JOURNAL OF AMATEUR SPORT

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Mission and Purpose

The overarching mission of the Journal of Amateur Sport (JAS) is to provide scholars an outlet in which to share scholarship relevant to the amateur sports realm. We define amateur sport as those who participate and govern at the youth, recreational, community, international, and intercollegiate level. We acknowledge the tenuous debate surrounding the amateurism of intercollegiate athletics, thus at this time we welcome examinations that are focused on the less commercialized avenues of college sport participation and governance (especially NCAA Division II, III, and other less publicized governing bodies and settings). Submissions from all disciplines are encouraged, including sociology, communication, and organizational behavior. Similarly, we welcome a wide array of methodological and structural approaches, including conceptual frameworks, narratives, surveys, interviews, and ethnographies.

As an open-access journal, submissions should be of interest to researchers and practitioners alike. In all, the content published in JAS should advance the collective understanding of the participants, coaches, administrators, and/or institutional structures that comprise amateur sports worldwide. We challenge authors to submit creative and nontraditional manuscripts that are still high-quality in nature. Authors are encouraged to email the editors before submitting if they are unsure if their manuscript is a proper fit within JAS.

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Sport Commitment, Occupational Commitment, and Intent to Quit Among High School Sport Officials

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This case study sought to examine the issue of attrition among high school sport officials by exploring turnover intentions through the lenses of occupational and sport commitment. A questionnaire was distributed via email to high school sport officials in a suburban region in the southeastern United States. The data were analyzed via hierarchical multiple regression, revealing that affective occupational commitment and sport commitment are negatively correlated predictors of occupational turnover intentions. Implications for practitioners and avenues for future scholarship are conferred.

High school sport participation steadily increased in the United States throughout the last quarter century. During the 2015-16 academic year, nearly 7.9 million students participated in high school athletic competitions (National Federation of State High School Associations, 2016). With record participation, local conferences and state athletic associations must carefully manage limited resources (NFHS, 2016). Budgets are tightening for many schools and state athletic associations (Wolf, 2015). Budget constraints of state athletic associations place strains on increasingly scarce resources as the number of teams and contests expand to meet the influx of athletes. Quality sport officials are a particularly important and scarce resource for state athletic associations (Solutions to Referee Shortage, 2016).

Sport officials play important roles in maintaining game quality and participant safety (Ridinger, 2015). Unfortunately, for many high school athletic associations, attracting and retaining sport officials is becoming increasingly difficult (Associated Press, 2015). In some states, shortages are severe enough to cause concern among administrators regarding the ability to cover athletic contests (Solutions to Referee Shortage, 2016). As experienced referees withdraw from the profession, due in some part to lack of pay and increased time commitment (Livingston, 2016), the quality of officiating is negatively impacted. Experience is one of the most important indicators of officiating quality (Lirgg, Feltz, & Merrie, 2016). As high school sport participation continues to grow, the need for quality officials will escalate. Therefore, it is important to understand why officials leave the profession.

Amateur sport in the United States includes youth, high school, club, recreational, and intercollegiate levels of competition. Officials in amateur levels of sport often enter the profession for reasons other than pay. For most, officiating is a hobby or secondary source of income (National Association of Sports Officials , 2001). Others are drawn to the profession as a way to stay involved in sport or because they enjoy the act of officiating contests (VanYperen, 1998). These notions of involvement and enjoyment, as well as elements of personal investments of time, are related determinants of an official's commitment (VanYperen, 1998). Occupational commitment, defined by one's level of commitment to a selected profession through continued membership (Irving, Coleman, & Cooper, 1997), and sport commitment, defined as a psychological state of one's desire to continue sport participation (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993), are cited as factors indicative to one becoming a sport official (Hancock, Dawson, & Auger, 2015; Wolfson & Neave, 2007). Although scholars have explored various antecedents of turnover intentions of sport officials (Bernal, Nix, & Boatwright, 2012; Cuskelly & Hoye, 2013; Gray & Wilson, 2008; Hancock et al., 2015; VanYperen, 1998; Warner, Tingle, & Kellett, 2013), the relationship between occupational commitment, sport commitment, and intentions to leave among officials has remained relatively underexplored.

Very few studies have examined the relationship between commitment and intention to leave amongst sport officials. Those that have done so only focused on the issue from a sport commitment perspective (e.g., Cuskelly & Hoye, 2013; VanYperen, 1998). Gray and Wilson (2008) also explored commitment and subsequent outcomes among sport officials, using organizational commitment, sport commitment, and role commitment in their model. However, role commitment was measured using exploratory means and not the full occupational commitment model. It

is in this research gap that the present case study seeks to contribute to the literature, by examining both occupational commitment and sport commitment as latent influences on turnover intentions among sport officials.

Scholarship exploring turnover intentions of employees and volunteers, both associated and not associated with sport, suggested strong support for occupational commitment as a predictor of turnover intentions (e.g., Meyer, Allen, & Smith, 1993; Turner & Chelladurai, 2005). Relatedly, sport commitment has also been indicated as a factor related to turnover intentions of employees, athletes, and volunteers involved in sport (Cuskelly, 1995; Cuskelly & Hoye, 2013; Scanlan et al., 1993; VanYperen, 1998). The purpose of this case study was to explore the role of occupational commitment and sport commitment on sport officials' intentions to stay or leave the sport officiating occupation. Specifically, this case study explored the effects of affective, continuance, and normative occupational commitment, as well the effects of the individual components of the sport commitment model (Scanlan et al., 1993) on turnover intentions of high school sport officials in a suburban Unites States city.

Theoretical Framework

Commitment theory serves as the theoretical foundation for the case study. Scholars suggest that commitment, operationalized as the persistence in a course of action (Scanlan et al., 1993), is attitudinal in nature and is generally comprised of affective attachment, perceived costs and obligation (Meyer & Allen, 1991).

Occupational Commitment

In the context of organizational management, of which sport management shares many similarities, commitment theory has largely focused on individual attitudinal commitments to work and the various antecedents and outcomes (e.g., Mathieu & Zajac, 1990; Morrow, 1983; Mowday, Porter, & Steers, 1982). Morrow (1983) introduced several foci of these attitudinal commitments, including personal values, organizations, and one's career. Of these foci, one's commitment to the organization has been a major topic of inquiry (Mathieu & Zajac, 1990). Meyer and Allen (1991) introduced the three-component model of organizational commitment, and this model continues to serve as a foundation for most managerial commitment related studies (e.g., Cunningham & Sagas, 2004; Rocha & Chelladurai, 2011; Turner & Jordan, 2006). Later, Meyer et al. (1993) extended this model to focus on one's commitment to an occupation. Essentially, the authors argued that in some sectors, such as those of nursing and law, attitudinal commitment to the profession or occupation, is distinctly different than being committed to a specific organization (Meyer et al., 1993).

Occupational commitment is defined as, "a psychological link between a person and his or her occupation that is based on an affective reaction to the occupation" (Lee, Carswell, & Allen, 2000, p. 800). Lee et al. (2000) suggested occupational commitment is an important construct because occupations represent a significant focus for many individuals and provide meaningful links to organizational membership. Similar to organizational commitment, prior scholarship suggested occupational commitment is related to several behavioral outcomes of interest to managers, including those of job satisfaction and turnover intentions (Lee et al., 2000). In essence, occupational commitment is positively related to an employee's job satisfaction (Wang, Sang, Li, & Zhao, 2016), and negatively related to turnover intentions to both the organization and the career (Weng & McElroy, 2012).

The Multidimensional View of Occupational Commitment

Utilizing the previously validated multidimensional organizational commitment framework (Meyer & Allen, 1991), Meyer et al. (1993) developed the multidimensional view of occupational commitment. The multidimensional view conjectures that individuals may be committed to occupations emotionally, obligatorily, or through necessity. Meyer et al. (1993) defined affective occupational commitment as a strong desire to remain in one's profession. Translating to the high school sport official population, affective occupational commitment would represent one's desire to remain an official of high school sports because it is something the individual wants. Additionally, Weng & McElroy (2012) suggest that affective organizational commitment is heavily influenced by career choices and changes due to one's experience. This also could be explained in the sport officials' context, as that is a profession in which attitudinal factors, such as sport enjoyment and personal investments, influence participation.

A second, distinctively different dimension of occupational commitment, normative occupational commitment, represents an individual's sense of obligation to their occupation (Meyer et al., 1993). In other words, normative occupational commitment represents the feeling that one ought to remain a sport official or that they owe a debt to the profession. In the examined population, normative occupational commitment would be represented by feelings that one should officiate high school athletics. The final dimension in the Meyer et al. (1993) model is continuance occupational commitment. Continuance occupational commitment is the recognition of costs associated with leaving one's occupation.

Sport Commitment

Sport commitment has been viewed as an extension of commitment theory, exploring how commitment to sport affects

one's actions and behaviors. Sport commitment (Scanlan et al., 1993) is comprised of five separate constructs: sport enjoyment, involvement alternatives, personal investments, social constraints and involvement opportunities. Three of the five constructs relate to the previously mentioned constructs of occupational commitment, including affective (sport enjoyment), perceived costs (involvement alternatives), and normative (social constraints). Due to the distinct qualities of sport participation, Scanlan et al. (1993) added two other constructs of personal investments (investments and activities to participate that come at the expense of other activities) and involvement opportunities (value that comes from continued involvement). Utilizing a sample of youth baseball players, Scanlan et al. (1993) found each dimension was unique, but contributed to the participants' general commitment to their sport.

Turnover Intentions

Turnover intentions can be defined as the level of desire one has to leave their organization or occupation (Blau, 2007; Blau, Tatum, & Ward-Cook, 2003; Martin, 1979). In contrast to actual turnover, which may be hampered by various constraints or barriers to exit, the turnover intentions construct relates to employees' feelings of wanting to end their relationship with their employer or occupation. Turnover intentions are a strong predictor of withdrawal behaviors (Blau, 2007; Moore, 2000; Tett & Meyer, 1993).

Scholarly research has long focused on the motives of employees in various functions and industries (Wayne, Liden, Kraimer, & Graf, 1999) and on the various stages of the career (Smart & Peterson, 1997) as they relate to employee occupation. These stages include motivation to begin or change a career (Smart & Peterson, 1997), environments and factors that influence one staying in that career (Meyer & Allen, 1991), and, ultimately, what culminates in the employee's exit from the career (Dingemans & Henkens, 2014). Likewise, this has been an area of interest in the sport management literature in recent years (Cunningham, Sagas, & Ashley, 2001; Martinez, Miller, & Koo, 2016).

Occupational Commitment and Intentions to Leave Sport Based Occupations

Within sport organizational settings, research exploring organizational commitment is abundant (e.g., Engelberg-Moston, Stipis, Kippin, Spillman, & Burbidge, 2009; Martinez et al., 2016; Turner & Chelladurai, 2005), yet few sport scholars incorporate multidimensional occupational commitment variables into their models. Many that have done so choose to focus only on the effects of affective occupational commitment. Within sport organizational settings, affective occupational commitment is predictive of occupational turnover intentions. Two

studies (Cunningham & Sagas, 2004; Cunningham, Sagas, Dixon, Kent, & Turner, 2005) explored the effect of affective occupational commitment on sport management students' intentions to enter a sport industry occupation. Both studies indicated a positive relationship with affective occupational commitment and intentions to enter sport-based occupations. Neither included variables related to occupational turnover intentions. Conversely, occupational turnover intention was a dependent variable in Turner and Chelladurai's (2005) study examining occupational commitment of National Collegiate Athletic Association football coaches. Their results mirrored prior research from other disciplines. Affective occupational commitment was inversely related to occupational turnover intentions. Similar results were found when exploring the role of affective occupational commitment in volunteer coaches (Engelberg-Moston et al., 2009).

Studies exploring continuance and normative occupational commitment of sport-based employees are limited. One study (Turner & Chelladurai, 2005), explored the relationships between normative occupational commitment, continuance occupational commitment, and occupational turnover intentions of college coaches. Within the context of college coaches, normative occupational commitment was found to have an inverse relationship with occupational turnover intentions, whereas continuance occupational commitment was positively related. However, caution must be exercised before generalizing results from Turner and Chelladurai (2005) to high school sport officials. Although both occupations fall within the amateur sport context, factors such as pay and organizational ties may impact variables differently between college coaches and high school sport officials.

Research on Sport Officials

While not a major focus of sport management literature, prior research has utilized sport officials as an area of examination. According to Ridinger (2015), research on sport officials and referees generally falls into the following categories: entry into the profession (e.g., Furst, 1991); stress and burnout (e.g., Taylor, Daniel, Leith, & Burke, 1990); and ultimately, retention (e.g., Titlebaum, Haberlin, & Titlebaum, 2009). While this case study does not focus on occupational entry, stress or burnout specifically, it is concerned with commitment and turnover, which are important aspects of retention. Past scholarship suggested elements of commitment to the sport (Gray & Wilson, 2008) and to the occupation (Furst, 1991) are both important among sport officials. Thus, it is prudent to explore both areas of commitment, as well as the selected outcome of turnover, within the present case study.

Occupational commitment and sport officials. Sport officials, unlike traditional employees, may be only loosely tied to an

organization. Some high school officials are scheduled through conferences and state associations, while others are scheduled through referee associations to which they belong. However, these officials often receive paychecks from host institutions prior to contests. In situations where an individual's relationship with the organization is non-existent, prior studies found officials are drawn to the profession through their commitment to sport and the occupation (Bernal et al., 2012; Warner et al., 2013).

Occupational commitment has been shown to affect turnover intentions of sport officials, though research design and theoretical models have varied across studies. Warner and colleagues (2013) did not explicitly utilize occupational commitment variables in their qualitative study regarding attrition of sport officials, yet themes related to on-court and off-court factors allowed for inference from an occupational commitment perspective. Koslowsky and Maoz (1988) relied on a unidimensional measure of occupational commitment to examine attitudinal differences between two types of sport referees – soccer and track and field. The authors found that soccer referees are more committed and received greater enjoyment from the occupation, than their counterparts in track and field.

Contemporary organizational behavior research has demonstrated occupational commitment to be a multidimensional construct (Blau, 2003; Irving, Coleman, & Cooper, 1997; Meyer et al., 1993; Snape & Redman, 2003). Only one study has explored occupational commitment of sport officials utilizing the Meyer et al. (1993) conceptualization. Gray and Wilson (2008) explored retention of track and field officials in Canada utilizing all occupational commitment dimensions as predictor variables. Differing from other occupational commitment research, none of the dimensions were found to significantly impact the officials' intentions to continue.

Sport commitment and officials. Originally developed to examine sport commitment among athletes, scholars have adapted the construct to other members of sport-based organizations, including sport officials. VanYperen (1998) utilized the model of Scanlan and colleagues (1993) to explore intentions to leave among referees in Europe. Utilizing a sample of 420 volunteer volleyball officials, the authors found that turnover intention mediated the link between enjoyment and involvement alternatives – both elements of sport commitment – and subsequent stay/leave behavior. Overall, VanYperen's (1998) model explained 50% of the variance in officials' intentions to stop officiating.

Similar research exploring intentions to stay among rugby officials in Australia indicated sport enjoyment and involvement opportunities were significant predictors (Cuskelly & Hoye, 2013). Cuskelly and Hoye (2013) predicted that perceived organizational support would also be an important predictor variable. Yet, perceived

organizational support was not significant once sport commitment variables were added to the model, indicating sport commitment a primary factor influencing respondents' intentions to remain in the profession. Conversely, Gray and Wilson (2008), utilized an alternative scale to explore the role of sport commitment. Their survey of 80 track and field officials in Canada utilized a single item that asked participants to rate their commitment to the sport of track and field.

Although one could argue that Gray and Wilson's (2008) item is most closely related to the sport enjoyment dimension of Scanlon et al.'s (1993) scale., here are no items in the multi-dimensional scale of sport commitment that directly resemble the item in Gray and Wilson's (2008) study. The participants in Gray and Wilson's (2008) study were highly committed to track and field (M = 6.24 on a seven-point scale), yet they found no significant relationship between their sport commitment item and turnover intentions.

Turnover among sport officials. Motivation to enter the sport officiating occupation is influenced by love of sport and intrinsic rewards associated the activity (Hancock et al., 2015). Once established within the occupation, passion for sport remains a primary factor for officials who choose to continue (Bernal et al., 2012). Other factors that influence employee retention include feelings of pride and competency (Parsons & Bairner, 2015).

Scholarship exploring officials' motivations to stay or leave the profession generally falls into two areas. One area focused on the role of the association in retaining officials. Training, organizational support, and mentoring have all be shown to be important factors in retention of sport officials (Ryan, Sosa, & Thornton, 2014; VanYperen, 1998; Warner et al., 2013; Wicker & Frick, 2016). Conversely, the other area of scholarship explored the role of commitment variables in occupational withdrawal. Studies exploring the role of sport commitment or occupational commitment on occupational turnover intentions include Bernal et al. (2012), Cuskelly and Hoye (2013), Gray and Wilson (2008), Koslowsky and Maoz (1988), VanYperen (1998), and Warner et al. (2013).

Hypotheses

Although the literature has explored aspects of occupational commitment, sport commitment, and turnover in various combinations, the relationships among all three constructs has received little attention from researchers. Inferences made from the entire body of knowledge may indicate a more complex relationship between occupational commitment, sport commitment, and turnover intentions than what has been explored in the individual studies.

There appears to be no research including all dimensions of occupational commitment and the entire sport commitment model as antecedents of

occupational turnover. Only one study (Gray & Wilson, 2008) included occupational commitment (operationalized as role commitment) and sport commitment in the same model, but an alternative sport commitment measure was used. Likewise, a cursory review of literature reveals that high school sport officials have been excluded from prior research. Because results of commitment studies from other occupations are not generalizable (Irving et al., 1997), one should not assume that high school sport officials would react similarly to others in the sport industry, or officials from other levels of sport. Yet, a majority of literature in both sport and other fields (Cuskelly & Hoye, 2013; Lee et al., 2000; VanYperen, 1998; Wang et al., 2016; Weng & McElroy, 2012) indicates significant relationships between commitment variables (occupational and sport) with turnover intentions.

Based on the aforementioned literature, we developed two hypotheses. First, we predicted affective and normative occupational commitment would be negatively related to occupation turnover intentions, whereas, continuance occupational commitment would have a positive relationship. This result would contradict Gray and Wilson (2008), which found no significant relationships among occupational commitment and turnover intention, but would be consistent with other explorations of occupational commitment in sport (see Turner & Chelladurai, 2005). Second, consistent with the work of VanYperen (1998), we predict that all elements of sport commitment would be negatively related to occupational turnover intentions with the exception of involvement alternatives, which would be positively related.

Methods

A case study design was utilized to observe sport officials operating in a singular setting. Eisenhardt (1989) urged the use of case studies in management research to advance theory or provide greater depth of knowledge regarding phenomena that has received little attention from scholars. Although case study results are not generalizable to the general population (e.g., all high school sport officials), theory can be advanced by eliminating potentially confounding variables present across multiple settings (Eisenhardt, 1989).

Participants

The current case study utilized participants who were high school sport officials in a southeastern United States city. A questionnaire was distributed with assistance from a state high school athletic association. The association disseminated links to the survey via email to 253 sport officials. Eighty-four completed surveys (N = 84) were submitted for a response rate of 33.2%.

The mean age of respondents was 45.3 years old (SD = 11.5) with 14.8 years of experience (SD = 10.3). Nearly all respondents were male (Male = 80, 95.2%;

Female = 4, 4.8%). Many of the officials refereed multiple sport including football (*n* = 48, 57.1%), basketball (n = 35, 41.7%), baseball (*n* = 23, 27.4%), softball (*n* = 16, 19.0%), volleyball (*n* = 14, 16.7%), soccer (*n* = 4, 4.8%), ice hockey (*n* = 1, 1.2%). In addition, many in the sample officiated sport at other levels in addition to high school (middle school = 57, 67.9%; recreation = 42, 50.0%; college = 40, 47.6%; professional = 2, 2.4%).

Instrumentation

Data were collected via online surveys distributed to high school sport officials in a suburban town in the southeastern United States. To gain access to the officials, email distribution was conducted with the cooperation of a state high school athletic association, for whom the survey participants officiated contests. To ensure construct validity, survey items were adapted from established scales. Occupational commitment items were adapted from Meyer et al. (1993) by changing nursing related terms in the original scale to terms related to sport officiating. For example, the affective occupational commitment item, "I am enthusiastic about nursing" was altered to "I am enthusiastic about officiating." The scale has been widely utilized by occupational and sport management scholars and has been the subject of numerous empirical tests establishing its reliability and validity (see Irving et al., 1997; Snape & Redman, 2003; Turner & Chelladurai, 2005).

Sport commitment items were measured utilizing items adapted from Scanlan et al. (1993), which is frequently used to explore commitment of athletes. However, the Sport Commitment Model scale has also been adapted by several scholars to explore sport commitment of sport officials (see Cuskelly & Hoye, 2013; VanYperen, 1998). Our adaptations involved removal of terminology related to participating in a sporting event, which was then replaced by terms related to officiating. For, example, Scanlan et al.'s (1993) scale contains the item, "Do you like playing in Little League this season?" We altered the item to state, "Do you/did you like officiating this sport this season?" Items from VanYperen (1998) were utilized to measure occupational turnover intentions of sport officials.

Data Analysis

Data analysis was conducted utilizing *IBM SPSS Statistics 23*. All variables in the model were measured using Likert type scales (1 = disagree, 5 = agree). Although all items in the survey were adapted from previously validated scales, additional steps were taken to ensure convergent and discriminant validity. Convergent validity refers to the level of agreement between items measuring the same construct. Discriminant validity is the uniqueness of separate constructs (Campbell & Fisk, 1959). Average variance extracted (AVE) is recommended as an appropriate test for exploring issues related to construct validity

(Fornell & Larcker, 1981). When sample size or other factors prevent AVE from being conducted, Trochim, Donnelly, and Arora (2016) recommend examining inter-item correlations and factor analysis to infer convergent and discriminant validity.

