassment, and a lack of sense-of-belonging outside their athlete role (Douglas & Carless, 2009). This certainly is not the only explanation for this discrepancy of athletic identity salience among athletes, but it could provide a valuable starting point for those seeking to ease the transition away from athletics. Those working in athletic services designed to support athletes could use this information in designing programming and subsistence for athletes as they work to move on from their competitive athletic lives.

This reseach suggests the various consequences of athletic identity salience may be attributed to addictive aspects of competing in highly competitive sport. Previous research has established that athletes face significant psychological and functional challenges emanating from athletic identity salience (Hawley, Hosch, & Bovaird, 2014; Park et al., 2012). While many factors of this have been well documented, our findings suggest that internalization may, in fact, entail various tenets of addiction. This is interesting because it has the potential for explaining many unresolved issues in the conceptualization of

athletic identity salience. It also provides a host of new questions for those working to understand issues of athletic identity and retirement.

Implying that athletic identity may be addictive presents some interesting contradictions for sport structuring and programming. Identity theorists have suggested that role and identity salience may increase because of support from surrounding environments and group attachments (Burke, 1980; Carless & Douglas, 2013a). Sport purposely is built to emulate this environment, therefore further increasing the salience of performing the role of athlete. The success of this environment is apparent when athletes fail to project or even plan for their future careers beyond the end of their athletic career (Ryba et al., 2017). This alludes to athletes being aware that pursuing their sport provides them short-term rewards but also possesses more dire consequences down the road. This is similar to the environment within other behavioral addictions, such as gambling and exercise, where the individual can further be drawn into the activity based on relationships, accessibility, and adrenaline from performing their role or activity (Salguero & Moran, 2002). Meaning, sports likely fosters addiction for some athletes, resulting in many of the same consequences experienced by addicts. Certainly, there are significant health and social benefits from participating in sports, but when athletes become obsessed to the point that it negatively impacts other facets of their lives, steps should be taken by athletes and sport managers alike to address these imbalances.

This study opens numerous avenues for future research and reconceptualizations of athletic identity that could be useful for practitioners. One potential application of the model could be geared toward athletes nearing their retirement from sport. This retirement could be due to a lack of necessary performance to continue playing at the same level or the heightened risk of injury (or re-injury) necessitates a future career change. These athletes may not have the same support system in place to provide the necessary resources for them to transition outside of sport to another career. To protect them from staying in sport and exposing them to injury risk or other negative implications, this instrument could

be utilized to identify the athletes with the highest level of behavioral addiction to their sport, hopefully leading to those athletes being provided more support to prepare for a career outside of sport.

The primary focus of this particular study was that it was confined to instrument development and verifying the relationship between athletic identity and tenets of addiction, necessitating further examination of the instrument and testing it within other athletes. The factors were loaded into our final EFA model and were confirmed through CFA, suggesting that athletes' experiences mimic the tenets of addiction. It is important to note that not all of the tenets of addiction loaded into our model. Initial EFA results did not support the concept of salience or tolerance within the final model. As mentioned previously, items measuring salience reported strong bivariate correlation scores across many items in other sub-constructs. This strong correlation between items may show that athlete's perception of salience is reflected across the tenets of addiction represented in this study, and not as a stand-alone construct. For tolerance, the items split between loading on a salience factor and separate factor consisting of only two tolerance-related items, neither of which were sustainable based on standard thresholds recommended by Fabrigar et al. (1999). Upon further review of the items, this could mean that athletes may prefer to face more difficult opponents when competing in their sport, but not necessarily perceive a loss of enjoyment when competing against lesser adversaries, or vice versa.

Limitations and Future Recommendations

Our study is not without limitations. The primary limitation of this particular study was that it was confined to instrument development and verifying the relationship between athletic identity and tenets of addiction. Future research should build from this by examining how these concepts might predict the likelihood of athletic identity addiction. Our study also did not examine or discuss analysis related to the participant's gender, race, or social class. With our study focusing on developing and establishing an instrument, we believe examination into these demographics would be an important "next step" in this area of research.

Future research should build from this by examining how these concepts might predict the likelihood of athletic identity addiction. In this regard, it is important to understand how athletic identity addiction impacts predictions of negative life consequences for athletes with salient athletic identities. This would provide valuable insight to sport managers, as it would allow for the development of programming, counseling, and other support services to intervene at times when athletes particularly may be vulnerable to falling into the negative aspects associated with athletic identity salience. Additionally, two of the factors retained (mood alteration and relapse) possess only two items for each factor. The limited number of items does increase the risk of nonconvergence and inaccurate estimates (Rigdon, 1995). Further examination of these factors, in addition to further testing of the instrument, is needed.

In review, our study introduces an instrument to measure athletic identity addiction. This scale provides a useful examination into the consequences of athletic identity. After performing an EFA and CFA, mood alteration, withdrawal, life conflict, and relapse emerged from the data as valid and reliable factors. These findings create a theoretical connection between athletic identity and behavioral addiction. Additionally, the AIA scale provides a potential tool for managers working with current and former athletes.

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