Acceptable convergent validity is represented by inter-item correlations above $r = 0.5$ for items measuring the same construct (Carlson & Herdman, 2012). With the exception of one item in the affective commitment scale, all items met the $r = 0.5$ threshold. The offending item was removed from further analysis. All factor loadings of the remaining items were above the .65 ($N < 85$) threshold recommended by Hair, Anderson, Tatham, and Black (1998). Based on the recommendations of Trochim et al. (2016), convergent validity of the scales could be inferred.

Divergent validity is inferred by low inter-item correlations and low correlations between constructs (Campbell & Fisk, 1959; Trochim et al., 2016). There is no agreed upon threshold, however, inter-item correlations should be lower non-related items than for items proposed to measure the same construct (Trochim et al., 2016). Table 1 highlights correlations between constructs. A strong correlation between normative commitment and continuance commitment was noted ($r = 0.551$), but, inter-item correlations between revealed no cause for concern as correlations were stronger amongst constructs than across constructs. Cronbach's Alphas were generated to determine internal consistency of the measures. Table 1 illustrates the correlation matrix and contains scale means, standard deviations and Cronbach's Alpha scores for all variables in the model.

Hierarchical linear regression was utilized to test the proposed hypotheses. Age, years of experience, and gender values were entered in step one to control for potentially confounding variables. All sport commitment and occupational commitment variables were loaded in step two.

Results

The control variables accounted for 1.6% (adjusted $R^2 = -.02$, $p > .05$) of the variance. After controlling for potential effects related to demographics of participants, occupational and sport commitment variables accounted for an additional 31.2% (adjusted $\Delta R^2 = .25$, $F(8, 72) = 4.17$, $p < .001$) of the variance of occupational turnover intentions (see Table 2). Results revealed that affective occupational commitment ($\beta = -0.296$, $p < .05$) and involvement opportunities ($\beta = -0.244$, $p < .05$) were significantly negatively related to occupational turnover intentions. Both hypotheses were partially supported.

Discussion

The purpose of the case study was to explore the effects of occupational commitment and sport commitment on occupational turnover intentions of high school sport officials. Although the model explained 32.8% of the variance in occupational turnover intentions, only

affective occupational commitment and involvement opportunities were significant predictors of high school officials' intentions to leave the occupation. Both had a negative relationship, thus indicating high affective occupational commitment and involvement opportunities reduce intentions to leave the sport officiating occupation.

The results offer similarities and differences between the case study and other commitment research on sport officials. Multidimensional occupational commitment has been explored in numerous sport-based occupations, though the only prior study utilizing sport officials found the effects of all dimensions to be nonsignificant (Gray & Wilson, 2008). Like the prior study, continuance and normative occupational commitment did not significantly predict occupational turnover intentions among high school officials. However, the case study revealed affective occupational commitment to be a significant predictor of occupational turnover intentions of high school officials within the sample. This finding is similar to that found in other management focused fields, including Weng and McElroy (2012), who suggest that affective occupational commitment is further enhanced as one meets career goals and develops new skills. In the sport officiating occupation, career growth in terms of advancement in sport level could be categorized as meeting career goals and developing new skills.

Previous studies exploring sport commitment's effects on occupational turnover intentions of sport officials have been inconsistent. VanYperen (1998) found all but social constraints to be significant predictors, while Cuskelly and Hoye (2013) found sport enjoyment and involvement opportunities to be the only significant predictors. The disagreement of findings from these two studies provides some justification for the exploration in the present case study. As Patton and Applebaum (2003) argue, case studies provide the opportunity to explore findings not in a generalizable sense, but in explaining "the particular case at hand with the possibility of coming to broader conclusions," (p.64). The current study indicated only involvement opportunities to be a significant predictor of occupational turnover intentions for high school sport officials.

Differences between high school sport officials in the case study and officials from other areas of the world may not be surprising. Relating back to VanYperen (1998), who surveyed volleyball officials, and Cuskelly and Hoye (2013), who examined rugby referees, these differences may stem from the type of sport. Koslowsky and Maos (1998) echo this sentiment as they found attitudinal differences between soccer referees and track and field officials. Considering occupational commitment research has demonstrated the construct to have inconsistent results outside of the observed population (Irving et al., 1997), it stands to

reason the same can be said for sport commitment.

It must be noted that the mean affective occupational commitment response was near the top of the scale (4.76 out of 5), indicating the individuals in our case study were officiating high school athletics due to attitudinal desire. Sport officials generally join the occupation as a hobby or a secondary source of income (Titlebaum et al., 2009). High affective occupational commitment scores are congruent with the notion that this is an occupation of choice or hobby for those involved. The mean normative occupational and continuance occupational commitment response were lower,further highlighting the idea that survey participants were not officiating because they felt they had to do so.

In hindsight, perhaps it should have been surprising if normative or continuance occupational commitment levels were related to occupational turnover intentions for the participants in this case. By nature of the position, high school officials have many other options and are likely tied to another occupation or organization where they have higher normative commitment. Drawing inferences from other fields may help explain this phenomenon. Felfe, Schmook, Schyns, and Six (2008) suggested new forms of employment, such as temporary or freelance workers, has caused people to find work that best fits their personal needs and attitudes. Considering sport officials get into the field largely due to attitudinal desire (Titlebaum et al., 2009), it makes sense that affective levels were higher than both normative and continuance commitment levels.

Likewise, involvement opportunities are opportunities that are only provided through continued involvement in sport (Scanlan et al., 1993). Officiating at the high school level provides individuals, many of whom may have been former athletes, an opportunity to remain involved in the sport that they enjoy (Bernal et al., 2012). Officiating is one of the few activities that allow former athletes to remain on the field of play. This notion is supported by previous research, such as Gray and Wilson (2008) [track and field officials] and Koslowsky and Maos (1988) [soccer officials], who noted personal connections and past experiences with the sport influenced their involvement.

Limitations

One potential confounding factor that was not controlled for in this study was the fact that all participants in this study were currently involved in high school officiating. Mean responses to the occupational turnover intentions items were near the bottom of the scale, indicating few participants in the survey were interested in leaving the high school sport officiating occupation. The results may have been different if the sample included those who left the occupation.

Another limitation of this study stems from the lack of gender diversity among the sport officials surveyed. Direct access to the

sport officials was not granted by the state high school athletic association who assisted with survey distribution. Furthermore, the assisting association did not track the gender of sport officials to whom the surveys were distributed, nor does it make publicly available the demographics of its member officials.

One possible reason for this lack of inclusiveness is the continued struggles female officials have in terms of entry into the profession. Tingle, Warner, and Sartore-Baldwin (2014) explored this issue in a different context, interviewing former female basketball officials. The findings indicate that female officials experienced factors such as lack of mutual respect and poor mentoring. While examining gender differences was not an aim of the present case study, future research should explore the role gender plays in regard to occupational commitment. Finally, it should be noted that a second edition of the Sport Commitment Model (Scanlan, Chow, Sousa, Scanlan, & Knifsend, 2016) was published following our data collection.

Implications and Future Research

Prior research had indicated that passion for the sport and intrinsic rewards associated with officiating led people to the occupation (Bernal et al., 2012; Hancock et al., 2015). The current study indicates the intrinsic rewards associated with being a part of sport remain important. It also indicates the activity of officiating is something that the participants in this study have a desire to do. For athletic associations, administrators should focus on retention initiatives that build on high school sport officials' desire to be involved with the occupation. Administrative attention also has been shown to influence a related area of research within sport officiating. Kellett and Warner (2011) examined factors that influenced sense of community among sport officials. Among these findings, a lack of administrative consideration – including a lack of career development opportunities – decreased the overall sense of community. Therefore, governing organizations can implement professional development activities – such as instructional clinics and training programs (Mascarenhas, Collins, Mortimer, & Morris, 2005) – that allow officials to build their skills without taking time away from other elements of their lives. At the same time, athletic associations must eliminate activities or distractions that take sport officials' focus away from the act of officiating.

From a practical perspective, results from this case study can be utilized to better inform future sport officials with a more realistic look at the sport officiating occupation – specifically those interested in pursuing a career as a high school sports official. Academically, the implications of this case study provide the opportunity for further exploration of occupational commitment, sport commitment, and turnover intentions in relation to all subsets (i.e., sport leagues and sports) of sports

officiating. Considering the aforementioned discrepancies of findings, future research could examine a more comprehensive examination of attitudinal differences based on sport, extending the work of VanYperen (1998), Cuskelly and Hoye (2013), and Koslowsky and Maos (1988).

Future studies should also explore factors that lead to actual occupational withdrawal. It is plausible that samples of former high school officials may yield different results. For officials who are active, affective occupational commitment and involvement opportunities are important factors in maintaining low occupational turnover intentions. Scholars should explore potential antecedents of affective occupational commitment and involvement opportunities in high school officials. Additional exploration on this topic could also be conducted in relation to gender diversity among sport referees. While there has been an increase in research in the area of sense of community (e.g., Kellett & Warner, 2011; Tingle et al., 2014), occupational commitment could have some related implications. Finally, replication of the current study should be considered. The current study utilized a case study format with a relatively small sample involved with high school athletics in a single community. Future replications should include larger samples from a variety of locations throughout the United States from which broader generalization could be inferred.

Conclusion

Recruiting and retention of qualified sport referees is a problem affecting associations throughout the United States. While this case study did not explicitly address actual turnover, occupational turnover intentions indicate the attitudes officials have toward leaving the occupation. The findings in the present study help provide a better picture of the perceptions of high school sport referees from both sport commitment and occupational commitment. Considering sport officiating is distinct from other occupations, building affective occupational commitment and enhancing involvement can limit occupational turnover intentions, which may lead to less actual turnover.

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Tables

Table 1

Means, standard deviations, internal consistency reliability coefficients and correlations

Item	M	*SD*	α	AOC	NOC	COC	SE	IA	PI	SC	IO
AOC	4.76	0.334	0.703	---							
NOC	2.96	0.794	0.830	0.216*	---						
COC	2.86	0.756	0.774	0.250*	0.551**	---					
SE	4.37	0.648	0.964	0.194	0.036	-0.086	---				
IA	2.88	0.757	0.732	-0.032	-0.245*	-0.093	-0.031	---			
PI	4.00	0.563	0.684	0.270*	0.060	0.113	0.219*	0.084	---		
SC	1.77	0.700	0.811	-0.114	0.330**	0.345**	-0.278*	0.020	-0.059	---	
IO	4.18	0.648	0.807	0.305**	0.272*	0.424**	0.098	-0.201	0.248*	0.041	---
OTI	1.54	0.821	0.835	-0.403**	-0.093	-0.144	-0.219*	0.184	-0.265*	0.191	-0.394**

Note: AOC = Affective occupational commitment; NOC = Normative occupational commitment; COC = Continuance occupational commitment; SE = Sport enjoyment; IA = Involvement alternatives; PI = Personal investment; SC = Social constraints; IO = Investment opportunities; OTI = Occupational turnover intentions

* $p \leq 0.05$

** $p \leq 0.01$

Table 2

Results of Hierarchical Regression Analysis Testing the Effects of Age, Gender, Years of Experience, Occupational Commitment, and Sport Commitment on Occupational Turnover Intentions

Variable	*B*	*SE*	β
Step 1			
Age	0.006	0.010	0.082
Gender	-0.224	0.439	-0.059
Years of experience	0.002	0.011	0.025
Step 2			
Age	0.003	0.010	0.047
Gender	-0.126	0.389	-0.033
Years of experience	0.009	0.010	0.119
Affective occupational commitment	-0.727	0.279	-0.296*
Normative occupational commitment	0.001	0.136	0.001
Continuance occupational commitment	0.022	0.148	0.021
Sport enjoyment	-0.086	0.134	-0.068
Involvement alternatives	0.154	0.113	0.142
Personal investment	-0.183	0.154	-0.126
Social constraints	0.145	0.133	0.124
Involvement opportunities	-0.309	0.146	-0.244*

Note. Overall R^2 = .33 (Overall Adjusted R^2 = .22). Step 1 R^2 = .02 (Adjusted R^2 = -.02, p = .73). Step 2 ΔR^2 = .31 (Adjusted ΔR^2 = .31, $p < .001$). *$p < .05$.

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"Don't sit back with the geraniums, get out": The Complexity of Older Women's Stories of Sport Participation

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Encouraging sport participation 'for all' is one method governments have utilized in the attempt to facilitate a more active senior citizenry. To date, investigations of seniors' participation in sport has focused primarily on physiological variables, with fewer investigations devoted to psychosocial outcomes or what playing sport means to the older person in the context of wider health promotion discourses. Our qualitative investigation consisted of in-depth interviews with women competing in the 2013 World Masters Games. Interviews were conducted with 16 women ranging from 70 to 86 years of age and data were analysed within a post-structural framework. Three main themes emerged from the analysis: Multi-faceted benefits, Overcoming barriers, and Social roles. Unquestionably, there is complexity inherent to older females' sport participation, in that our participants held views that both challenged and perpetuated some of the most common aging and gender stereotypes. On the one hand, by competing in sport at an older age these women were resisting traditional views and structures that excluded them from sport. On the other hand, they were conforming to the contemporary 'sport for all' ideal while subtly disparaging others who do not play sport or keep active. Thus, our findings critically analyze health promotion trajectories as they relate to older women and sport.

In the summer of 2015, Canada crossed a key demographic threshold, as for the first time more of its citizens were 65 years and older than under 15 (Evans, 2015). This mirrors the demographic trends globally; by 2050 the number of adults over the age of 60 in developed countries will nearly *double* those under 15 (United Nations, Department of Economic and Social Affairs/Population Division, 2015). These aging trends have caused a certain degree of consternation in public policy circles, as governments try to prepare for the impact of an older population on social programs (Canadian Medical Association, 2015; Horton, Baker, & Deakin, 2007). Exacerbating the demographic trend is the fact that we are living longer. The average lifespan has increased by an average of three months per year since the 1840s, to the point that individuals born in advanced industrial countries can now expect to live into their 80s (Oeppen & Vaupel, 2002; World Health Organization, 2016).

Rapid growth in the senior cohort has fueled interest among academics and policymakers in how to maximize time spent living a life high in quality, and simultaneously compressing the time living with disease and disability (King & Guralnik, 2010), hence the focus on what has been most commonly referred to as 'successful aging' (Rowe & Kahn, 1987;1997) as part of a wider health promotion policy direction. While successful aging is the most commonly used term in gerontology, it is also a highly contentious term (see the 2015 special issue on successful aging in *The Gerontologist*), and other concepts have also been widely utilized in research and policy, including positive aging (e.g., Bowling, 1993) aging well (e.g., Peel, McClure, & Bartlett 2005), optimal aging (e.g., Aldwin, Spiro, & Park, 2006), active aging (e.g., Pike, 2011; World Health Organization, 2002) and productive aging (e.g., Warburton & Peel, 2008). Central to all of these concepts is the notion that aging is, to a certain extent, subject to our control and that ill health is as much about sedentary living and disuse as it is about age (Vopat, Klinge, McClure, & Fadale, 2014), which are key reasons why the promotion of sport and physical activity participation has appeared in health and aging-related policies (Gard & Dionigi, 2016). Much of the supporting evidence for 'successful aging' comes from research on physical activity involvement (or lack thereof) in older adults (Colley et al., 2011; Dogra & Stathokostas, 2012; Harvey, Chastin & Skelton, 2015; Meisner, Dogra, Logan, Baker, & Weir, 2010). For the majority of people, involvement in physical activity declines precipitously as we move through the lifespan (Colley et al., 2011), yet for those who can and do remain active, fitness and health measures are generally superior to their peers, and often equivalent to those in a much younger cohort (Leyk et al., 2010; Wroblewski, Amati, Smiley, Goodpaster, & Wright, 2011).

Encouraging sport participation 'for all' is one method governments have used in

the attempt to facilitate a more active senior citizenry (Gard & Dionigi, 2016; Pike 2011). Regardless of whether governmental influence is actually having an effect on participation rates, it is clear that sporting events for older adults are growing in popularity. A notable example of this is the World Masters Games (WMG) which began with the inaugural event in 1985 and 5,000 athletes competing. It has since expanded to the extent that it is now the largest sporting event in the world, with up to 30,000 participating in the quadrennial event (Weir, Baker, & Horton 2010).

A number of researchers have asserted that Masters athletes represent an important group to study (see Geard, Reaburn, Rebar, & Dionigi, 2017). Some argue that many of these Masters athletes represent an aging "ideal," at least from a physical perspective (Cooper, Powell, & Rasch, 2007; Hawkins, Wiswell, & Marcell, 2003; Spirduso, Francis, & MacRae, 2005). More recently, Pesce and Audiffren (2011) suggested that partaking in sports that were high in cognitive demands enhanced mental flexibility, thereby contributing to "successful cognitive aging" (pg 623). Maintaining physical and cognitive functioning, along with avoidance of disease and disability are two defining features of Rowe and Kahn's (1987; 1997) model of successful aging. The third component of this model, an active engagement with life, is also associated with sport involvement, as the opportunity to develop friendships, travel to new places, and receive social support are all cited by older adults as benefits of participating in Masters events (Dionigi, Baker, & Horton, 2011a).

Notably, Rowe and Kahn's model has, despite its high profile (or perhaps, because of it) come under criticism for its narrow, biomedical focus, with comparatively little attention paid to various psychosocial aspects of aging that seniors themselves consider important to age successfully (Geard et al., 2017; Liffiton, Horton, Baker, & Weir, 2012) nor the wider cultural context within which meanings of aging and physical activity are situated (Dionigi, Horton, & Bellamy, 2011b). Investigations of how older adults define successful aging have led to broader conceptions than those forwarded by Rowe and Kahn, and included items such as happiness/enjoyment with life (e.g., Bowling, 2006; Knight & Ricciardelli, 2003), having a positive outlook (e.g., Hilton, Gonzalez, Saleh, Maitoza, & Anngela-Cole, 2012; Tate, Leedine, & Cuddy, 2003), personal growth (e.g., Fisher & Specht, 1999), acceptance of oneself (e.g., Reichstadt, Sengupta, Depp, Palinkas, & Jeste, 2010; Tate et al., 2003), and close personal relationships (e.g., Lee & Fan, 2008; Matsubayashi & Okumiya, 2006).

Consequently, a consensus definition of successful aging has proven elusive as researchers have revised and expanded the concept to the point that a recent systematic review unearthed 84 unique definitions (Cosco, Prina, Perales, Stephan, & Brayne, 2014). This proliferation inspired Geard et al. (2017) to divide successful aging into four distinct areas: physical, psychological,

cognitive, and social, arguing that, while the evidence is still in its early stages, particularly for the latter three of these areas, Masters athletes may exemplify successful aging in all four domains (Geard, Rebar, Reaburn, & Dionigi, in press). Geard et al.'s (in press) assertion has some support from a recent systematic review by Gayman and colleagues, which suggested that seniors may derive benefits from partaking in sport over and above those accrued from involvement in physical activity (Gayman, Fraser-Thomas, Dionigi, Horton, & Baker, 2017). Nevertheless, these studies rarely consider what participation in sport means to older women within the broader cultural context.

Investigations of seniors' participation in sport has focused primarily on physiological variables, with fewer investigations devoted to psychosocial outcomes (Baker, Fraser-Thomas, Dionigi, & Horton, 2010; Dionigi, 2016; Gayman et al., 2017). Gayman et al. (2017) uncovered ten articles that focused on psychosocial outcomes of sport participation in adults 60 years of age and older. Of these ten articles, five focused on men's participation (Langley & Knight, 1999; Lobjois, Benguigui, & Bertsch, 2006; Lobjois, Benguigui, Bertsch, & Broderick, 2008; Roper, Molnar, Wrisberg, 2003; Rotella & Bunker, 1978), four examined the experiences of both men and women (Eman, 2012; Grant, 2001; Pesce & Audiffren, 2011; Reed & Cox, 2007), with just one focused on females exclusively (Kirby & Kluge, 2013). Kirby and Kluge (2013) conducted a qualitative investigation with eight novice female volleyball players ranging in age from 65 to 76, many of whom were participating in athletic activity for the first time in 50 years. The authors speculated that this team environment, overseen and sponsored in a university setting, which included high quality coaching, may be a viable model for introducing non-athletic women to competitive sport.

Research by Pfister (2012) has also focused exclusively on females - two older athletes who still participated in sport competitions. Pfister (2012) discussed the "double barrier" women faced with respect to participation in competitive sport as a result of being both older and female. Indeed, past literature has emphasized the historical difficulties women have encountered in the sporting world (Vertinsky, 1995) and McIntosh (2015) has described the history of women's sport as a "history of struggle." Drawing on post-structural theories and using a critical, qualitative approach, Dionigi (2010; 2013) noted how older sportswomen (aged 55 years and over) across a range of sports simultaneously resisted and conformed to discourses of sport, aging and gender.

Post-structural theories help explain the ways in which dominant cultural notions (e.g., of sport, gender, or aging) can be challenged, used, or reinforced through individual experiences and practices (Markula & Pringle, 2006; Shaw, 2006; Wearing, 1995). For example, older women

can resist negative stereotypes of aging that portray old age as a time of weakness and frailty by maintaining a strong, healthy body and thereby deriving a sense of competency and empowerment. Alternatively, the increasing cultural and social pressure to remain active and participate in sport, evident in government policy, academic literature and the media, can result in the marginalization and stigmatization of those who cannot or do not want to engage in these activities, as well as a heightened individual and cultural fear of aging (Dionigi, Gard, Horton, Weir & Baker, 2014; Gard, Dionigi, Horton, Baker, Weir, & Dionigi, 2017). Given the distinct lack of research specific to older women's (i.e., 70 years and over) sporting experiences, despite their apparent growing involvement in sport, this qualitative study (framed in post-structuralism) of older women competing in the 2013 WMG expands existing knowledge on this topic. Historically, both participation in and the public discourse surrounding sport has been dominated by young to middle-aged men, leaving the voices of women, older women in particular, notably absent (Dionigi, 2013; Freysinger, Shaw, Henderson, & Bialeschki, 2013; Hargreaves, 1994; Vertinsky, 1995). If being heard is a form of power, then listening to the voices of older, female athletes is potentially valuable in helping to redress this imbalance.

Thus, the aim of our study was to better understand the meaning of sport in the lives of older women who currently compete in individual, paired and/or team sporting events within the broader context of sport, aging, gender, and health promotion discourses by taking a critical approach to qualitative research, shaped by a post-structuralist perspective.

Methodology

Research paradigm

A critical approach to qualitative research "requires a look beyond the immediate, to question that which we take for granted and seek connections between seemingly disparate ideas; it is an approach that nurtures creativity…with an eye toward social change" (Swaminathan & Mulvihill, 2017, p. 4-5). It involves interrogating and questioning taken-for-granted assumptions, such as sport and physical activity should be practiced by all, and pays close attention to power and privilege, such as sport being a middle-class preoccupation. A critical approach also accepts multiple or partial truths, examines context and structure alongside personal empowerment, and resists separating the researcher from the research process (Swaminathan & Mulvihill, 2017). Therefore, although qualitative research attempts to see the world from the standpoint of participants, we recognize that researcher (and reader) bias is inevitable and, indeed, embraced in qualitative research and writing (Denzin & Lincoln, 2011). Our critical research paradigm aligns with post-structural perspectives which claim that there is no single interpretive truth and cast doubt over any discourse, theory or method holding authoritative

knowledge over another (Denzin & Lincoln, 2003; Richardson, 1998). Post-structuralism is also interested in issues of power and the rights of individuals. Within this research design and theoretical framework, we used semi-structured interviews and purposive sampling methods (Patton, 2002), as explained below, to better understand sport and aging from the perspectives of older female athletes.

Participants

We recruited athletes participating in the 2013 WMG in Turin, Italy. This is a global event that attracted approximately 20,000 athletes from countries around the world. Research team members approached athletes at various athletic venues with the purpose of initiating a conversation. We did this at a time when athletes were not competing so as to be minimally disruptive to their routine. Early in our conversation we would mention the research we were undertaking and ask if they were interested in a more formal interview, which we would conduct at a time and place most convenient to them. Overall, we found that athletes were receptive to sharing their experiences with us, as we have found in our past research on older athletes (Dionigi et al., 2011a; Dionigi, Horton, & Baker, 2013).

Data presented here were collected as part of a larger study that examined ideas about sport involvement, sport promotion, training and competition, role models of aging, and involvement in physical activity. For this paper, interviews with 16 women ranging from 70 to 86 years of age were analyzed to gain a better understanding of older women's experiences and meanings associated with competing in sport in the wider context of aging, sport, gender, and health promotion discourses. Participants were selected, using purposive criterion-based sampling, (Patton, 2002) based on age (70 years and over), gender (women), and language (ability to speak English). The women participated in a variety of paired or individual sports, specifically: track and field, swimming, weightlifting, table tennis, and badminton. Eleven different countries were represented in this group of 16 women. All identified as Caucasian, with the exception of one woman from Canada who identified as Aboriginal. This was a highly educated group, with only one participant indicating less than high school education, and 11 with some schooling beyond high school (i.e., college courses, university degree) and one woman reported obtaining a Ph.D. Almost all of the women were either fully (10) or partially (5) retired with one indicating that she was still working full time. Reported careers varied considerably, and included teachers (5), nurses (2), and physicians (2). Other careers mentioned included secretary, engineer, lawyer and bank teller. Seven women were widowed, six were married, and three reported being divorced. More than half of the women talked about being multi-sport athletes, with 10 mentioning involvement in sports other than the one they were engaged in at the

WMG. Participants provided informed consent, and the ethics approval was obtained from a university's Research Ethics Board. All participants were given pseudonyms for the purposes of data presentation to protect their confidentiality.

Interview Format

Participants were interviewed individually in a quiet space at a time when they were not competing. Interviews were conducted in a semi-structured format (Patton, 2002), which provided the interviewer the flexibility to probe participants' answers for more detail. Each author is an experienced qualitative researcher, and all participated in the development of the interview protocol (Johnson, 1997). We met frequently over the course of the WMG to discuss the interview process, to share our experiences, question one another, self-reflect and make slight adjustments when necessary.

An interview guide provided the basic topics. Sample questions included: what role does sport play in your life? What do you get out of participating in sport? What barriers do you experience in relation to your continued participation in sport? What is the hardest thing for you about competing? Why do you think many older people do not participate in sport? Interviews generally lasted from 30-60 minutes, although some lasted upwards of 90 minutes, were digitally recorded and later transcribed. Discussion amongst authors continued throughout the coding process to ensure critical reflection on the data and to establish agreement on the emergent themes and categories (Johnson, 1997). In addition to this 'peer debriefing' (Sparkes & Smith, 2014, p. 189), below we provide 'detailed descriptions' (Sparkes & Smith, p. 181) of the analysis process, our conceptual framework and biases so readers can further judge the credibility and quality of this research.

Analysis

Interview transcripts were analyzed and interpreted within a post-structural framework (Markula & Pringle, 2006; Shaw, 2006). Post-structuralism rejects universal norms for truth and morality, focusing instead on a world that is uncertain, fragmented, diverse, with plurality one of its essential components (Merriam, 2002). Sport contains within it multiple power structures, which both shape and are shaped by its participants (Markula & Pringle, 2006). There is no single way to 'do' sport, and there are a plethora of reasons that drive participation. Furthermore, there are numerous conditions under which sport participation can shape one's self-concept and identity, and vice versa.

Post-structuralism's strength as an analytical approach is its "power to resist and work against settled truths" (Williams, 2005, p. 3). This approach recognizes that people attach multiple, dynamic, and contradictory meanings to their aging experience, as well as how meanings influence and are influenced by language and discourse at all levels of society. While

an individual's concept of self and identity will be diverse, fragmented, and culturally specific, we can gain an understanding of one's experience of aging and the sense people make of their actions through the stories they tell about themselves and their bodies. Our reading and interpretation of the interviews was done in this spirit, albeit with an abundance of caution given that, while the language participants used to talk about their lives is steeped in historical context, our analysis of their stories is similarly influenced by our own culture, bias, and background. Thus, in the findings we have included a number of verbatim quotes to provide context, with the expectation that the reader may interpret these somewhat differently than the authors.

When analysing our data we used an inductive approach for the coding, in which quotes from the interviews were identified as 'meaning units' (Côté, Salmela, Abderrahim, & Russell, 1993; Côté, Salmela, & Russell 1995). Subsequently, common features from these meaning units were identified, compared, and organized into our main themes (Côté et al. 1993; Tesch, 1990). Within these themes, we grouped similar meaning units together into categories. For example, a number of our participants commented on the pain and injuries they were managing in order to continue sport participation. These comments were grouped together into a category entitled *dealing with disease, pain, and injury* (please see Table 1 for all the themes, categories, and example meaning units). This approach to qualitative analysis has its roots in the constant-comparative method (Glaser & Strauss, 1967), which involves contrasting the data until "saturation," when no new themes or categories emerge. This approach to analysis allowed us to reveal the meanings and contradictions in the data, which aligns with the post-structural framework outlined above. That is, like previous studies in this area (e.g. Dionigi, 2010; 2013), we did not use Grounded Theory explicitly, however we did incorporate components of that approach (coding and constant comparison) so that our themes emerged from/were grounded in our analysis of the data (Merriam, 2002). Based on the interview questions that were asked, numerous readings of the transcripts, and our analysis, three broad themes were established – *Multi-faceted benefits*, *Overcoming barriers*, and *Social roles*.

Findings

Multi-faceted Benefits

The first theme, *Multi-faceted benefits*, consisted of three categories: benefits that were *Social, Psychological,* and *Physical* in nature.

Social benefits. Virtually unanimous amongst our participants was the conception that there were major social benefits from partaking in sports in general, and Masters games in particular. Lisa (aged 72, swimming) noted, "Masters (events) have given me an opportunity to meet women who will be my friends all my life."

Alexis (72, swimming) expressed comparable sentiments, stating "the enjoyment, being with the group. I've made a lot of great friends because of it." Similarly, Nora (70, swimming) noted that "the camaraderie you get, and the support you get, especially from the club. Locker room chatter is wonderful." Betty (70, weightlifting) discussed how the WMG become a way for the athletes to stay connected or reconnect:

> The friendships you make, all people around the world, if you get to travel around the world to championships, and then you don't see them for a year, you might have an email now and then, it's just lovely to see them again and they all support each other.

The social component of sport and competition was clearly one of the most important benefits highlighted by our participants. At the same time, the women in our study, unlike the majority of older women, were 'privileged' - they had the means, ability and desire to travel the world and play sport. In addition, they were conforming to the culturally accepted view that one should be socially active in later life, which aligns with the active engagement aspect of successful aging and health-related promotion policy trajectories, such as 'sport for all' (Carr, Smith, Weir & Horton, in press).

Psychological benefits. While social and psychological aspects overlapped to a certain degree, participants described distinct psychological benefits. The women discussed a variety of topics that included stress relief, mental health, positive self-perceptions, goal-setting, meeting challenges, and even improving their organizational skills. In preparing for events like the WMG and setting goals, Sarah (81, swimming) noted: "All that gives me new things to look forward to, get a little nervous about, which is not a bad thing." Geraldine (70, track and field) discussed improved stress levels, but also the extent to which her perceptions of herself changed once she became an athlete:

> Stress relief is one but it's more than that, it's the effect it has on you and your perception of yourself as a person, so that self-concept, that I believe changes… You see yourself, not just the mother, the wife, the teacher, but an athlete. It adds that extra dimension to your self-concept.

Our participants in this study grew up at a time when women's roles were predominantly limited to that of a wife or mother, or some other caring role like a teacher or nurse. Therefore, becoming an "athlete" was a new part of Geraldine's identity and one that was not typical among women of her time. Mary (73, badminton) drew a direct link between fitness and her state of mind. "It's that feeling of being fit; I just think you're more mentally alert." Mary's statement indicates that benefits from sport can generalize to an overall feeling of well-being. Just as there was frequently overlap between the social and psychological benefits women described,

there was also overlap between the psychological and the physical, exemplified here by Mary. This ties into our final category within this theme, that of physical benefits.

Physical benefits. Our participants talked about improved health, looking and feeling younger, and generally feeling better about themselves. They seemed very invested in their bodies, in terms of how they functioned, how they performed, and how they looked. In a culture that values youthful, fit, sporty, functional bodies, it is perhaps not surprising that these 'privileged' women also valued these traits in others and in themselves. What was particularly noteworthy, however, was the extent to which these women extolled therapeutic benefits, as many of them were dealing with pain and/or injuries. Betty had been battling rheumatoid arthritis, including weight issues as a result of her condition, and had four hip replacements which affected her technique as a weightlifter. She started competing at age 60, and stated, "It gave me back my life, it really did. Because as the muscles became stronger, those weak joints were supported, pain lessened." Betty clearly derived important physical benefits from her weightlifting. At the same time, getting her "life" back is associated with this improvement in physical function, with a subtle insinuation that her life was somehow of less value in its previous (physically weak, overweight) state. Therefore, Betty's quote is reflective of, or perhaps buys into, the value western cultures place on the fit, strong, performing body, and simultaneously, the negative cultural emphasis on the weak, 'fat' and/or aging (female) body.

Nora also struggles with arthritis, which began when she was 35. In addition to the arthritis, she recounted other injuries she had suffered throughout the years. Asked what kept her coming back to swimming, she responded:

> Because I know I'm going to heal. I've healed every time. Swimming actually makes me feel good. When I had arthritis really bad, the first five minutes of swimming was very painful. After that it felt good, and the pain would go away. It just made me feel good in body and spirit.

These sentiments expressed by Nora and Betty are representative of the distinct physical benefits experienced by these older, female athletes. They also reveal the extent to which these women are invested in their physical health and functionality, which relates to the next major theme - overcoming barriers.

Overcoming Barriers

Within this theme, three categories emerged from our analysis, which consisted of *Dealing with disease, pain, and injury, Financial obstacles,* and *Combatting gender and age norms*.

Dealing with disease, pain, and injury. Many of our participants had dealt with, or were currently dealing with, serious injuries or health issues. Alexis talked about

her recovery from a recent stroke. Lisa discussed her heart attack of 10 years ago, and managing associated complications since that event to allow her to swim competitively. Others spoke of hip replacements, broken bones, or debilitating arthritis. Common to all of these women, however, was a determination to get past these serious health issues, with sport as an important component of their therapy. Often it meant making adjustments, for example, learning a different swimming stroke to accommodate for an injury. The body is, in a sense, treated as an instrument, to be fixed, prodded, mended, and brought back to 'life'; disease, pain, and injury are thus insufficient reasons to give up on sport. Betty spoke of changing her weightlifting technique to accommodate for a wrist injury and having both hips replaced. She commented on the therapeutic benefits of exercise for people more generally: "I know it's hard with pain to make the first step, but if they could possibly do it they would find in time, they feel better." Some changed sports completely. Sarah moved to swimming, noting its low impact nature:

> I want to get these older people in the water … anything else is often unforgiving for bones, because I have a hip replacement, I broke this one skiing; but in the water, there is no pain, it's wonderful. You are free of all that stuff.

Alongside these women's feelings of personal empowerment is a belief in the idea that exercise can help to prevent aging and disease and a belief that one must fight or resist the aging body. Fiona (70, badminton) was particularly noteworthy due to her battle with Parkinson's disease. She described her symptoms as being "well controlled" with her medication, and that a combination of this and her active lifestyle help to maintain her good health. In her words, "I firmly believe with the right level of activity, you can improve any medical condition." Fiona's optimism is striking, considering how debilitating the symptoms of the disease can be without her medication. She commented that, "If I don't take my medication I find I can't walk very well" and that even a few hours delay taking her medication can have fairly drastic effects on her badminton performance. She faces these obstacles as rewarding challenges, however, and speaks of constantly seeking out new ways of pushing herself:

> When you quit doing things, and looking for new challenges, that's when you get old. Your body starts to fall apart…. It's the best way I know to fight disease - don't give into it. I could say 'oh, I have Parkinson's' and there are people who do that.

These women were dismissive of barriers that others might, perhaps logically or justifiably, consider substantial in nature. What is remarkable about women like Fiona is the resilience, determination, and optimism that they display. At the same time, Fiona's resistance subtly denigrates the term 'old', associating it with giving up and quitting. She also subtly denigrates those

who 'give in' to disease by differentiating herself from people who do. This way of thinking has the potential to blame individual choice and behavior for disease, which is problematic given the random nature of so many diseases and the socio-cultural determinants of health outcomes, particularly as one ages. Resisting disease, resisting the tendency of the body to 'fall apart' as we age appears to be crucial to Fiona's sense of self. The body is of most value to Fiona, like others in this study, when it looks and performs in a youthful manner.

Our participants were determined to do what they wanted, and not much was going to stop them. This is perhaps best exemplified by 81-year-old Sarah, who, after describing her broken hip from skiing, her back surgery for arthritis, and her resulting struggles to perfect a new swimming stroke, said "Real barriers? I think I would crawl over them; I am so determined to do the things I want to do." As a society, we admire and celebrate women with such an attitude, and perhaps rightfully so. This kind of fierce resistance and resilience, however, tends to conform to Rowe and Kahn's (1987; 1997) biomedical model of aging, which assumes we all can, and should, take responsibility for our health, and that the way we age is very much under our control.

Financial obstacles. This was an obstacle that our participants recognized as real, and important, but it did not really apply to them. Participating in an event like the WMG can be an expensive undertaking, particularly if you do not live in close proximity to the host venue. Many of our participants built the Games into their larger travel plans, and used it as an opportunity to explore new places and new countries. They did acknowledge, however, that such endeavors are problematic for many people, and they also acknowledged the privileged position they occupied. Alexis noted, "I know some people that couldn't afford to go and it's a big problem getting all your money together."

Similarly, Betty remarked that it took considerable financial resources, combined with reaching an age at which other financial obligations are absent, to be able to afford participating in the WMG. "The younger ones have got commitments, they've got mortgages, they've got children. It's too hard to be spending as much money as we are spending coming here." The women recognized the travel costs, but also the considerable expenses associated with the year-round training, equipment, and coaching that many masters athletes accrue in order to compete. Betty does go on to distinguish, however, between the expenses associated with events like the WMG, and the ability to partake in basic exercise, declaring "…you don't have to be an Olympic weight lifter like I am, you just have to get a couple of tins of baked beans and hand weights." These women were passionate about exercise, and insisted that one does not have to take it as seriously, nor have the financial resources they have, to derive benefits. In fact, the pervasive

attitude in our data appears to be that there is no rational reason for a completely sedentary lifestyle, irrespective of age, health status, or economic circumstance, an attitude also implied in 'sport for all' and related health promotion messages. Our participants lamented the lack of sport or even basic physical activity in the majority of older adults, a topic which is covered in more detail in a subsequent theme.

Combatting gender and age "norms." All of our participants were born prior to the end of WWII, and some of them referenced the lack of opportunities in their childhood. Fiona spoke of the limited prospects for engaging in sports during her school years:

> When I was in school, there really wasn't much for girls… we just played with each other. That's really all there was... I guess there were people who thought athletic girls were kind of strange.

Similar sentiments were expressed by Nora, who was surprised to arrive in the United States from Austria as a young adult only to find few opportunities to participate in sports. "When we came to the United States, my age group, the women were told they had to be ladies. Sports was not the done thing." Sarah experienced issues in her marriage as a result of perceived gender roles:

> That's not nice to say so but my husband, he discouraged me from almost anything that I wanted to do and that has caused a problem in our marriage. … In the 1950s and 60s, you had the Victorian time…..the wife did what the husband said.

Clearly these attitudes did not prevent these women from becoming athletes, and in this sense they were just one in a series of obstacles our participants overcame which helped them to feel empowered. And while earlier in their lives they faced barriers related to gender norms, more recently they have encountered stereotypes associated with age. Once again, these women feel that, while these stereotypes do exist and can be powerful, they apply to older people more generally, rather than themselves specifically. Hence, their comments reflected that perception. Lisa observed:

> I think most adults feel that they are not capable. 'No, I can't do that, I'm 70 years old. I can't take a yoga class, I'm 70 years old.' I think we need to encourage senior men and women to come out of themselves and take a risk, take a chance, try it, see if you can do it. Don't just say so quickly, 'I can't do that.'

Similarly, Sarah suggested that most seniors sell themselves short, and more media exposure of events like the WMG would help change perceptions of what is possible:

> I think that the older population wasn't brought up in that; you need to get that realization that, why can't older people do this? You need to advertise that and show that it can be done.

Our participants knew, in one sense, that they were the exception rather than the rule,

and that they represented a model of an older (female) adult who was active and athletic at a relatively late age. To a very real degree, these women thought of themselves as examples of how one should live life at their age, which leads us to our last major theme.

Social Roles

This final theme includes two categories, *role modeling*, and *evangelical about exercise.*

Role modeling. There was considerable variety in how our participants referred to themselves with respect to their social roles. Kim (72, swimming), for example, was quite overt about referring to herself as a role model. "My family is very athletic and I am a role model for my family so they know that everybody has to pick a sport." Similarly, Sarah indicated, "I hear awesome people telling me 'you're my role model.'" Lucinda (83, swimming) notes that she is held up by prominent people in her town as someone to emulate: "The mayor of my town always calls me the example for other elder people. 'Look at her!' You know geraniums? There's a saying in Holland: Don't sit back with the geraniums, get out." Others were slightly more reticent, but did acquiesce to the notion of being a role model. Betty, for one, has been profiled extensively in her hometown's local media: "I don't see myself as a role model but the other ladies would probably disagree. So I (have had) a lot of radio and magazines written about me."

A common sentiment that emerged was the notion of "if she can do it, why can't I?" This went both ways, in the sense that our participants recognized that they inspired other women, yet notably there were instances in which our participants were similarly inspired, generally by women older than themselves who were still active and competing in sport. For example, Sarah (aged 81) noted that, "there is a woman here, her name is Barbara... she is 89 and she is fantastic." Similarly, Sally (70, swimming), who works out a gym five mornings a week to complement her swimming training, and is met in the mornings by "one of my friends (who) is 81. So, I'm inspired by her." Betty noted that part of the reason she competes is so that people can see that "she can still do things." It is important to Betty to put her body and abilities on display, and show her physicality and prowess through her sport. She believes she inspires others in this manner, and also derives inspiration from her co-competitors, some of whom are "…a lot older than me. You get out there and they see that you can do it."

Whether or not our participants explicitly saw themselves as role models, they all saw themselves as having a distinct "role to play." Our participants wanted to share their passion for sport, exercise, and fitness in the hopes that they would inspire others to become more active. In a sense, these women were "exercise evangelicals" which constitutes our final category.

Evangelical about exercise. Our final category focuses on the messages that our participants try to convey, in varying ways, about the benefits of exercise and/or sport involvement. Most were rather blunt in their recommendations, which they often perceived as encouraging and supportive of others. Martha (86, swimming) is direct in her advice: "I say to all of my friends, 'you wouldn't be limping like that if you came swimming with me.'" Similarly, Mary has a similar message to her friends: "I always say to them 'live! You are young enough to participate and learn new things, do more things, play more sport.'" Betty was very forthright about her evangelical nature: "I give lectures to the ladies, as you can tell, on this subject, the need to do weights, even with a tin of baked beans in each hand. There are enormous health benefits."

Geraldine has spent many years running exercise classes and pursuing advanced graduate degrees related to physical education and motivation. Some of her work takes her into nursing homes, where she tries to implement PA programs.

> I work in a nursing home so these people are there, you've got the captured audience, you go around and you tell them we are just going to do a little bit of movement, you don't say exercise... they say "I'm too old for that, I did all that when I was young."

This evangelical nature is a double-edged sword, for while the messages conveyed by our participants are intended to be encouraging and supportive, the attitude often conveyed is that individuals who do not partake in exercise or sport are shirking their social and moral responsibility to maintain an active, healthy lifestyle throughout their senior years. This can be subtle, as with Leena (80, swimming) who notes, "I've always been active and never one to just sit around with a bunch of women and talk about my aches and pains. Not that I condemn them." Some of our other participants, however, were more willing to offer some level of condemnation for a less-than-active lifestyle. Betty stated:

> Hopefully more and more because if not then people will start getting more and more obese, the health system will fail, but the trouble is there is still a lot who just don't want to listen, who still smoke, and they are the ones who will drain the system when you get to pension age.

When Iris (72, table tennis) was asked why more seniors are sedentary rather than active in their lifestyle choices, she responded:

> Lazy, lazy, only lazy. They like to eat a lot of food, junk food, they don't want to walk. Simple. WALK. Use your body, use your muscles. Don't let your muscles die. If you're not moving, you're dying.

It does appear to be a slippery slope from taking responsibility for your own health and well-being to castigating those who cannot, for whatever reason, do the same, thereby blaming them for ill health or disease. These findings clearly highlight the

complexity inherent in older women's stories of sport participation within the wider context of sport, aging, and health promotion discourses.

Discussion

Our study both supports and extends the literature on older (female) masters athletes. Previous investigations of the sporting experiences of older athletes have emphasized the multiple and varied benefits these individuals derive from sport participation (Dionigi et al., 2011a; Kirby & Kluge, 2013). Similarly, our athletes discussed the social, psychological, and physical benefits of their sport involvement. For women like Geraldine, sport can be an empowering experience, expanding one's self-concept and identity so she sees herself not just as a mother, a wife, and a teacher, but also as an "athlete." Biographical interpretations of aging successfully emphasize the possibilities, despite potential changes in health status and socio-cultural and economic resources as one ages (Diongi et al., 2011b). These transitions can be interpreted as important components of one's life story and create multiple understanding of one's "self" while also creating alternative meanings of the aging process (Chapman, 2005; Dionigi et al., 2011b; Phoenix & Sparkes, 2009).

Older females have traditionally faced numerous barriers to sport participation, due to culturally-based stereotypes and norms related to both age and gender (Vertinsky, 1995; Dionigi, 2013; Pfister, 2012). A number of our participants discussed these barriers, and how they experienced a lack of opportunities in their youth, or a less than supportive spouse. What was striking, however, was the fierce determination these women displayed in the face of numerous barriers, whether these were societally based, or more individual in nature (i.e., overcoming disease and injury). Our participants talked at-length about various adverse events that had occurred in their lives, yet they were determined to continue with exercise and sport. This was perhaps best exemplified by Sarah, who spoke of crawling over barriers, because she is "so determined to do the things I want to do."

Clearly our participants have displayed determination and persistence, and this may be worthy of both admiration and emulation. We broached this possibility, and while only some of them overtly referred to themselves as role models, virtually all our participants saw themselves as having a *role to play* when it came to encouraging others to be more active in sport and/or physical activity. Kirby and Kluge (2013) discussed the potential of the female volleyball players in their study to be role models, both for their peers and for younger generations. Considering these women were described as volleyball novices who had never participated in competitive sport previously, they are perhaps well-suited to inspire other seniors. Importantly, the WMG emphasizes and encourages participation, with multiple divisions catering to everyone from elite

athletes to those who are primarily recreational in nature (Weir et al., 2010). Previous research has indicated that older athletes who are more "elite" may actually intimidate other seniors from getting involved in sport (Horton, Baker, Cote, & Deakin, 2008; Horton, Dionigi, & Bellamy, 2013; Ory, Hoffman, Hawkins, Sanner, & Mockenhaupt, 2003). Role model research that has been conducted with young people suggests that the ideal role model was someone who was slightly older and had achieved outstanding, but not impossible success in an area in which respondents hoped to excel (Lockwood & Kunda, 1997). While having appropriate role models for young people is widely acknowledged to be important (Beck, 1989; Nauta & Kokaly, 2001) research on this topic for seniors is in its infancy (Joop, Jung, Damarin, Mirpuri, & Spini, 2017). There is, however, growing awareness that it may be a significant research area for a senior population that is growing in both age and number (Horton et al., 2013; Kirby & Kluge, 2013). McIntosh (2015) noted that one senior female athlete in her study exclaimed 'we need role models too!' The early evidence suggests that what constitutes a viable role model for youth may be applicable to seniors (Horton et al., 2013; Joop et al., 2017; Lockwood & Kunda, 1997). However, while more research is needed on role models for older adults, it may be that some of the women in our study, given their elite-athlete status, may be more suitable role models for younger generations than for their age-matched peers (Lithopoulosa, Rathwell, & Young, 2014).

From a post-structural perspective, individuals will often challenge, negotiate and conform to dominant cultural conceptions through their words and practices (Markula & Pringle, 2006; Shaw, 2006; Wearing, 1995). By resisting traditional gender and aging stereotypes the women in our study and others of their ilk may help to change perceptions of what it means to grow old. Indeed, extraordinary older female athletes are occasionally profiled in the popular press. Ruth Frith was one of two athletes over 100 years of age participating in the 2009 WMG in Sydney, Australia, and she became a media star (Pfister, 2012). Somewhat ironically, these elite athletes have the potential to resist traditional aging stereotypes, but also simultaneously reinforce them (Dionigi, 2010; 2013; 2016). They reinforce aging stereotypes by distancing themselves from other women their own age who are sedentary. While our participants see themselves as having a role to play, their evangelical enthusiasm for exercise potentially masks a disdain for those who (supposedly) lacked the initiative or will-power to engage in physical activity. Words such as 'lazy' or 'drain the system' were used to describe non-exercisers. In this manner, our participants reinforced a biomedical approach to aging that emphasizes self-responsibility for one's health and devalues ill-health in old age (Dionigi et al., 2014). This is problematic for those who lack the

resources, knowledge, ability or even the interest to engage in physical activity and/or sport in later life (see Gard et al., 2017). While our participants acknowledged their privileged position, and similarly acknowledged that many people could not afford the expenses associated with competitive sport, there was considerably less sympathy for those who did not partake in any kind of physical activity, whether that constituted walking, or using a tin of baked beans to maintain muscular strength.

On an individual level, the manner in which our participants resist an aging body, and the control they attempt to assert over various physical and social barriers, may be an effective and empowering way to approach their lives. Much of the literature in psychology suggests that locus of control (i.e., beliefs regarding whether one's health is controlled by oneself, others, or fate) is an important predictor of mental health and well-being, as well as proactive behaviour (Cheng, Cheung & Lo, 2016; Cobb-Clark, Cassenboemher & Schurer, 2014; Norman, Bennett, Smith, & Murphy, 1997). From a societal perspective, however, this focus on individual agency is problematic, for it assumes that everyone, irrespective of health condition or economic circumstance, can exert similar control over the aging process (Gard et al., 2017; Gard & Dionigi, 2016). This exhortation to make individuals take responsibility for their own aging is a compelling critique leveled against Rowe and Kahn's (1987; 1997) biomedical model (e.g., Dillaway & Byrnes, 2009; Katz & Calasanti, 2014; Rubinstein & de Medeiros, 2015). Despite these criticisms within the academic literature, Rowe and Kahn's successful aging model maintains a prominent place in discussions on aging and in government policy (Geard et al., 2017). Notably, our interviews with older female athletes suggest that their views fall very much within Rowe and Kahn's framework.

Our participants, sometimes subtly, and other times less so, conveyed the notion that obstacles, whether those constituted disease or injury, or even aging itself, were simply barriers to overcome. While their determination is laudable, the danger here is twofold: First, what happens when they eventually succumb to old age, as we all do unless we die on the field of play (Dionigi, Horton & Baker, 2013; Gard et al., 2017)? By resisting deep old age so vehemently, do we potentially fear it more, and adjust more poorly when the inevitable arrives (Dionigi, 2016; Dionigi et al., 2014)? Second, what are the implications for those who do not, for whatever reason, engage in a similarly active lifestyle? Are they at risk of being treated by people, and by governments, as somehow morally inferior for lacking the determination and fortitude to make the choices that would improve their health (see Gard et al., 2017)? Minimizing societal constraints that influence the aging process provides the rationale for governments to reduce funding or eliminate programs, placing the burden of aging successfully squarely on the individual (Dionigi, 2017; Dillway & Byrnes, 2009; Rubinstein & de

Medeiros, 2015). These potential implications of older women's sport participation call into question current sport and health-related promotion policy directions that encourage 'sport for all', regardless of age, gender, race or circumstance. Largely absent from the literature are the views of minimally active and sedentary women on the prospects of sport involvement (Horton et al., 2013). Given that older women who are inactive constitute the majority of that cohort, and are the primary target of government initiatives and 'sport for all' promotional strategies, procuring their stories takes on greater importance and constitutes an intriguing avenue for future research.

Conclusion

The 16 women that we interviewed derived important benefits from their participation in sport and physical activity in general, and the WMG in particular. The stories they shared identified clear social, physical, and psychological dividends associated with sport competition. Sport has allowed them, or in some cases forced them, to conquer a variety of societal and personal barriers, including traditional aging and gender stereotypes. In many respects, our participants are trailblazers in their participation in competitive sport at a relatively late stage in life, yet their effect on stereotypes of aging and sport participation more generally remains equivocal, largely due to the complexity and 'double-edged sword' inherent in their stories, experiences, and attitudes. These women seemingly have the power and potential, through their words and their actions, to both inspire and discourage others with respect to sport and physical activity participation.

Our participants were eager to spread the positive message of an active lifestyle and the benefits to be accrued from physical activity; they clearly felt they had a role to play when it comes to promoting sport. In this manner, these women challenged typical stereotypes of aging as a time of physical decline and sedentary living and resisted traditional views and structures that excluded them from sport. At the same time, these women were conforming to the contemporary 'sport for all' ideals, including advocating self-responsibility for health, purporting sport and physical activity participation as 'cures' to aging-related disease and disability, as well as believing that everyone *should* be physically active to some degree as they age. Somewhat ironically, by subtly denigrating their peers who are not active, these sportswomen may also reinforce the very stereotypes that they resist. Rather than encouraging other seniors to partake in physical activity and sport, their example may have the unintended consequence of discouraging their peers. Their actions could also unintentionally reinforce negative stereotypes towards, and the marginalization of, those who do not compete in sport at an older age.

Pfister (2012) noted that women who began sport as a remedy for aging quickly

dropped out when they failed to experience joy and satisfaction. Perhaps seniors would be better served if we moved away from prescriptive and promotional statements about the health benefits of sport and physical activity, and instead focused our efforts on the social components and fun that are a primary motivation for and benefit of playing sport. In that way, sport will be seen as another opportunity for older people to enjoy later life, rather than as a 'tool' to control individual behaviour.

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Tables

Table 1

Themes, Categories, and Example Quotations

Theme	Category	Example Quotation (Meaning Unit)
Multi-faceted Benefits	Social	I really enjoy (competing in sports) but also because it has become my social life
	Psychological	You see yourself, not just the mother, the wife, the teacher but an athlete. It adds that extra dimension to your self-concept.
	Physical	The health reasons, my bone density is that of a 50 year old.
Overcoming Barriers	Dealing with disease, pain, and injury	I know I'm going to heal. I've healed every time. Swimming actually makes me feel good. When I had arthritis really bad, the first five minutes of swimming was very painful. After that it felt good, and the pain would go away
	Financial	I know some people that couldn't afford to go and it's a big problem getting all your money together.
	Combatting gender and age 'norms'	I think most adults feel that they are not capable. 'No, I can't do that, I'm 70 years old. I can't take a yoga class, I'm 70 years old.'
Social Roles	Role modelling	I think we can encourage senior men and women to come out and take a risk, take a chance, try it, see if you can do it.
	Evangelical about exercise	We say "rest rust." When you rest, you get rusty. So, don't rest because then you get rusty. In order not to get rusty you have to do sport.

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Formation and Function of a Collegiate Athletics Sustainability Committee

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Institutions of higher learning may be considered dual-identity organizations because of the perceived distinctiveness between universities' academic and athletic missions. One way in which these barriers can be weakened is through cross-sector social partnerships (CSSPs), a form of collaborative engagement aimed at achieving a common societal goal. In this study, we examine the formation of a university-directed CSSP focused on enhancing environmentally sustainable initiatives within the Athletic Department. Interviews with 11 members of a so-called Green Team illustrate the processes of boundary spanning and boundary blurring. As demonstrated in the article, boundary spanning occurred under the leadership of a "champion" that assembled a team of stakeholders to assist with the major renovation of a pro-environmental football stadium. Though the sustainability committee has a common goal, not all experiences of Green Team members have been the same. In light of these differences, we identify key barriers and prescribe solutions that can lead to the realization of a new organizational form.

Environmental sustainability efforts have become widespread throughout the sport industry. Yet individual sport federations, leagues, and teams address environmental sustainability in different ways. One way in which college athletic departments have responded to deepen their environmental commitment is by establishing "green committees" or "green teams." Green teams consist of relevant internal and external stakeholders that can help advance an organization's

sustainability initiatives (Natural Resources Defense Council, 2013). These committees are voluntary and formal collaborative arrangements between members with varied backgrounds, including campus sustainability, athletics, recreation, transportation, waste management, sponsorship companies, campus facilities, concessionaires, and environmental NGOs. By bringing industry partners and representatives from local government and non-profit environmental organizations together, these committees form complex tri-sector partnerships (Selsky & Parker, 2005). Thus, they can serve as valuable examples of tri-sector environmental collaborations, the subject of which has been surprisingly absent from existing environmental partnership studies despite the increasing frequency in which these committees are forming (Wassmer, Paquin, & Sharma, 2014).

Given that sustainable committee members belong to distinct sectorial affiliations and present wide ranges of experience, expertise, power, and motives, it is of paramount interest in this study to provide a better understanding of how such cross-sectoral green teams are formed and how sector boundaries span and then ultimately erode. Thus, the purpose of this study is to examine how organizations, in an effort to respond to environmental concerns, have adapted their structures, processes, and values through transformational partnerships. As part of the study, we endeavor to demonstrate how traditional sector lines are being blurred and innovative hybrid organizations are emerging, thereby shifting traditional ways and expectations of addressing environmental issues.

The contextual focus of our study involves cross-sector social partnerships (CSSPs), a form of collaborative engagement that has received widespread attention in recent years, especially in organization studies (e.g., Clarke & Fuller, 2010; Cornelius & Wallace, 2010; Lin, 2014; Selsky & Parker, 2005, 2010; Townsley, 2014; Wassmer et al., 2014). Selsky and Parker (2005) defined CSSPs as relations that are "formed explicitly to address social issues and causes that actively engage the partners on an ongoing basis" (p. 850). Despite its various terminology, CSSP is considered a subset of cross-sector partnerships and interorganizational relationships whose priority from the outset is to achieve societal outcomes such as improving environmental sustainability, an initiative central to our study (Seitanidi, Koufopoulos, & Palmer, 2010).

A review of the sport management literature also indicates a gap in understanding CSSPs. Although the examination of cross-sector partnerships in the sport context has yielded several examples (e.g., Babiak, 2009; Babiak & Thibault, 2009; Dowling, Robinson, & Washington, 2013), little attention has been afforded to the CSSPs being organized across sport to address environmental concerns, specifically in collegiate sport

(Babiak & Trendafilova, 2011; Kellison, Trendafilova, & McCullough, 2015; Pfahl, 2013; Trendafilova, Nguyen, & Pfahl, 2014). Environmental sustainability initiatives have been assessed in intercollegiate sport through cross-functional collaborations (Casper, Pfahl, & McSherry, 2012; Pfahl, 2010; Pfahl, Casper, Trendafilova, McCullough, & Nguyen, 2015). In addition, most of the literature on sustainability-related partnerships has focused on two types of bisector partnerships, both of which involve the private business sector (Wassmer et al., 2014). Besides the focal involvement of the latter in environmental collaborations, the role of universities has been overlooked in spite of being a critical component for supporting environmental causes. Indeed, the higher education sector may support the capability to generate benefits to civil society, so there is a need to examine this unique social sector more closely when discussing environmental collaborations.

From the few studies that incorporated this sector, the research component of the university was capitalized to achieve environmental goals (Agrawal, 2001; Parker & Crona, 2012; Steward & Conway, 1998). Aside from research capabilities, many large public universities have their own sustainability offices that have the duty to carry environmental initiatives. These universities also house prestigious athletic departments that can serve as valuable instruments for engaging various stakeholders in environmental stewardship. Previous research has demonstrated that there is a working relationship, albeit unbalanced, between college athletic and sustainability offices (Pfahl et al., 2015). However, due to its public visibility, collegiate sports may influence environmentally sustainable practices and act as the champions of the sustainability movement. Thus, the higher education sector possesses strategic resources, capabilities, assets, and influence that can contribute to a CSSP aimed at inducing societal change, especially with regard to environmental issues (Dentoni & Bitzer, 2015). Additionally, environment-focused CSSPs may serve as a medium through which the perceived academic–athletic ideological gap can be bridged (e.g., Nichols, Corrigan, & Hardin, 2011). Therefore, in analyzing the tri-sector partnership processes and structures of an innovative collaborative relationship as illustrated by a green committee, this study contributes to both the sport management literature and environmental sustainability partnerships studies.

Theoretical Foundations

Models of cross-sector relationships have generally been organized into formation, implementation, and outcomes phases (Gray, 1989; Selsky & Parker, 2005; Siegel, 2010; Wohlstetter, Smith, & Malloy, 2005). Given that the formation stage usually refers to the motives for initiating partnerships, the first stage focuses on theoretical rationales for partnership

formation. The subsequent phase in the evolution of CSSPs refers to managerial and operational aspects of partnership implementation since this phase incorporates activities such as "governance, structure, and leadership characteristics, as well as behavioral dynamics such as culture, communication, and relationship development" (Selsky & Parker, 2005, p. 855). In this phase, partnership members attempt to span sector boundaries by establishing and cultivating transformational collaborative relationships (Austin & Seitanidi, 2012a; Selsky & Parker, 2005; Townsley, 2014). In the final phase, such collaborative relationships combined with an aim at achieving societal change lead to the expansion of boundaries such that the emergence of hybrid organizations may be deemed a key intangible result that stems from CSSPs. To illustrate the evolution process of CSSPs, these three stages are discussed in turn below.

Crossing Boundaries: Motives in the Formation of CSSPs

The identification of preconditions and antecedents of cross-sector collaborations is a critical activity to ensure the effectiveness of CSSPs. This activity represents the foundations of the partnership upon which subsequent collaborative engagement and arrangements will occur. Indeed, it is essential to clearly determine motives to join CSSPs prior to launching cross-sector projects. Among the theoretical perspectives that have commonly been referenced in the management literature as motivations for partnership formation (Barringer & Harrison, 2000; Ireland, Hitt, & Vaidyanath, 2002; Siegel, 2010), we found four types of motivations for cross-sector collaborations supporting social causes: economic, leverage, legitimacy, and central to this study, societal-related motives. Although each of these perspectives was proven to be useful in explaining the reasons for relationship formation, we largely focus on the societal-related motives in this review and start by presenting a brief overview of the other three motives. (For a complete review of those motives, see Barringer & Harrison, 2000.)

Non-profit sport organizations have engaged in strategic alliances with organizations in the private, public, or commercial sectors for economic-related motives in order to offset increased organizational risks (Babiak, 2007). This belief of dependency triggers the need to develop cross-sector relationships with stakeholders who can provide scarce and necessary resources vital to the success of the organization (Babiak & Thibault, 2009; Pfeffer & Salancik, 1978). As mentioned by Babiak (2007), such relationships are established to acquire expertise, secure access to key resources, and gain control over turbulent settings. Amateur sport organizations also follow suit with regards to implementing environmental sustainability campaigns through various partnerships (McCullough, Trendafilova, & Picariello, 2016). Furthermore, leverage-

related motives have proven to be useful in conceptually presenting the process of strategic planning for cross-functional environmental sustainability teams working in the sport and recreation industry (Babiak, 2007; Babiak & Thibault, 2009; Pfahl, 2010). Indeed, those organizations seek to acquire complementary and distinct resources in order to be more effective and competitive as a whole (Babiak & Thibault, 2009). For instance, partnering with nonprofit groups for environmental initiatives enables sport organizations to have access to their expertise and network of supporters (Babiak & Trendafilova, 2011). The 2018 Special Olympics USA Summer Games in Seattle can also serve as a practical example of an amateur sporting event seeking to improve its environmental performance by partnering with corporate sponsors, vendors, and volunteers, among others, in order to combine each of these groups' existing idiosyncratic and complementary resources (visit specialolympicsusagames.org). Finally, motives to address institutional pressures incite organizations to get involved with partnerships that will make them appear as socially and environmentally responsible by applying the concept of institutional mimetic isomorphism (DiMaggio & Powell, 1983; McCullough, Pfahl, & Nguyen, 2016). Those legitimacy-related motives can facilitate public image enhancement and conformity with social norms, as evidenced by sport organizations engaged in environmentally focused initiatives (Babiak & Trendafilova, 2011).

Societal-related motives have been mostly explained through stakeholder theory. Given that organizations are part of an intertwined stakeholder network, they are conscious that any of their decisions and actions may affect their strategic relationships with other social actors in that network, so a sense of responsibility and mutuality toward their stakeholders is of primary concern in stakeholder theory. With its emphasis on societal problems and sectoral interdependence, the focus of these partnerships is based on ethical obligations in which collective interests rather than self-interests are to be served (Sartore-Baldwin, McCullough, & Quatman-Yates, 2017). These strategic alliances enable the development of objective congruence among social actors of the network, particularly with respect to environmental and social endeavors (Doh & Guay, 2006; Sartore-Baldwin & McCullough, in press; Rod & Paliwoda, 2003). As a result, Siegel (2010) suggested that "to claim citizenship in a cause is to redraw organizational boundaries in such a way that the cause itself becomes the central organizing principle" (p. 41); hence, the desire to be a responsible citizen encourages societal initiatives.

As Babiak (2007, 2009) found in her line of research, there are helpful aspects that help draw and sustain the connection between members of a CSSP. She found that a personal connection to the cause or

individuals increased trust and strengthened the network of individuals and organizations in the CSSP. In particular, non-profit sport organizations can draw an increased affinity and connection among stakeholders that are unique across other commercial industries. This approach is particularly important for amateur sport organizations that may be considerably limited in human and financial resources and who can leverage the goodwill their organization has in the community to partner with outside organizations to achieve their goals (Misener & Doherty, 2013).

In this first phase, it is critical to locate crossing points in sectoral boundaries then find reciprocal transformative intentions (Seitanidi et al., 2010). The importance of such a phase was demonstrated in the professional and amateur sport settings (Gerke, Babiak, Dickson, & Desbordes, 2017). Once the motives and suitability for crossing traditional sector boundaries are clearly recognized, implementing cross-sector partnerships entails building on this momentum and needs to be examined to better understand how CSSPs develop over time. According to Austin and Seitanidi (2012b), in this second stage, transformative processes that shift sector boundaries are established, calling for the need to examine the evolutionary dynamics of CSSPs' implementation in the next section.

Bridging Boundaries: Collaborative Relationships

Whether the formation of CSSPs is justified by synergistic abilities of achieving more with less or leveraging resources and reducing redundancy, such partnerships are championed by those who have the ability to bridge sector boundaries. These champions, sometimes referred as "boundary spanners" (Le Ber & Branzei, 2010), "boundary spanning agents" (Marchington & Vincent, 2004), or "boundary crossers" (Hora & Millar, 2011), act on the behalf of their organizations and advocate for the development of powerful organizational collaborations such as CSSPs to undertake initiatives that create public value (Townsley, 2014). Thus, these champions carry bridging functions in order to connect members from distinct sectorial affiliations and nurture the launch of innovative collaborations sharing resources and mutual goals (Manning & Roessler, 2014).

Negotiating agreements are necessary for partnerships to prosper. Although champions are not necessarily representatives of the top leadership team, mid-level managers may play the champion's role (Schroeder, 1999). Their formal or informal leadership role will help involved constituents unlearn traditional organizational and sector-based functions to facilitate their engagement toward implementing CSSPs. Despite the possible lack of formal sources of power, champions strongly influence the direction and manage

structures, processes, and outcomes of the collaborative partnership. Instead of being based on traditional leadership models with an emphasis on hierarchical structures, a CSSP's leadership structure highlights facilitative and relational processes (Townsley, 2014).

In the context of our study—amateur sport in general and college athletics specifically—a green committee provides a frame for a formal collaborative arrangement with a joint decision-making process. Committee members correspond to environmental champions from various sectors with competing perspectives and expectations but with complementary needs and resources whose mission is to attain environmental excellence through sustained collaborative partnerships across sectors. Members of these committees carry boundary spanning roles as they operate at the intersection of sector boundaries and intend to set up bridges between sectors to establish interdependent partnerships with mutual goals. Although the complexity of interactions is heightened by the cross-sector aspect of the relationships with competing power and diverse leadership styles, these champions—highly committed to the CSSP's goals—reunite under this committee in an effort to smoothly run this complex partnership and monitor its progress over time to ensure the achievement of the compatible goals (Rondinelli & London, 2003; Wohlstetter et al., 2005).

In addition to the presence of champions, organizational compatibility is critical and may be established by discerning broad linked interests and shared issues, and integrating central missions, values, and strategies to help reconcile differences, align intentions and expectations, and deepen trust between partners (Gray, 1989; Seitanidi et al., 2010; Selsky & Parker, 2010). Recognizing congruency between organizations and developing a common agenda require an effort from each champion and partner to mutually understand and appreciate each other's differences. To evolve into a transformational collaboration, organizational fit between partners must be determined in order to capitalize on distinctive competencies and complementary resources that are exchanged conjointly. This mutual resource dependency will contribute to the creation of synergistic partnerships. Indeed, the primary premise of transformational collaborations is to combine partners' knowledge, resources, and expertise to achieve more together than they could have alone (Austin & Seitanidi, 2012a). Tangible and intangible assets from different sectors are combined into a unique amalgamation of resources that will help generate benefits to partners and create innovative solutions to societal problems that could not have been accomplished by a single sector alone (Austin & Seitanidi, 2012b; Bryson, Crosby, & Stone, 2006; Nelson & Zadek, 2000). Under this premise, frequent innovations

such as fundamental changes and superior results are likely to be advanced.

In deciding to pursue a transformational engagement, CSSP champions deliberately recalibrate their roles to coordinate societal-focused initiatives with the belief that such effort is imperative to create fundamental changes and address societal problems. In addition, these champions facilitate the shifts in sector boundaries and in organizational roles. Thus, transformational collaborations' effects may "change each organization and its people in profound, structural, and irreversible ways" (Austin & Seitanidi, 2012a, p. 744). After developing transformational collaborative relationships, champions need to assess the outcomes of CSSPs, as discussed further in the next section.

Blurring Boundaries: Societal Change as a CSSP Outcome

Following the implementation phase and the execution of CSSP-related projects, an evaluation is necessary to ensure progress is being made toward solving shared problems. Any discrepancies with planned outcomes require improvements or changes to the second phase, emphasizing the iterative and adaptive nature of CSSPs (Murphy, Perrot, & Rivera-Santos, 2012; Wohlstetter et al., 2005). Although organizational benefits and tangible results are important, the top priority of these transformational CSSPs involve societal betterment, and the evaluation phase enables the examination of such impact. Another intangible outcome entails the emergence of a pioneering "hybrid organization" caused by the expansion of sector boundaries (Boyd, Henning, Reyna, Wang, & Welch, 2009; Selsky & Parker, 2010). Selsky and Parker (2005) suggested that CSSPs have the potential to evolve into a collaborative arrangement in which sector boundaries are blurred. This potential must be accompanied with transformational collaborative relationships between partners and an aim toward remedying complex public issues to enable the discovery and expansion of new frontiers. From transcending boundaries to blurring them, this evolving and interactive network of people discovers ways to combine distinct and complementary resources and unify perspectives to create synergistic solutions that go beyond each of their own sectors' limited competencies and vision. As a result, these partnerships may create more public value together than what individual sectors could have achieved separately (Gray, 1989; Selsky & Parker, 2005); hence, they provide a means to alleviate and respond to society's most pressing concerns (Boyd et al., 2009; Getha-Taylor, 2012).

Contemporary societal problems are so large and complex that they cannot be solved by any private, nonprofit, or public actor alone; these actors are obligated to transcend traditional sector boundaries in order to address society's grand challenges adequately (Selsky & Parker, 2010). Since champions and partners met together primarily to achieve collective changes at

the societal level rather than to focus uniquely on their own organizational self-interests, they engage in transformational collaborations that enable a shift in the three sectors' identities and roles by fusing them into a hybrid organization. As a result, evolving into transformational, collaborative relationships may help not only to span boundaries but also eventually merge sectors into one new entity that is governed by merged authorities and operated by merged capabilities and activities, resulting in the blurring of traditional boundaries between sectors (Bryson et al., 2006). This blurring process leads to promising pathways for aspirational and transformative societal changes, which are the main focus of transformational collaborations. For instance, green committees may aspire to make transformative societal changes by improving environmental standards, fostering recycling, and lessening pollution. Therefore, in an effort to address societal needs such as environmental protection, partners engaging into a transformational CSSP may not only bridge sector boundaries but also blur them by replacing the old and narrow sector mindsets with an innovative, transformative, and "mission-driven" (Boyd et al., 2009) organizational form.

In the section above, we highlight the benefits of an effective and synergistic CSSP. However, the formation of these partnerships can be a complicated process, as individuals and departments may enter the CSSP with diverse (and sometimes divergent) goals and strategies. These differences may be especially pronounced in large partnerships that span commercial, nonprofit, and government sectors. In this study, we examine the process of forming and implementing a CSSP with the goal of advancing pro-environmental initiatives in a large intercollegiate athletic department. As demonstrated below, this setting presents several unique challenges; the identification of these challenges can advance the function of CSSPs in amateur sport and assist sport organizations seeking to advance their own environmental sustainability efforts.

Method

The unique placement of the green committee and its direct stakeholders makes this case particularly interesting. In previous studies, researchers have examined CSSPs in various contexts including local sport (Babiak, 2007; Babiak & Thibault, 2009), major sporting events (Meenaghan, 1998), and professional sport (Kihl, Tainsky, Babiak, & Bang, 2014). However, little consideration has been given to CSSPs in collegiate sport, in general, or how college athletic departments achieve sustainability objectives by leveraging CSSPs, specifically. As a result of this lack of research, we sought to evaluate a CSSP established by a college athletic department renowned for its sustainability achievements. While this specific context and objective of the CSSP have not been examined before, it is

nevertheless important as more sport organizations begin to increase their commitment to environmental sustainability (Kellison & McCullough, 2017; McCullough & Kellison, 2017; McCullough et al., 2016). Further, amateur sport organizations typically encounter financial limitations that require them to seek outside assistance to achieve organizational goals (e.g., environmental initiatives; Babiak & Thibault, 2009). To this end, we employed a case-study qualitative methodology, which has been commonly used by Babiak and others to research new areas of inquiry related to CSSPs.

Specifically, we examined the evolution of an environmental-focused CSSP through semi-structured interviews with members of a sustainability committee (i.e., Green Team) centrally located in a university athletic department in the western United States. The Green Team was formed in 2010 as one of the earliest and well-known sustainability committees across all levels of sport. As a CSSP, the Green Team is made up of more than 20 individuals (including students and student-athletes, university personnel, and industry partners) representing a wide range of departments, including business and finance, operations, marketing, grounds and facilities, ticketing, university sustainability, waste management, and concessions. More specific information on the participants is provided below.

Participants

Interviews were conducted with current members of the green committee organized by the athletics department at the university. In total, 11 interviews were conducted over the course of two weeks in March 2016, which included five Athletics representatives, one student-athlete, and personnel from non-Athletics departments including a concessionaire, three members from the university Office of Sustainability, and an employee from the Waste Management department. Table 1 contains basic information for the participants interviewed for this study including each participant's pseudonym, years served on the Green Team, role at the university, and student–professional status.

It should be mentioned that there were members of the Green Team missing from the participant roster, most notably, representatives from the athletic department's sponsorship and marketing departments. These non-participating representatives explicitly stated that they did not want to be interviewed for the study. Further, we were predominately dependent on athletic department connections of the members on the committee. In particular, the Green Team's coordinator and other members of the committee assisted with arranging interviews and meetings. The coordinator of the committee was able to speak to these two areas despite the non-participation of the individuals. This aspect will be discussed further below.

Procedures

Following Cunningham (2009) and as originally outlined by Alderfer (1980), we employed an organizational diagnosis approach to the study. This approach is "a process based on behavioral science theory for publically entering a human system, collecting valid data about human experiences with that system, and feeding that information back to promote increased understanding of the system by its members" (Alderfer, 1980, p. 459). We deemed this approach appropriate since sustainability teams are rather limited in sport organizations in general and college athletic departments specifically (Kellison & McCullough, 2016). The byproduct of this approach allows a broad understanding, or group interpretation, of organizational processes by the members of the committee. This approach also allows for a deeper understanding of how the green committee has performed by evaluating its past, current, and planned initiatives.

Semi-structured interviews with each participant ranged from 35–70 minutes. The interview guide specifically examined how the CSSP (i.e., Green Team) was formed, implemented, and evaluated. Interviews were recorded with permission of the participants and then transcribed verbatim for analysis.

Analysis of Empirical Material

We followed a constructivist (interpretivist) paradigm, which allows the empirical material to be analyzed into codes based on the themes of a theoretical framework (see Ponterotto, 2005); this analytic approach has been used in other qualitative studies within the academy (Cunningham, 2009; McCullough, 2013). This method of coding is commonly referred to as an "a priori, content-specific scheme" whereby codes emerge through careful and rigorous study of the issue and the theoretical interests that guide the inquest (Schwandt, 2007). Thus, the empirical material was analyzed and coded according to themes informed by the guiding theory (i.e., cross-sector relationships; Gray, 1989; Selsky & Parker, 2005; Siegel, 2010; Wohlstetter et al., 2005).

Several steps were taken to improve the credibility and trustworthiness of the empirical material. To improve the study's internal trustworthiness, we employed methods triangulation. That is, testimony from Green Team members was compared with internal communications, websites (i.e., Athletics, Office of Sustainability, Waste Management), and press releases related to the athletic department's sustainability efforts. These documents were consistent with the testimony from the participants' interviews. Additionally, two peer debriefers (neither of whom were involved with the study but were familiar with qualitative methodology) audited the research process. As part of the audit, they reviewed the codes, themes, and interpretations of the empirical material. Lastly, a summative report and presentation were given to the green committee to seek their thoughts on

the interpretations and findings of the study of inquiry.

Results and Discussion

In the following section, we discuss the various themes that emerged from the interviews of the Green Team members. These themes include: formation and tasks of the Green Team, transition and growing pains, and boundary blurring**.** As the results will show, the initial formation of the Green Team was tasked to focus on a specific project (i.e., renovation of the football stadium) and to achieve Leadership in Energy and Environmental Design (LEED) Silver certification. A bulk of the energy and accomplishments were driven by upper management (e.g., Athletic Director, University President), who made lofty goals more easily attainable. The committee experienced growing pains as it struggled to find its new identity and tasks after the culminating stadium project and concomitant support from upper management dissipated. However, as new initiatives were introduced, new committee members joined, requiring more openness and adaptability on behalf of Athletics. That is, the athletic department members on the Green Team were not comfortable letting the coordination and leadership of specific initiatives go to outside members (e.g., Campus Recycling).

Formation and Tasks of the Green Team

To determine the underlying motives for commitee formation and each member's involvement with the Green Team, we asked participants to describe how they became involved with the Green Team and their general thoughts on its mission. Indicating societal-related motives, most participants mentioned that the university as a whole had placed a strong priority on environmental sustainability. As an extension of that priority, the athletic department was responding in kind to do its part to fulfill the university's commitment "to be sustainable by 2025," as noted by Tim, a senior-level participant: "That is a core value of the university. When you have that core value of the university, it is easier for Athletics to implement environmental sustainability. The support from upper campus has been great." The encouragement from the university's upper administration and specifically from the campus Office of Sustainability was viewed by Athletics and non-Athletics Green Team members as an impetus to the Green Team, a notion supported by previous research. For instance, following the tenet of upper echelon theory, McCullough and Cunningham (2010) posited that the degree to which sustainability initiatives would be implemented is greatly dependent on the attitudes of upper administration (Hambrick & Mason, 1984).

Further supporting the societal-related motive, the organizational culture and

positive attitudes toward environmental sustainability on campus clearly influenced the perception and attitudes of the members of the Green Team. In fact, the Green Team was commissioned by the Athletic Director because of a planned major renovation of the football stadium. As noted by Joan, the original and current chair of the Green Team, the stadium renovation drove conversation in the early days of the committee: "The seed that started it all was the stadium construction project, the talk about…certification, what that meant, and who knew about it." The renovation was a multi-hundred-million-dollar project that prioritized environmental aspects into the construction and operation of the facility including LEED certification and a dual-stream waste management system (i.e., diverting all waste away from landfills via composting and recycling). The renovation project would serve as the launching point for the athletic department to implement a sustainability program. However, realizing the limitations of the athletic department's Executive Staff and consistent with leveraging-related themes discussed previously, it was noted that the Athletic Director asked if anyone in the department had knowledge or interest in spearheading the launch of their sustainability program. As members of the athletic department began to defer to outside experts, the need to include individuals outside of Athletics became clearer. This perspective allowed the expertise of new partnerships to inform the athletic department about how they could meet their sustainability goals, thereby spanning the boundaries of the athletic department and its support system.

As a result, architectural partners and campus staff were able to lend their expertise so that the stadium renovation achieved LEED Silver certification. Further, members of the Green Team representing the university's Office of Sustainability had specific expertise in communications, which helped to "tell the success stories of the athletic department's sustainability efforts." One such press release produced by a committee member promoted the project's forward-thinking design:

> The project's approach to sustainability looked past the basics of water and energy conservation to enhance infrastructure, reduce the building's impact on the surrounding environment and provide a platform that has allowed [the university] to promote sustainability to its stakeholders, students, and fans.

While the exposure that various Green Team members were able to provide for the renovation project, this publicity highlights the various aspects and components that were considered and integrated into the project by the Green Team.

When questioned further, Joan indicated that economic- and leverage-related themes were also considered when selecting the first members of the committee. She mentioned the recruitment of architects, athletic department staff, non-athletic department staff, and off-campus

vendors that served the athletic department's sustainability goals. As Joan noted, the Green Team was created "with the task of analyzing and putting in place practices for the reopening of the stadium." In order to achieve these goals, it was necessary to expand the boundaries beyond the athletic department staff and avail the committee to the various resources on campus. As previously noted, university campuses have resources that are not readily accessible to other sport organizations. Expanding the partnership to include these unique resources (e.g., recycling, waste management, sustainability, faculty, students) can also increase the capabilities and capacity for the CSSP to achieve its goals because of the unique background of these specific stakeholders (Babiak, 2007).

By design, the organization of the first Green Team included all nine major departments within Athletics. Several reasons explained this inclusiveness. First, as a number of participants indicated in interviews, it was necessary to have the support of the entire athletic department to ensure the permutation of a sustainability-minded culture in the athletic department and a general awareness of what the Green Team was doing. Two senior-level members of the Green Team mentioned that because of the wide base and involvement of all departments, there was at least one person from each department championing sustainability in her or his respective departments. It was deemed necessary by the coordinator of the Green Team that all nine departments be represented on the committee, including athletic department partners (e.g., concessionaires, sponsorship sales company), campus waste management, and sustainability. Mark, a mid-level athletic ticketing office employee, stressed the importance of involving various departments because it was the "best way to get the message out on the things that everyone can do to help." Previous research has noted the challenges athletic departments face when attempting to play an active role in promoting and integrating environmental sustainability into their daily operations (Pfahl et al., 2015). Pfahl and colleagues (2015) noted that sustainability offices are generally the cause for athletic departments to start implementing environmental sustainability. However, in the case of this study, roles were reversed: the on-campus Office of Sustainability served in a supportive role to the athletic department and its initiatives.

The primary reasoning behind the inclusion of various departments was to promote and spread a sustainable organizational culture. However, this desire to include all departments also served another purpose. The second intention for widespread involvement on the committee was to have the range of expertise on the committee, which doubled to increase the buy-in and cooperation from the various departments. The range of athletic department staff included personnel from marketing, sponsorship, concessions, facilities, and operations. Specific to the

organizational buy-in, Joan noted, "When you're talking about stadium operations, and changing the culture…everyone that is going to work on that event has to be there. Everyone has input on what's going to work and what would not." While the involvement of all nine major departments allowed for additional buy-in, some departments were not directly related to the bulk of work needed to ensure various stages of environmental sustainability. McCullough et al. (2016) described sport organizations in various stages of their progression and sophistication to integrate environmental sustainability into their daily operations. Similarly, the athletic department and Green Team examined in this study has proceeded through various stages such that while some departments represented by committee members may have valuable input, others may not bring much expertise to the table. This constant involvement of nonessential departments or staff seemingly decreased the attitudes and perceptions of the committee's efficacy by some members.

The second reason for the broad inclusion of all intra-Athletics departments in the Green Team was to garner support for sustainability initiatives across the athletic department. The successful renovation of the football stadium and the resulting accolades it received for its pro-environmental design bolstered the momentum of the Green Team, which was trying to generate excitement within Athletics in order to encourage a deeper commitment from all members of the department. As Joan noted, while not all departments may have had direct involvement with sustainability initiatives on a daily basis (i.e., ticketing and marketing), it was nevertheless important to have their departments represented on the committee. She argued that by having each department represented, "There was now someone in each Department of Athletics who could advocate for Athletics' sustainability initiatives." Still, as noted by some Green Team members of the team, an individual's *membership* in the team does not automatically translate to *involvement* with tasks and projects. In light of the perceived lack of contribution from some members, Joan expressed her intention to slowly acclimate each department by empowering individuals working toward the athletic department's sustainability efforts: "Everyone that is going to work on that event has to be there. Everyone has input on what's going to work and what would not." As noted earlier, valuing the expertise of each department with regard to its possible contributions to the committee can advance their respective interests in the objectives of the CSSPs. The inclusion of all intra-athletic department units expands Babiak's (2007) research by suggesting that expansion of included stakeholders is necessary to develop an organizational culture that fosters awareness and acceptance of the committee's sustainability efforts.

During the formative period of the Green Team, committee members were singularly focused on the football renovation project. After the successful completion of that major project, the committee began working broadly to implement environmental sustainability across the athletic department's operations. During this transition phase, the Green Team underwent several changes, including increased autonomy, reorganization, and changes to membership. Additionally, the team began working on multiple, small-scale projects that necessitated the formation of subcommittees. As discussed in the next section, this period was marked by Green Team members operating at the intersection of sector boundaries and establishing inter-sector partnerships with mutual goals.

Transition and Growing Pains

During the initial task of the Green Team, there were considerable amounts of funding and attention from the athletic department's executive staff. These resources afforded the Green Team more credibility and legitimacy. However, after the stadium renovation project was completed, Athletics administrators became less involved as the Green Team repositioned itself toward a new, broader goal: to integrate environmental sustainability across the athletic department from its organizational culture to its daily operations. As noted by several interviewees, this lack of support or involvement had inadvertently undermined the efforts of the Green Team as the committee tried to inculcate each department within Athletics to adopt an environmental sustainability mindset. For example, Steve, a senior Athletics Facilities manager, argued, "Even here, football refuses to put compost bins in the football office." The lack of involvement from various departments within Athletics ultimately created a barrier for even the senior staff on the Green Team to connect with the executive staff or Athletic Director to encourage widespread compliance. This barrier increased the Green Team's reliance on non-Athletics members of the committee to help advance its sustainability programs. As Babiak (2009) noted, these pressures may lead sport managers to seek new partnerships to help achieve complex organizational goals. However, the goals as stated by the Green Team leader demonstrate a desire for complete buy-in from all intra-department units beyond the success of various game day or facility upgrade projects.

To this end, smaller initiatives were delegated to the Green Team, while larger projects—generally with a larger cost savings or return on investment—were overseen by Athletics administrators. For example, the Green Team proposed and priced out a project to install LED lighting throughout several facilities and all athletic department offices. The cost of the project was nearly $1 million, but once the athletic department's executive staff approved the project, the Green Team relinquished

oversight of the project to upper-level administration.

On the other hand, some major projects have been left under the Green Team's authority. For example, waste management and diversion rates remain tremendously important to the Green Team. In-stadium recovery rates have plateaued between 75–80%, but there is no organized waste recovery system in the tailgate lots. Tailgating was characterized as "the wild west of waste recovery" by Melissa, the Green Team's Facilities representative. McCullough (2013) noted the distinct differences between in-stadium and parking lot experiences with waste management systems (e.g., landfill, recycling, composting). These differences were in large part related to the unique jurisdictions of each campus department (i.e., Athletics managed in-stadium waste, while Facilities or Transportation and Parking handled parking and tailgating lots). While tailgating waste management systems would have a financial return and environmental benefit, these sustainability programs would require the coordination of a large number of departments and sectors. Therefore, Athletics administrators have left waste management to the Green Team and its members.

Champions. There was unanimous agreement among participants that the leader of the Green Team was Joan, the original and current chair of the committee. Described by others as an individual deeply passionate about environmental sustainability, in her own interview, Joan expressed concern that her responsibilities on the Green Team had led to job enlargement—the expansion of work-related duties. In addition to serving as Green Team chair, Joan is a senior administrator in the athletic department. Thus, she stressed the need for more Green Team members to adopt leadership roles. Such roles, she argued, required not just expertise, but also passion:

> I think that you got to have people that are passionate about it and you have to seek those people out. It is really tough to have any program—it's tough to keep it going without that energy. That is where our partnership with campus is critical because of their passion.

Through her passion and notoriety around the athletic department and on campus, Joan has been able to involve various campus stakeholders on the committee, primarily from waste management and campus sustainability. As a "boundary spanner" (Le Ber & Branzei, 2010), she has sought partnerships with other stakeholders to forward the Green Team's successes into the next phase beyond the stadium renovation. As noted earlier, these connections bridge specific functions or expertise that help attain mutual goals (Manning & Roessler, 2014). However, based on Joan's testimony, the Green Team in its current form may not be efficiently functioning in this role.

All athletic department participants noted that the committee chair, Joan, was

the driving force of the committee. When it came to idea generation, committee members from Athletics and the university's Office of Sustainability predominately identified Joan as the individual who would identify tasks and deploy subcommittees to address specific aspects. In fact, the Green Team's four subcommittees—Branding and Marketing, Data Collection (Energy/Water), Celebrating Success, and Events—were created by Joan. Each member on the Green Team is assigned to a respective subcommittee, and these subcommittees are encouraged to meet at least once between the quarterly Green Team meetings.

However, because of the lack of time Joan has to dedicate to directing the subcommittees, several committee members acknowledged that subcommittee meetings were not taken seriously. For example, Nicole, the Green Team's student-athlete representative, quipped, "I don't even know if I went to the last subcommittee meeting." The intended purpose of the subcommittee is to pair members with similar job responsibilities to support the Green Team's efforts in one form or another, but because environmental sustainability is an ongoing process, it is necessary for constant progression. However, Frisby, Thubault, and Kikulis (2004) demonstrated sport administrators do not have the experience or expertise to manage these complex partnerships. This finding is also supported by other researchers who examined the organization and leadership of organizational partnerships due to the difficulties and responsibilities that fall upon the leader (i.e., champion) to maintain the cohesion and direction of the group (Babiak, 2007, 2009; Babiak & Thibault, 2008). One way to boost cohesion is through these ancillary meetings. In effect, these meetings could serve as ways to advance the overall committee's progress. For example, Patrick in the Office of Sustainability said their goal was to "strengthen the relationship with [Athletics] a little bit and to provide even more support" in order to fulfill the university's overall sustainability goals.

Mutual goals, different approaches. A boundary spanner who effects change like the Green Team chair brings various stakeholders together to achieve specific goals. Representatives from two non-Athletics units—the Office of Sustainability and Waste Management—expressed the mutual desire to promote and deepen the university's commitment to environmental sustainability. Despite this common goal, the two departments take different approaches to their roles on the Green Team: while the Office of Sustainability serves a supportive role, Waste Management endeavors to exert more influence.

The Office of Sustainability's Green Team members mentioned how their role on the committee was "supportive," "to provide recommendations," or "to help with specific ideas." These members understood that environmental sustainability was a relatively new concept to most personnel in Athletics, so they wanted

to build momentum slowly within the department to ensure initial success. Ronan, most senior among Green Team members from the Office of Sustainability, said, "I don't feel like my role is so much to come in and try to…be a dominant voice but to kind of listen—to see what they're talking about and offer suggestions where appropriate." This approach has encouraged and informed the Green Team on establishing new relationships throughout campus, sharing ideas, and avoiding mistakes made by other departments on campus. This bridge with the Office of Sustainability has linked the athletic department with university-wide goals. As discussed by several interviewees and in the literature, university athletic departments are often perceived to operate independently from the university, leading to "dual organizational identities of institutions" (Buer, 2009, p. 110). However, the formation of the Green Team—which linked Athletics to the broad sustainability goals of the university—has provided a medium through which university and Athletics personnel can collaborate and work toward a common goal. While the Office of Sustainability maintains sharply defined roles, other members desire boundary blurring of roles through deeper collaboration.

For instance, the Waste Management department wants to take a more active role on the Green Team, particularly when it comes to addressing one of the Green Team's main responsibilities: game day diversion rates. Emily, the lone member on the Green Team from the university's Waste Management department, discussed several shortcomings with the current procedures to increase diversion rates and referenced her expertise and that of others on campus (i.e., behavioral scientists) who could help increase waste recovery rates. Despite having the knowledge and rich experience to address problems with the current system, Emily described her hesitance to intervene: "I don't want to be always harping on certain things – so I go along." Here, Emily channels a tension several others acknowledged during interviews: although each member of the Green Team brought her or his own expertise to the table, there was a reluctance to engage beyond a supportive capacity. This timidity is especially meaningful considering Waste Management's expressed desire to be more involved with the Green Team. Moreover, Emily described her willingness to oversee waste recovery across all game day venues, noting that Waste Management would be "more than willing to provide resources to improve programs and recovery rates." As discussed below, there may be several reasons behind some Green Team members' disengagement in committee projects. This disconnect is common in partnerships that do not properly engage the members with specific tasks and ill-defined roles on the committee (Babiak & Thibault, 2009). As such, uninterested or disconnected members will withdraw from their involvement, possibly undermining the

committee's goals. Nevertheless, it is clear that various members of the Green Team, particularly those outside of Athletics, are ready to work in a greater capacity to forward the committee's sustainability programs but are reluctant to take initiative.

A Prescription for Balanced Boundary Blurring

On the surface, the Green Team exemplifies a hybrid organization; because it comprises both university and Athletics representatives but operates largely autonomously, its membership consists of representatives with varied backgrounds and expertise. Still, each members' responsibility to the Green Team is secondary to their primary roles on campus (i.e., their professional and/or academic obligations). When it comes to boundary blurring—a process marked by unified perspectives and solutions that transcend individual competencies— it is clear that some individuals feel integral to the committee, while others have yet to be utilized fully.

If the Green Team is to move forward, it will become necessary for Athletics members to more heavily rely on its non-Athletics committee members. The initial sustainability programs that the Green Team implemented have been rather unobtrusive to employees and spectators. That is, the initiatives selected (i.e., green building design, two-stream waste management system, LED lights, electric automation systems) do not require much active participation on behalf of employees or fans to behave in a more sustainable manner. For example, the waste management protocol has only two options—recycle or compost—and if fans do not dispose of their waste appropriately, it is caught during the postgame sorting of all waste. While projects such as this are relatively unobtrusive, they require substantial investment and infrastructure to support. As a result, the proverbial low hanging fruits have been picked and it is necessary for the university, Athletics, and the Green Team to deepen their commitment and increase the sophistication of their sustainability programming. For example, Samantha, the concessionaire contact, discussed the exorbitant amounts of food waste after football games:

> The [athletic department says], "Oh, we're having 50,000 [fans in attendance]," and we have 40,000. We made enough food to cover 50,000 so now we have that extra 10,000 people worth of food. So…if we could figure out that science a little better that would be my number one concern to see less food waste on our end.

Specifically, she desired deeper sophistication on predicting how many spectators would attend each game based on specific variables in order to prepare the appropriate amount of food and ultimately reduce the amount of total waste (i.e., compost).

While most participants acknowledged both the university's overall commitment to environmental sustainability and Athletics'

efforts to be sustainable, they also emphasized the fact that there was more work to be done. As discussed previously, the involvement of multiple departments within Athletics—while well intentioned—may have been counterproductive. The inclusion of each department in Athletics was designed to promote acceptance of the athletic department's orientation toward environmental sustainability; however, this emphasis led to a disproportionate number of Athletics representatives on the Green Team. Thus, non-Athletics committee members may feel like outsiders working for Athletics. Indeed, most of the committee members mentioned they do not take a proactive step to introduce new initiatives, but when asked during interviews about what initiatives they would like to implement, they were not short on ideas. Thus, non-Athletics members have been unintentionally undervalued, and as a result, the CSSP has not fully realized its leverage-related potential.

McCullough and colleagues (2016) argued that as sport organizations deepen their commitment to sustainability initiatives, the sophistication and coordination of these efforts must increase as well. Green Team members interviewed in this study expressed a strong understanding of this need by pointing to increasingly technical projects such as fine-tuning recovery rates in the stadium, better addressing waste management strategies in tailgate areas, reducing water consumption in athletic facilities, and addressing fan transportation. Even though athletic department staff members are the main drivers of the various initiatives, the success of intermediate goals (e.g., fan engagement, recovery rates, sustainability transportation choices) are best addressed by non-Athletics members. As mentioned above, for example, the Waste Management department sees much more potential in the recovery rates in and out of the football stadium. Further, Samantha, the concessionaire, conveyed a desire to deepen their involvement to meet her company's sustainability objective to solve the issue of food waste by deepening her "relationship with the client to let them know that this is a warning to us as a business. We are committed to finding ways to create less waste to push the issue." It appears that she, like other outside members, wants to further blur existing boundaries in order to mutually meet sustainability goals. There is a growing necessity to allow non-Athletics committee members to take a larger role in the future direction of the Green Team. However, in order for all Green Team members to fully engage in the CSSP, the committee's chair and fellow Athletics representatives must create an environment that penetrates the perceived fortress common in athletic departments (cf. Buer, 2009) by blurring the boundaries of the athletic department to meet the university's sustainability goals.

When each member was asked specifically what three initiatives they would like to see the Green Team address, they

predominately listed: increasing diversion rates, addressing tailgating, and an initiative related to their specific position on campus. A non-Athletics member of the Green Team suggested that the committee be restructured to address the sustainability initiatives that they wanted to address. That is, instead of being configured like an athletic department (i.e., Marketing and Promotions, Data Collection, Celebrating Success, and Events), it should be structured around specific initiative categories (e.g., waste management, electricity, water, human behavior). Before these changes can occur, however, more alliances must be given to the Chair and specific content experts on the Green Team.

Conclusion

The academic mission of institutions of higher learning is sometimes at odds with the athletic mission of their collegiate athletic departments. For this reason, universities are often considered dual-identity organizations. It is clear that environmental sustainability—while a priority at a growing number of institutions—is not the primary focus across all campuses. Still, because CSSPs like the Green Team operate autonomously with one overarching goal (i.e., advancing sustainability initiatives at the university and within Athletics), it can bridge the academic–athletic ideological gap and orient all parties toward a pro-environmental mission. As demonstrated above, however, leadership style and the efficacy of its members can limit the potential of a CSSP. In this study, some members of the Green Team had experienced clear shifts in their work responsibilities and organizational commitments (i.e., blurring boundaries), while others felt that their talents were left largely untapped because of the Green Team's placement within the athletic department.

While we suspect that much of the reason behind the uneven organizational blurring was the result of the Green Team's Athletics-focused orientation, additional research would yield further insight. For example, the Green Team consisted of individuals with varying professional ranks, years of service with the committee and the university, and environmental expertise. These dynamics may have led some members to be assertive while others remained passive. Furthermore, it remains unclear the extent to which turnover among committee members hindered collaboration in the Green Team. Particularly related to student members, the cyclical nature of the university made committee membership relatively unstable.

This study builds on the theoretical development on transformational CSSPs by providing a better understanding of the key enablers and indicators that permit the development of transformational collaborative relationships. We also responded to a need to examine the development of CSSPs by providing the analysis of an in-depth case study with a

retrospective inquiry to capture the evolutionary dynamics of a complex collaborative arrangement (Kihl et al., 2014; Selsky & Parker, 2005).

Since sport may be viewed as not only a crucial platform for environmental awareness but also as a powerful vehicle for social change (Kellison & Kim, 2014; Kellison et al., 2015), the contextually rich insight yielded from this study provided promising contributions to our understanding of how organizational forms can shift and expand in response to issues of environmental and social importance. Ideally, athletic departments can blur their organizational boundaries with the public, business, and non-profit sectors in order to become more effective at addressing contemporary issues. As demonstrated in this study, however, the perceived barrier between academics and athletics can dampen the benefits of a CSSP. To this end, our findings provide valuable information to researchers seeking to forward environmental efforts within the sport industry. For example, athletic administrators or sustainability officers can use these findings to better organize and define the roles for their Green Team members. Similarly, this study may help organizational champions better understand the importance of delegating, supporting, and yielding authority to others when leading cross-sector partnerships. Furthermore, when forming a CSSP, decision-makers may consider appointing upper-level administrators from across the university in order to maintain a balance of power between the academic and athletic arms of the institution.

Researchers examining this context in the future should consider assessing the evaluation process of the committee's set Key Performance Indicators. Additionally, our findings raise further questions that should be researched in the future including: Who are the necessary stakeholders to include when initially forming a green committee? What policies or strategies can properly empower a green committee? Can CSSPs involving athletics and other campus departments help bridge the isolation athletics has on campus? These questions and others will continue to arise as Green Teams become more commonplace on college campuses seeking to boost the sustainability efforts of their athletic departments.

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Tables

Table 1

Interview Participant Details

Pseudonym	Years on Green Team	Department	Status
Joan	5	Athletics–Administration	professional
Tim	3	Athletics–Administration	student
John	2	Athletics–Student-Athlete Support	professional
Mark	1	Athletics–Ticketing	professional
Samantha	2	Concessions	professional
Melissa	3	Waste Management	professional
Steve	4	Athletics–Facilities	professional
Nicole	2	Athletics–Student-Athlete	student
Brian	2	Office of Sustainability	professional
Ronan	3	Office of Sustainability	professional
Patrick	1	Office of Sustainability	professional

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Concussion Knowledge of Youth Sport Athletes, Coaches, and Parents: A Review

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Mild traumatic brain injury, commonly known as a concussion, has gained widespread public attention. Approximately 1.1 to 1.9 million children 18 years old or younger suffer sport/recreation-related concussions in the U.S. annually. The purpose of this review was to assess research articles examining concussion knowledge of youth sport athletes, coaches and parents. Twenty-one articles published from 2009-2016 were selected. The results of this review suggest that most athletes, coaches, and parents had good knowledge regarding the definition of a concussion, common signs/symptoms, and complications from repeated concussions, while most stakeholders had moderate knowledge about the causes, prevalence, and return-to-play guidelines. However, the majority of respondents did not correctly identify the emotional signs/symptoms associated with concussions and did not know that youth concussions should be managed more conservatively than adult concussions. Notable knowledge deficiencies were found among youth athletes and parents. Suggestions to improve youth sport stakeholders' concussion knowledge are provided in the discussion.

Sport-related mild traumatic brain injury (mTBI), known as a concussion, is a major public health issue among young athletes. Approximately 1.1 to 1.9 million children 18 years old or younger suffer sport or recreation-related concussions each year in the U.S. (Bryan, Rowhani Rahbar, Comstrock, & Rivara, 2016). A concussion is a complicated brain injury that may cause cognitive, behavioral and physical impairments (Jotwani & Harmon, 2010). Typical signs and

symptoms of a concussion include, but are not limited to, headache, nausea, dizziness, vertigo, difficulty concentrating, drowsiness, slow reaction time, difficulty sleeping, emotional changes, anxiety, and sadness (Halstead & Walter, 2010; McCrory et al., 2017; Meehan & Bachur, 2009). Athletes who sustain another concussion without completely recovering from the previous one can suffer a rare condition known as second impact syndrome which may cause brain swelling, herniation, and even death (Buzzini & Guskiewicz, 2006; McCrory, Davis, & Makdissi, 2012). Additionally, athletes who sustain repetitive concussions may also suffer long-term health problems such as cognitive impairment and depression (National Research Council & Committee on Sports-Related Concussions in Youth, 2014). Athletes with a concussion, therefore, should be seen by an appropriate healthcare provider and follow individualized return-to-play (RTP) guidelines to avoid potential catastrophic health consequences (Harmon et al., 2013).

At the youth sport level, where healthcare providers (i.e., athletic trainers, team physicians) are not typically available onsite, the recognition, management (i.e., following healthcare provider(s) advice, and RTP guidelines), and the prevention of youth concussions is particularly important for youth sport stakeholders (YSS). For the purpose of this review, YSS were defined as athletes, coaches, and parents, and did not include clinicians (e.g., physicians, athletic trainers, school nurses, physical therapists). Compared to adults, youth sport athletes are at greater risk of sustaining concussions due to their premature brain structures and physiological weaknesses (Karlin, 2011). Additionally, younger athletes with a concussion typically require longer recovery time than adults (Covassin, Elbin, & Sarmiento, 2012). Accordingly, proper care and diligence must be provided to younger athletes particularly when deciding when to return to play.

Efforts to recognize, manage, and prevent concussions at the youth sport level have been primarily accomplished by providing concussion education to YSS. Consensus-based concussion education focuses on the proper identification of signs/symptoms, assessment, treatment, and RTP guidelines (Harmon et al., 2013). The need for concussion education stems from the fact that concussions are often difficult to diagnose and frequently go unrecognized which may result in underreporting, particularly among athletes. Several research studies found that more than 50% of concussive incidences were unreported due to athletes' lack of understanding the signs/symptoms and not thinking that the injury may have been a concussion (Delaney, Lacroix, Leclerc, & Johnson, 2002; Echlin et al., 2010; McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004; Register-Mihalik, Linnan, Marshall, Valovich McLeod, Mueller, & Guskiewicz, 2013). Although it is premature to suggest that increased concussion knowledge may help reduce concussions, one study reported

that concussion knowledge was an important predictor of recognizing and reporting symptoms to appropriate medical personnel (Sefton, Pirog, Capitao, Harackiewicz, & Cordova, 2004). Additionally, although most concussions have been found to occur during games (Daneshvar, Nowinski, McKee, & Cantu, 2011; Gessel, Fields, Collins, Dick, & Comstock, 2007; Marar, McIlvain, Fields, & Comstock, 2012), it has been reported that athletes' increased knowledge was associated with increased reporting of concussions during practices (Register-Mihalik et al., 2013).

Over the past few years, a number of organizations (e.g., CDC, National Federation of State High School Associations) have made concussion education resources available and/or provided safety recommendations for YSS. Additionally, national youth sport organizations (e.g., Pop Warner, Little League Baseball, US Youth Soccer) have established concussion safety policies that require and/or recommend YSS review concussion educational resources as a prerequisite for participation (Paradis, 2014; Sussingham, 2015). The requirement of educating YSS about concussion safety has also stemmed from legislative mandates (i.e., youth sport concussion statutes) in all 50 states and the District of Columbia (Lowrey, 2014).

To the best our knowledge, there is a relatively small number of studies that examined baseline concussion knowledge of YSS prior to the implementation of state concussion legislation (Washington was first to do so in 2009), and such findings suggested a mixed level of knowledge (Guilmette, Malia, & McQuiggan, 2007; Valovich McLeod, Schwartz, & Bay, 2007). Presumably due to heightened public awareness stemming from concussion legislation, related lawsuits, and media attention, since 2009, a significant number of studies have assessed YSS's concussion knowledge. The purpose of this review was to evaluate YSS's baseline knowledge (i.e., recognition, management and prevention) regarding youth concussions. No comprehensive review of YSS's baseline concussion knowledge has been conducted to date. The specific research questions guiding this review were: What knowledge items (e.g., signs and symptoms, RTP guidelines, etc.) were commonly assessed? What types of instruments were used to examine concussion knowledge? What are the stakeholders' strengths and weaknesses regarding concussion knowledge? Is there any particular stakeholder(s) that demonstrates a deficit(s) in concussion knowledge? The results of this review may be used to inform policy makers and sport governing bodies to develop, revise, and/or promote effective concussion educational programs and safety policies/practices at the youth sport level.

Method

The present review examined research articles published during 2009-2016 (i.e., 8-

year-span) to assess the overall level of YSS's concussion knowledge. We selected this 8-year time frame because the first youth sport-related concussion statute in the U.S. was implemented in 2009 and likely created a heightened awareness regarding youth sport-related concussions. Additionally, we found a notably large number of relevant published articles during this period.

A total of 872 articles were identified using the *PubMed* and *SPORTDiscus* databases before being screened for eligibility. Keywords utilized for the primary search included *concussions* ("concussions", OR "brain injury", OR "sport concussions" OR "mild traumatic brain injury" OR "mTBI"), AND *knowledge* ("knowledge", OR "baseline knowledge"), *management* ("management", OR "awareness", OR "familiarity", OR "recognition", OR "evaluation", OR "prevention," OR "understanding") AND *youth sport stakeholders* ("athletes", OR "coaches", OR "parents"). During the search, we used the keywords independently and in multiple combinations. We also reviewed references found in the initially retrieved articles and then finally conducted additional searches (i.e., utilizing Google Scholar, Internet search). The specific inclusion and exclusion criteria for selecting articles for this review were:

1. Youth sport refers to both interscholastic and recreational sport programs where the majority of the participants are 18 years of age or under.
2. Studies must have examined baseline concussion knowledge. For intervention studies (including those that utilized control conditions), only assessment of baseline concussion knowledge was reported if available.
3. Studies evaluating health care providers/clinicians (e.g., athletic trainers, nurses, physical therapists, physicians) were excluded from this review. The purpose of this review was to assess studies examining concussion knowledge of non-clinical YSS (i.e., youth sport athletes, coaches and parents).
4. Studies conducted outside of the U.S. or Canada were not included since public perception and awareness toward sport-related concussion may be significantly different than those found in these two countries.
5. Studies that did not examine objective knowledge measures (i.e., those measuring perception, attitude, opinions, agreements, practices, policies, etc.) were excluded.
6. Studies must have been published in a peer-reviewed journal.
7. Studies must have been original research (i.e., no review studies or book chapters).
8. Studies must have been written in English.

After utilizing the aforementioned keywords and inclusion/exclusion criteria,

study titles and abstracts were reviewed for relevance to the present review. For selection purposes, relevant articles were then further screened through a full-text review (see Figure 1).

Results

After the screening process, a total of 21 articles published from 2009 through 2016 were selected for review. Questions regarding a study's inclusion/exclusion were resolved through a discussion among the current investigators. All 21 articles utilized a survey instrument to gauge respondents' concussion knowledge. The questionnaires included a combination of true/false, Likert scale, closed-ended, open-ended and multiple-choice questions. However, none of the reviewed studies utilized a standardized survey instrument and most of the studies did not indicate whether the questionnaire had been validated. All studies included in this review developed a unique questionnaire based upon the literature, consensus statements, position statements, educational resources (e.g., CDC's Heads Up materials), Sport Concussion Assessment Tool (SCAT), and/or expert opinions. Five studies adopted and/or slightly modified a previously utilized survey (Anderson, Gittelman, Mann, Cyriac, & Pomerantz, 2016; Gourley, Valovich McLeod, & Bay, 2010; Kurowski, Pomerantz, Schaiper, & Gittelman, 2014; Kurowski, Pomerantz, Schaiper, Ho, & Gittelman 2015; Shroyer & Stewart, 2016).

Reviewed studies assessed concussion knowledge from athletes (k = 9), coaches (k = 9), and parents (k = 8). It should be noted that some articles surveyed more than one stakeholder (Bloodgood et al., 2013; Cusimano, 2009; Gourley et al., 2010; Shenouda, Hendrickson, Davenport, Barber, & Bell, 2012). Overall, YSS included in this review were associated with interscholastic and/or recreational youth sport programs where the majority of the participants were 18 years of age or under. Twelve studies examined interscholastic sport stakeholders and nine studies examined recreational YSS's concussion knowledge. The vast majority of reviewed studies involved a contact and/or collision sport (e.g., football, soccer, hockey, wrestling, lacrosse, etc.) which are known for higher incidences of concussions. Among the studies reviewed, the knowledge items assessed varied widely due to a lack of uniformity in the surveys utilized. However, the most popular knowledge items were (1) key facts about concussions, such as definition, causes, prevalence, and youth concussion care; (2) signs/symptoms; (3) RTP guidelines; and (4) medical complications from repeated concussions. We chose these four categories as key knowledge measures since they reflect best practices based on consensus (McCrory et al., 2017) and position statements (Broglio et al., 2014). A summary of the articles reviewed can be found in Table 1. The remainder of this section will provide a synthesis of each stakeholder's knowledge

from the four selected knowledge assessment categories.

Youth Concussion Facts

Sixteen studies examined key concussion facts. These included but were not limited to definition, causes, prevalence, and management of youth concussions. The vast majority (≥80%) of athletes (Cusimano, 2009; Mrazik, Perra, Brooks, & Naidu, 2015; Register-Mihalik et al., 2013), parents (Cusimano, 2009; Shenouda et al., 2012) and coaches (Cusimano, 2009; Mrazik, Bawani, & Krol, 2011; Shenouda et al., 2012; Shroyer & Stewart, 2016) understood that a concussion is a form of mTBI. However, in one study, only 34.7% of parents identified the correct definition of a concussion (Mannings, Kalynych, Joseph, Smotherman, & Kraemer, 2014).

In regard to the causes of concussions, studies reviewed indicated mixed results. Promisingly, most (≥80%) athletes (Mrazik et al., 2015), coaches (Chrisman, Schiff, Chung, Herring, & Rivara, 2014; Mrazik et al., 2011; Shroyer & Stewart, 2016), and parents (Coghlin, Myles, & Howitt, 2009) knew that a concussion could be caused by a blow to the body (e.g., neck, jaw) other than the head. Meanwhile, four studies reviewed suggested knowledge deficiencies in athletes and parents regarding the causes of concussions. For instance, Bloodgood et al. (2013) revealed that only a quarter of both athletes and parents knew a concussion can be caused by a blow other than to the head. Similarly, other studies suggested knowledge deficits (i.e., only 58-61% of respondents answered correctly) in understanding the causes of concussions among parents (Mannings et al., 2014) and athletes (Kurowski et al., 2014; Kurowski et al., 2015).

The likelihood of suffering another concussion is greater if an athlete has not recovered from a previous one. Four studies (Anderson et al., 2016; Kurowski et al., 2014; Kurowski et al., 2015; Mrazik et al., 2011) that examined factors associated with repetitive concussions (i.e., prevalence) showed mixed results based on the type of stakeholder. Specifically, while the vast majority (91.6%) of coaches agreed that the likelihood of another concussion increases with a previous history (Mrazik et al., 2011), a moderate (65-77% correctly responded) level of knowledge regarding the likelihood of suffering another concussion was found among youth sport athletes (Anderson et al., 2016; Kurowski et al., 2014; Kurowski et al., 2015).

Finally, three studies (LaBond, Barber, & Golden, 2014; O'Donoghue, Onate, Van Lunen, & Peterson, 2009; Shroyer & Stewart, 2016) examined whether YSS understood that youth concussions should be managed more conservatively than those sustained by older athletes due to their physiological differences. The results of these studies overall revealed a low-to-moderate level of knowledge regarding the importance of conservatively managing youth concussions. Specifically, 48% of coaches did not believe that youth athletes

typically take longer than adults to recover from concussions (Shroyer & Stewart, 2016), and approximately 57% of coaches believed that all athletes, regardless of age, recover at the same rate (O'Donoghue et al., 2009). Additionally, approximately 33% of parents disagreed or did not know that head trauma was typically more serious in younger athletes (LaBond et al., 2014).

Signs and Symptoms

Seventeen articles assessed YSS's understanding of concussion signs and symptoms. The overall results revealed that most athletes, coaches, and parents, in general, had good knowledge in recognizing the key indicators of a concussion. The majority of YSS in several studies correctly identified commonly perceived signs/symptoms. Specifically, over 80% of athletes (Anderson et al., 2016; Cournoyer & Tripp, 2014; Kurowski et al., 2014; Kurowski et al., 2015; Register-Mihalik et al., 2013), coaches (Chrisman et al., 2014; Mrazik et al., 2011; Naftel, Yust, Nichols, King, & Davis, 2014; O'Donoghue et al., 2009; Shenouda et al., 2012), and parents (Coghlin et al., 2009; Mannings et al., 2014; Shenouda et al., 2012) correctly identified headache, dizziness, confusion, memory loss, and blurred vision as common signs/symptoms of concussions. Furthermore, over 80% of athletes (Anderson et al., 2016; Cournoyer & Tripp, 2014; Register-Mihalik et al., 2013) and coaches (Mrazik et al., 2011; Shroyer & Stewart, 2016) were aware that a loss of consciousness is not necessary to sustain a concussion.

The overall findings from studies reviewed revealed a gap in YSS's knowledge in understanding the subtle deficits and/or less distinct signs/symptoms of a concussion. For instance, approximately 30-70% of athletes (Cournoyer & Tripp, 2014; Kurowski et al., 2014; Kurowski et al., 2015), coaches (Chrisman et al., 2014), and parents (Mannings et al., 2014) did not recognize emotional changes. Additionally, 30-60% of athletes (Cournoyer & Tripp, 2014), coaches (Naftel et al., 2014), and parents (Coghlin et al., 2009; Mannings et al., 2014) did not know that sleep problems can be associated with concussions. Furthermore, approximately 40-70% of athletes (Cournoyer & Tripp, 2014) and coaches (Chrisman et al., 2014) did not identify anxiety/nervousness, while approximately 40-50% of athletes (Cournoyer & Tripp, 2014 Kurowski et al., 2014; Kurowski et al., 2015) did not identify vomiting, as potential signs/symptoms of a concussion.

Return to Play (RTP) Guidelines

RTP guidelines were another key knowledge item that many of the reviewed studies (k = 13) examined. Articles assessing respondents' familiarity with RTP guidelines, however, reported mixed results based on the type of stakeholders. Promisingly, most (80-100%) coaches (Bramley, Kroft, Polk, Newberry, & Silvis, 2012; Coghlin et al., 2009; Esquivel, Haque,

Keating, Marsh, & Lemos, 2013; Shroyer & Stewart, 2016) recognized that same day return to play is not recommended once a concussion is suspected. Moreover, 88% of coaches (Shenouda et al., 2012; Shroyer & Stewart, 2016) and parents (Shenouda et al., 2012) were aware that parents/guardians of an athlete should not provide clearance for a RTP decision. Furthermore, according to Chrisman et al. (2014), approximately 95% of coaches indicated that they would not allow an athlete to return to play even if symptoms were present briefly (i.e., 15 minutes or less).

Meanwhile, respondents from six studies did not completely understand specific RTP components such as the importance of medical clearance before returning to play. For instance, only 63% of athletes (Kurowski et al., 2015) reported that they should be thoroughly evaluated by medical personnel after a concussion to make sure they are recovered, and only 73% of coaches and parents (Shenouda et al., 2012) knew that soccer players must receive written clearance from an appropriate healthcare provider to return to play. Additionally, only 55.2% of coaches were familiar with the concept of "graduated return to play" (Chrisman et al., 2014). Similarly, Gourley et al. (2010) found only 62% of athletes and 56% of parents both agreed that a young athlete should RTP in a slow progressive manner if symptom free (i.e., graduated return to play). Interestingly, in one study, while 99% of coaches would never allow an athlete to RTP with a severe concussion, approximately 16% would allow a player to RTP with a minor concussion (Bramley et al., 2012). Finally, 33-40% of hockey players thought, as long as they were feeling better, they could return to play on the same day they sustained a concussion (Cusimano, 2009).

Medical Complications

Six studies examined whether YSS knew that repeated concussions and premature return to play can lead to catastrophic health consequences (i.e., second impact syndrome). Stakeholders from the majority of studies reviewed correctly indicated that athletes who sustain a second concussion (before fully recovering from a previous one) could suffer serious health consequences. For instance, 83-92% of athletes (Anderson et al., 2016; Kurowski et al., 2015), coaches (Shenouda et al., 2012), and parents (Shenouda et al., 2012) were aware of the risk of serious injury or death if a second concussion occurs before a previous one is fully healed. Also, over 85% of athletes correctly identified potential complications of a concussion which included brain damage and memory problems (Register-Mihalik et al., 2013). Cournoyer & Tripp (2014), however, reported that only 60-70% of high school athletes correctly identified brain hemorrhage, coma, and death as potential consequences of a concussion.

Although evidence regarding the long-term effects of concussions is not conclusive, only a few athletes were able to

identify early-onset Alzheimer's (47%), dementia (64%), and Parkinson's disease (28%) as potential consequences from repetitive and/or improper management of concussions (Cournoyer & Tripp, 2014). Similarly, according to LaBond et al. (2014), 35% of parents did not know that repeated head trauma could lead to dementia.

Discussion

Over the last decade, the topic of youth sport-related concussions has received considerable attention from the scientific community. Additionally, heightened public awareness likely stemming from concussion legislation, related lawsuits, and media attention has emphasized the need for concussion recognition, management, and prevention among YSS. The purpose of this review was to examine baseline concussion knowledge (i.e., recognition, management and prevention) of youth sport athletes, coaches, and parents. Given the complicated nature of properly recognizing and managing concussions, it is imperative that stakeholders are knowledgeable about, and undertake a concerted effort to reduce concussions. Based on the present review, YSS demonstrated good concussion knowledge overall while exhibiting deficiencies in some areas.

Improved stakeholder knowledge may be attributed to several recent educational initiatives aimed at increasing concussion awareness and knowledge particularly at the youth sport level. These resources (available online and at no-cost) include but are not limited to the CDC's Heads Up initiative (CDC, 2016), NFHS's Concussion in Sports (NFHS, 2017), and Brain 101: The Concussion Playbook (ORCAS, 2011). Several studies demonstrated the effectiveness of educational interventions (e.g., concussion videos, lectures, web-based resources, etc.) which helped increase concussion knowledge of athletes (Cusimano, Chipman, Donnelly, & Hutchison, 2014; Glang et al., 2015; Miyashita, Timpson, Frye, & Gloeckner, 2013), coaches (Covassin, et al., 2012), parents (Glang et al., 2015), and non-athlete students (Bagley et al., 2012; Falavigna et al., 2012).

Meanwhile, knowledge gaps among some stakeholders remain. A number of studies revealed that parents and athletes, in particular, did not have strong knowledge regarding key concussion facts, RTP guidelines and potential medical complications. Chrisman et al. (2014) noted that a lack of concussion knowledge among athletes and parents may be due to the vague language in state concussion statutes (i.e., concussion education requirement). In fact, not all concussion statutes specify the type of education required for parents and/or athletes (Harvey, 2013). While some statutes state an "information sheet" as a specific method of knowledge dissemination under the educational provision, several statutes do not specify a method for conveying such education. This vagueness may have created challenges in offering concussion education and

subsequently failing to improve both athletes' and parents' knowledge. Future legislative efforts should consider clarifying the specific requirements regarding concussion education in state concussion statutes.

Furthermore, educational initiatives have not been as common for parents of youth sport athletes when compared to coaches (Sarmiento, Mitchko, Klein, & Wong, 2010). Presumably due to a subsequent lack of knowledge, it is likely that some parents may not believe concussions warrant proper medical care and sufficient recovery time. Perhaps some parents perceive a concussion merely as a "bell ringer" or "ding" and, therefore, treat it as a mild injury. Indeed, many parents who participated in youth sports themselves may have been taught such. Given parents' close involvement with young athletes, it is important that they understand concussion signs/symptoms and the importance of seeking proper medical care. In 2013, the CDC launched a concussion toolkit (i.e., Heads Up to Parents) specifically designed for parents of youth sport athletes. Similar to their previous concussion educational initiatives (e.g., Heads Up to Youth Sports, Heads Up to School Sports), the parents' toolkit contains valuable concussion safety educational materials that are tailored to parents (CDC, 2016).

The results of this review are consistent with previous research (Delaney et al., 2002; McCrea et al., 2004), in which youth sport athletes generally had a poorer understanding of recognizing, managing and preventing concussions compared to other stakeholders (e.g., coaches, health care providers). Perhaps, younger athletes' concussion knowledge may have been negatively influenced by the culture in sports which often emphasizes "sacrifice" and "playing through pain" (Howe, 2004; Young & White, 1995), which could impact an athlete's desire to learn and appreciate the value of concussion education. In McCrea et al. (2004), two-thirds of high school athletes did not report potential concussions because they did not want to be removed from a game. Likewise, Register-Mihalik et al. (2013) found that "letting down" teammates and coaches was a primary reason for not reporting suspected concussions. Furthermore, Kurowski et al. (2014) revealed that improved knowledge and previous education were not associated with self-reporting concussions. Such findings suggest that educational initiatives alone may influence young athletes' concussion safety behaviors (i.e., reporting symptoms to coaches and parents). Therefore, stakeholders, particularly those in leadership roles (e.g., coaches and administrators), should attempt to change the youth sport culture by fostering an environment where athletes are encouraged to take proper measures to identify and report concussions. Furthermore, young athletes may not take concussion education seriously because they may not perceive a concussion to be a serious injury and may also think

they are less vulnerable to suffer a concussion compared to older athletes (Mrazik et al., 2015). Relevant to such beliefs, Elkind (1985) posited that younger children often believe the adverse effects of risky behaviors will not apply to them. Future efforts, therefore, should not only consider implementing effective educational programs, but also focus on increasing awareness and attitudinal changes among younger athletes.

Although concussion education should be directed to all relevant YSS, optimal knowledge transfer (KT) strategies have not been studied extensively (Provvidenza & Johnson, 2009). The purpose of KT strategies is to bridge the knowledge gap between the scientific/medical community and the general public (e.g., youth sport coaches, athletes, and parents) that use such knowledge (Straus, Tetroe, & Graham, 2013). In fact, KT strategies should consider the needs of the target audience, as well as the type, content, and quality of educational materials (Provvidenza et al., 2013). Passive concussion education (e.g., printed materials, handouts, and websites) may not lead to significant behavioral changes over time if such sources are used as a standalone method (Grimshaw et al., 2001). Instead, interactive KT strategies that deliver concussion education over multiple sessions should be utilized in an effort to have a long-term effect on the stakeholders' concussion knowledge, attitudes, and behaviors. Research (Ahmed, Sullivan, Schneiders, & McCrory, 2010; Sullivan et al., 2012; Williams, et al., 2014) suggests using social media (i.e., Facebook, Twitter, YouTube) to deliver concussion education programs although its effectiveness needs to be studied further. Additionally, Provvidenza et al. (2013) suggests integrating several educational strategies including the use of video, case studies, social media, handouts, oral presentations and discussions that can be delivered over multiple sessions to better suit individuals with different learning styles. Future research should continue to evaluate optimal KT strategies for concussion education programs, particularly considering the knowledge to action cycle.

The present review is not without limitations. First, although all reviewed studies were published from 2009 through 2016, data collection procedures in some studies were conducted several years prior to the publication date. Such lag in time may not have accurately depicted the stakeholders' most recent concussion knowledge, particularly after the implementation of concussion legislation. However, to the best of our knowledge, all data in the reviewed studies were collected no more than four years prior to the publication date. Second, due to the use of convenience sampling (i.e., selection bias) in several reviewed studies, there was a wide variation in the stakeholder's demographics. Such variation is concerning because research suggests that age, education, gender, and socioeconomic status can affect the stakeholders' concussion knowledge

(Bagley et al., 2012; Kurowski et al., 2014; Lin et al., 2015). The present review was, therefore, a holistic evaluation of YSS's concussion knowledge and may have unintentionally disregarded the aforementioned demographics which could have affected their baseline knowledge. Third, articles retrieved for consideration were obtained primarily from two databases (i.e., *PubMed* and *SPORTDiscus*). We also utilized references from the selected articles as well as from other sources (i.e., Google Scholar, Internet search) to retrieve additional articles for consideration. Therefore, we believe the present review, when conducted, represented the full body of literature (from 2009-2016) on baseline concussion knowledge of youth sport athletes, coaches, and parents.

Due to the frequency and potential severity of youth concussions, efforts from various stakeholders are necessary to reduce concussions in youth sport. To date, research has assessed concussion knowledge of stakeholders other than athletes, coaches, and parents. For instance, concussion knowledge of healthcare providers/clinicians (Zemek et al., 2014; Zemek et al., 2015), athletic trainers (Cusimano et al., 2009; Esquivel et al., 2013 Naftel et al., 2014), physical therapists (Yorke, Littleton, & Alsalaheen, 2016), and speech-language pathologists (Duff & Stuck, 2015), has been examined. Such stakeholders may play pivotal roles in reducing and managing youth concussions. Future research should consider evaluating the knowledge of these important stakeholders who are primarily responsible for the clinical management of concussions. Furthermore, future investigation on this topic should center on comparing YSS's concussion knowledge pre and post-state law implementation. Concussion legislation was passed in all states from 2009 to 2014 (Lowrey, 2014). Additionally, comparing concussion knowledge of recreational sport stakeholders versus interscholastic sport stakeholders is warranted since some state legislation only applies to interscholastic competitions.

Although several of the studies reviewed examined key knowledge items such as concussion facts, signs/symptoms, RTP guidelines and medical complications, future research should consider assessing other important knowledge constructs. Recently, concussion management strategies for student-athletes have been centered on "return-to-learn" or "academic accommodation" for those with previous concussions (Weber, Welch, Parsons, & Valovich McLeod, 2015). Consensus guidelines strongly recommend that concussed student-athletes take cognitive rest before returning to full academic activities (McCrory et al., 2017). Cognitive rest allows the brain to recover and prevents exacerbation of existing concussive symptoms (Moser, Glatts, & Schatz, 2012).

Finally, all of the studies reviewed utilized questionnaires which were developed after a review of the literature and/or by revising previously used surveys.

To the best of our knowledge, at the time of this review, there was not a standardized questionnaire that measured baseline concussion knowledge. The Rosenbaum Concussion Knowledge and Attitudes Survey (RCKAS) is one of very few standardized instruments that assesses concussion knowledge and attitude of youth sport athletes (Rosenbaum & Arnett, 2010); however, none of the studies reviewed utilized this instrument. Also, it is unknown whether several of the studies reviewed used validated questionnaires. Future research should focus on creating a standardized, psychometrically-valid instrument, which would allow for more effective knowledge comparisons across stakeholder groups and increase the rigor in evaluating baseline concussion knowledge.

Conclusion

Based on the present review, the overall findings suggest that although most YSS demonstrated good overall concussion knowledge, knowledge gaps in certain areas were found among athletes and parents in particular. A significant number of articles assessing athletes' and parents' concussion knowledge revealed that these groups had many misconceptions about key concussion facts, RTP guidelines, and medical complications. These groups, therefore, should be targeted for more extensive concussion education. Finally, it is suggested that youth sport organizations adopt widely accepted concussion safety policies/practices (i.e., CDC, 2016; NFHS, 2017) to assist in reducing concussions in youth sports.

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Figure

Figure 1

Flow Chart of Review Process

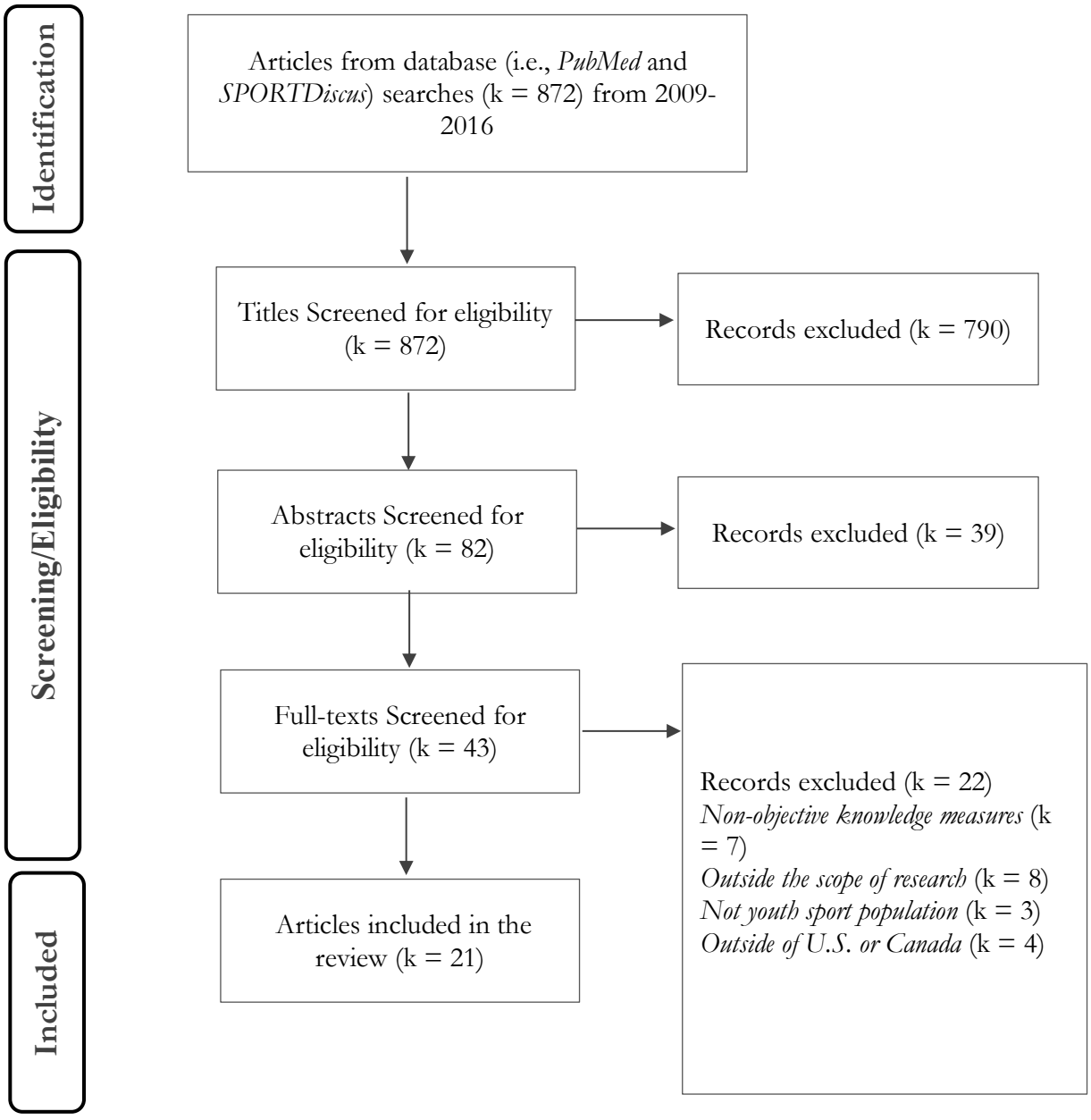

Table 1

Chronological published reports of youth sport stakeholders' concussion knowledge

Date	Reference	Stakeholder(s)	Sport(s)	Level	Key knowledge measure(s)	Summary of the knowledge assessed
2016	Anderson et al.	Athletes (n = 120)	Football	Interscholastic sports	(1) Signs/symptoms (2) Medical complications	More than 75% of respondents correctly identified five out of the six listed symptoms related to concussions. Approximately 92% of respondents agreed that improper management of concussions could lead to severe health consequences.
2016	Shroyer et al.	Coaches (n = 53)	Multiple	Interscholastic sports	(1) Concussion facts (2) RTP guidelines	Nearly half of respondents did not know that high school athletes typically take longer to recover from concussions than older athletes. Most of respondents were familiar with RTP guidelines.
2015	Kurowski et al.	[a]Athletes (n = 262)	Football, Soccer, Basketball, & Wrestling	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines (4) Medical complications	Overall, athletes exhibited a moderate understanding of concussion signs and symptoms. However, athletes reported a low to moderate understanding of the less distinct signs/symptoms such as emotional changes, neck pain, hallucinations and vomiting. Over 92% of athletes agreed that they must complete a gradual return to play before returning fully to sports. Most (86%) agreed that, if a second concussion occurs before the first one is healed, there is a risk of death. Approximately 61% believed that concussions can be only sustained if hit in the head.
2015	Lin et al.	Parents (n = 214)	N/A	Interscholastic sports	(1) Signs/symptoms (2) RTP guidelines	Respondents scored an average of 18.4 (possible, 0-25) on the Concussion Knowledge Index.
2015	Mrazik et al.	[b]Athletes (n = 183)	Hockey	Recreational sports	(1) Concussion facts (2) RTP guidelines	Most (86.8%) hockey players were familiar with the causes of concussions. However, one-half of respondents were not familiar with the prevalence of concussions. Approximately 68% of hockey players indicated that they were unfamiliar with RTP protocols.

[a] Control group (pre-season data)
RTP = Return-to-Play

Table 1 Continued

Date	Reference	Stakeholder(s)	Sport(s)	Level	Key knowledge measure(s)	Summary of the knowledge assessed
2014	Chrisman et al.	Coaches (n = 270)	Football & Soccer	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	The majority (95%) of respondents knew that concussions can be caused without a direct blow to the head. Also, most respondents were knowledgeable about common signs/symptoms of a concussion, but did not correctly identify many of the mental symptoms (i.e., being more emotional, anxious and sad). More than 95% of respondents would not allow an athlete to return to play even if symptoms appeared only briefly (<15 min). Only 55.2% were familiar with the term "graduated return to play."
2014	Cournoyer et al.	Athletes (n = 314)	Football	Interscholastic sports	(1) Signs/symptoms (2) Medical complications	Although most respondents correctly identified the common signs/symptoms of a concussion such as headache, dizziness and confusion, many failed to recognize the less apparent signs/symptoms (e.g., nausea, vomiting, personality change, trouble falling asleep, being more emotional and anxious). While 93% of respondents correctly identified persistent headache as a consequence of improperly managing concussions, only 60-70% knew that brain hemorrhage, coma and death could be possible consequences as well.
2014	Kurowski et al.	Athletes (n = 496)	Football, Soccer, Basketball, & Wrestling	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms	Respondents correctly identified 68.8% of the knowledge-based questions on concussion facts. Less than half failed to realize that emotional changes and neck pain could result from concussions. Approximately, 41.7% did not know that a person can get a concussion other than receiving hit in the head, and 67% knew that a person with previous concussion(s) is more likely to get another.
2014	LaBond et al.	Parents (n = 235)	Multiple	Interscholastic sports	(1) Concussion facts (2) RTP guidelines (3) Medical complications	More than half of respondents did not know that concussion severity was typically higher among children. Sixty-one percent of respondents revealed that they had limited knowledge regarding RTP guidelines although 99% agreed that a concussed athlete should be evaluated by a physician before returning to play. Approximately 35% did not know that repeated head trauma could lead to dementia.

[b] Control group (non-player)
RTP = Return-to-Play

Table 1 Continued

Date	Reference	Stakeholder(s)	Sport(s)	Level	Key knowledge measure(s)	Summary of the knowledge assessed
2014	Mannings et al.	Parents (n = 130)	Football	Recreational sport	(1) Concussion facts (2) Signs/symptoms	Approximately two-thirds of respondents failed to realize that a concussion is a mild traumatic brain injury. Moreover, 42% were unaware that a concussion could be caused by something other than a direct blow to the head. Many respondents were unable to identify irritability, emotional outburst and sleeping difficulty as possible symptoms of a concussion.
2014	Naftel et al.	Coaches (n = 402)	Multiple	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms	Although 85.7% of coaches correctly identified the concussion signs/symptoms, they had difficulty recognizing the more subtle and profound symptoms such as sleep troubles and personality changes.
2013	Bloodgood et al.	Athletes (n = 252) & Parents (n = 300)	N/A	Recreational sports	(1) Concussion facts (2) Signs/symptoms	Among respondents that had heard about concussions, only about one-quarter indicated that they were familiar with the definition of a concussion and one or more of its signs/symptoms.
2013	Esquivel et al.	Coaches (n = 119)	Football, Hockey, & Soccer	Interscholastic sports	(1) Signs/symptoms (2) RTP guidelines	Most respondents were able to identify common signs/symptoms associated with a concussion. All respondents agreed that a concussed athlete should not return to play the same day of the injury. More than 90% required physician care and clearance before returning to play.
2013	Register-Mihalik et al.	Athletes (n = 167)	Football, Soccer, Lacrosse, & Cheerlead - ing	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms (3) Medical complications	Most (84.7%) athletes were aware that a concussion can occur without losing consciousness, and 88.5% correctly identified that a concussion is an injury to the brain. While most respondents correctly identified the common signs/symptoms of a concussion, many did not realize that nausea and amnesia could also be indicative of a concussion. The majority were familiar with the potential complications from suffering recurrent concussions and/or prematurely returning to play.
2012	Bramley et al.	Coaches (n = 314)	Hockey	Recreational sports	(1) RTP guidelines	Using clinical vignettes, 80% or more of respondents indicated that they would not allow a concussed athlete to return to a game; however, a small percentage would allow an athlete to return depending on the severity of a concussion. Respondents noted that they were more likely to allow return to play for championship games as opposed to regular games.

RTP = Return-to-Play

Table 1 Continued

Date	Reference	Stakeholder(s)	Sport(s)	Level	Key knowledge measure(s)	Summary of the knowledge assessed
2012	Shenouda et al.	Parents (n = 246), Coaches (n = 78)	Soccer	Recreational sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines (4) Medical complications	Most respondents displayed high proficiency in concussion facts (i.e., definition, causes, treatment) and correctly identified most of the symptoms associated with a concussion. Although 73% of respondents understood that written clearance was required from a trained professional for returning to play, many did not know that a trained professional could be a volunteer. Eighty-three percent of respondents knew that continuing to play with a concussion can lead to further injury and/or death.
2011	Mrazik et al.	Coaches (n = 178)	Hockey	Recreational sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	Most (84%) agreed that concussions can be sustained without a blow to the head and that a loss of consciousness is not required for sustaining concussions. More than 90% reported that they would not allow players to return to play if a concussion is suspected with symptoms of headache, loss of consciousness and forgetfulness. However, about 12% would allow players to return to play if concussion symptoms had improved by the end of the game.
2010	Gourley et al.	Athletes (n = 73) & Parents (n = 100)	Multiple	Recreational sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	Approximately 77% of athletes and 85% of parents agreed that a concussion only occurs when an athlete blacks out. Both parents and athletes correctly identified approximately 9 out of 16 signs/symptoms questions. On the scenario question, 66% percent of athletes and 68% of parents agreed that an athlete who only experiences mild dizziness and headache following a blow to the head should not return to play that day. Additionally, only 62% of athletes and 56% of parents agreed that a youth athlete should return to play in a slow progressive manner.
2009	O'Donoghue et al.	Coaches (n = 126)	Multiple	Interscholastic sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	Approximately 43% of respondents indicated that an athlete, regardless of age, recovers from concussion at the same rate. Respondents scored an average of 92% on the recognition (i.e., signs/symptoms) section of the survey. However, they scored only 79% on the management section (i.e., RTP guidelines).

RTP = Return-to-Play

Table 1 Continued

Date	Reference	Stakeholder(s)	Sport(s)	Level	Key knowledge measure(s)	Summary of the knowledge assessed
2009	Cusimano	Athletes (n = 267), Parents (n = 92), Coaches (n = 22)	Hockey	Recreational sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	Forty-five percent of athletes did not correctly identify the causes of concussions. Approximately one-quarter of the parents and coaches, and a quarter to a half of athletes were not aware of any concussion symptoms or were able to name only one symptom. About a quarter of athletes did not know or thought it was acceptable to continue playing while having concussive signs/symptoms. Additionally, 33-40% of athletes believed that they can return to play prematurely as long as they are feeling better.
2009	Coghlin et al.	Parents (n = 114)	Hockey	Recreational sports	(1) Concussion facts (2) Signs/symptoms (3) RTP guidelines	Approximately 86% of respondents knew that concussions can be caused by a blow to the neck, jaw or elsewhere in the body. While respondents had decent understanding of common signs/symptoms of a concussion (e.g., nausea, fatigue, slurred speech, etc.), they did not know that difficulty with sleep, disorientation and emotional irritability were also key components of recognizing a concussion. Over 95% indicated that a concussed athlete should not return to play the same day of the injury.

RTP = Return-to-Play

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Female Roller Derby Athletes' Athletic Identity and Systematic Pursuit of Leisure

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Athletic identity is a foundational element of an individual's self-concept and affects psychological, social, and behavioral characteristics. The purpose of this study was to investigate a women-dominated sport, roller derby, by exploring the relationships between athletic identity of women athletes and serious leisure pursuit in the sport. Participants were 578 women registered with the Women's Flat Track Derby Association (WFTDA) who completed an online survey regarding their athletic identity. Hierarchical multiple regression analysis showed demographic variables (family income) were a minor predictor of participants' serious leisure pursuit. Internal and external components of athletic identity were positively associated with participant's level of serious leisure, while internal components (i.e. self-identity and positive affectivity) were stronger in predicting women athletes' systematic leisure pursuit in roller derby than external ones. Results of this study support that roller derby provides an opportunity for women to enjoy a full-contact sport and develop identity as an athlete with strength and knowledge through their systematic leisure pursuit. Furthermore, findings suggest promoting roller derby programs or other untraditional female sports may foster greater engagement and greater commitment to sport and facilitate equality for women in sports.

Sport provides a salient, visible, and accessible venue to create a self-image and self-identity in Western society. Athletic-related identities have received much attention in sports phenomena studies, including athlete and fan identity in sports. Studies of athletic identity have focused primarily on professional and

collegial athletes' career development and maturity (Lally & Kerr, 2005; Murphy, Petitpas, & Brewer, 1996), student-athlete identity conflicts (Yopyk & Prentice, 2005), and coping with career transition or retirement (Grove, Lavallee, & Gordon, 1997). In part because sports are generally considered to be activities for young, middle-class, and white men (Henderson, Hodges, & Kivel, 2002; Kay, 2000; Lim et al., 2011), little research has been conducted to understand the women and minority perspective of leisure pursuits in sports. Therefore, it is important to understand women's perspective of athletic identity in assisting them to gain personal, physical, and psychological empowerment through sport in their leisure time (Dilley & Scraton, 2010; Heuser, 2005; Mennesson, 2000).

Roller derby is a female-dominated sport that is aggressive and incorporates body contact into competition. The philosophy of roller derby, "by the skaters, for the skaters" (Beaver, 2012, p.25), illustrates a do-it-yourself ethos where women athletes are typically owners, managers, and/or operators of their own leagues while following rules, safety, and guidelines for national and international competition (Women's Flat Track Derby Association, 2012). With high speed skating, and players alternating offense and defense positions constantly, the game is physical, competitive, and risky (Carlson, 2010). Historically, the sport of roller-skating and roller derby spinning started in the nineteenth century and became a gender-liberating symbol in sport history (Pavlidis, 2012). Roller derby is a high intensity and full contact sport, providing women an activity and space that challenges them to use their body instrumentally and offers an alternative way of experiencing their body (Storms, 2008).

Although there are a few studies that have investigated roller derby, research is limited (Eklund & Masberg, 2014; Eklund, & Masberg, 2015; Paul & Blank, 2015). For example, the majority of existing studies have applied ethnographical methods or qualitative approaches, such as observation, in-depth interviews, field studies, and case-study research. Using a quantitative approach with a larger number of research participants may provide insight into the psychological engagement and social adaptations of women athletes in roller derby from a larger scale and use a quantitative approach to connect with other related theories for future studies (Gould, Moore, McGuire, & Stebbins, 2008). Therefore, the purpose of this study was two-fold: (1) to investigate how internal and external athletic identity affected level of seriousness in participating in roller derby with a large sample size, and (2) to explore whether demographics affect leisure pursuit in the sport.

Literature Review

Identity can be defined as "parts of a self-composed of the meanings that persons attach to the multiple roles they typically play in highly differentiated contemporary

societies" (Stryker & Burke, 2000, p.284). The concept has been discussed within structural and cognitive identity theories. Structural identity theory focuses on the influence of external/social components, such as society and groups, while internal/personal identity theory explores the effects of internal components on individuals' evaluation of themselves (Stryker & Burke, 2000). Luhtanen and Crocker (1992) stated that "whereas personal identity refers to how people view themselves as individuals, social identity refers to how they view the social groups to which they belong" (p. 302). Social identity can derive from a variety of group memberships, including family, friends, colleagues, or groups based on race, gender, and occupation. For example, college students might identify themselves based on their internal value of potential and individual qualities, while values may be formed through relevant social groups and significant others, such peers, parents, and coaches. Social structure and self-evaluation affect behavior in addition to internal and external self (Cieslak, 2004; Green, 2001; Stryker & Burke, 2000).

Athletic identity is a key component of the self-concept of an individual athlete and is relevant to psychological, social, and behavioral characteristics (Martin, Eklund, & Mushett 1997; Nasco & Webb, 2006). The initial athletic identity was treated as a single-dimension theory; whereas later, most researchers adopted a multidimensional approach to examine an individual's thoughts and feelings toward their athlete role as an aspect of life with personal and social factors (Horton & Mack, 2000). Previous research identified several dimensions of internal and external identity; (1) Social identity refers to the degree in which an individual views him/herself as an athlete from a social standpoint; (2) Exclusivity reflects the degree to which individuals rely heavily on their athletic role or performance to determine their value as a person; (3) Self-identity captured the strength of an individual's self-referred him/herself as an athlete; (4) Negative affectivity emphasized the negative experience of individual's sports-related performance and outcomes (i.e., injury); and (5) Positive affectivity emphasized the positive and desirable outcomes of individuals' sport participation (Brewer, Van Raalte, & Linder, 1993; Cieslak, 2004; Jun & Kyle, 2012; Martin et al., 1997; Phoenix, Faulkner, & Sparkes, 2005).

Athletic Identity for Women in Sport

It is necessary to understand the significance of sport and exercise for women and the effects of sport on their sense of identity in a male-dominated field (Messner, 2002; Paul, 2015). In general, participation in sports is an opportunity for women to gain empowerment, in spite of the social, political, and economic realities that have limited their opportunities to acquire facilities, opportunities, and legitimacy as athletes (Raisborough, 2006; Ross & Shinew, 2008; Wachs, 2005).

Although athletic identity has been used to understand athletes' view and identification in their sports engagement, only a few studies have focused on women's athletic identity in sports. Mean and Kassing (2008) reported that women athletes wanted to be identified as athletes based on their athletic ability and performance rather than gender alone. They also experienced limited avenues and resources available to establish their athletic identity as women compared to their male counterparts. In addition, Ross and Shinew (2008) found that female athletes were viewed (by others) as serious competitors with pride and well-developed athletic skills.

A few other studies have focused on amateur and recreational women athletes' identity with sports or adventure recreation. In research by Lamont-Mills and Christensen (2006), several patterns of athletic identity between level of sport participation among women and men athletes were identified: (1) elite women athletes indicated a higher athletic identity from others (social identity) and relied on their athletic role to determine who they are (exclusivity) than did recreational and non-participation women athletes; (2) only elite men's athletes scored higher in social identity than their women counterparts; and (3) athletes from different gender and level of improvement experienced similar negative affectivity in the sports they chose. In other words, athletic identity has showed variation by gender and level of sport involvement.

Through interviewing women's flag football tournament participants, Green (2001) found that participants were attracted to the sport by the physical nature of the game and enjoyed having a space to share and celebrate their identity as women football players. Heuser (2005) found that the social nature of competitive sports created a community for women sharing similar interests, experiences, challenges, and a sense of accomplishment. Women athletes and adventurists are aware they can negotiate and prioritize time and space for pursuing sport and recreation to receive and reinforce benefits from the experience (Little, 2002). These outcomes reinforced their sport identities associated with the activity and developed a career-like involvement.

Serious Leisure Theory

The theory of serious leisure was originally defined by Stebbins (1992):

> The systematic pursuit of an amateur, hobbyist, or volunteer activity that people find so substantial and interesting, and feeling that, in typical cases, they launch themselves on a (leisure) career on acquiring and expressing a combination of its special skills, knowledge, and experience (Stebbins, 2006, p. 3).

Stebbins formulated the theory through ethnographic research involving musicians, actors, archeologists, baseball players, astronomers, entertainment magicians, football players, and stand-up comics.

Through systematic pursuit in leisure, people are enabled to develop their confidence, self-esteem and gain close friendship, lifelong learning experiences, and personal growth opportunities (Brown, McGuire, & Voelkl, 2008; Patterson & Pegg, 2009). Serious leisure has been viewed as a profound, consistent, invariable engagement based on substantial knowledge and skills, and also requires more perseverance to overcome challenges and complex tasks. Within this type of leisure experience, people feel deep satisfaction and experience a full existence (Stebbins, 2001).

Serious leisure has been defined by six distinguished qualities (Stebbins, 2006). Participants acquire *perseverance* to overcome psychological and physical difficulties during their experiences (i.e., anxiety, embarrassment, and physical dangers). Participants embark upon a leisure *career* in the endeavor to improve their engagement shaped by special contingencies and turning points of achievement or involvement. Participants require *significant personal effort* for earning special skills, knowledge, and training, all of which require more learning opportunities outside of formal education, or through a self-directed learning process. A variety of *durable benefits* through serious leisure pursuit have been discussed, such as self-actualization, self-image, social interaction, belongingness, and physical and mental health in various studies (i.e., Dilley & Scraton, 2010; Heo, Stebbins, Kim, & Lee, 2013; Lamont, Kennelly, & Moyle, 2014; Tsaur & Liang, 2008). Participants also tend to *identify* strongly with their chosen activity and engage with the *unique ethos* within the social group and community of activity.

Roller Derby Identity Through Systematic Leisure Pursuit

In studying individuals' leisure pursuit in sports, the theory of serious leisure is regularly used to explore characteristics of amateur athletes pursuing their leisure systematically and acquiring benefits from the process (Stebbins, 1992). Stebbins (2001) stated that "every serious leisure activity offers a major lifestyle and identity for its enthusiasts (p.56)." Although roller derby is considered a form of sport and fits within the context of serious leisure, several views exist that challenge this idea. While roller derby might face opposition for being viewed as a sport from outsiders, roller derby participants claim and play it as a sport "for real" or a legitimate sport with risky factors (Carlson, 2010, p. 436).

Like other leisure experiences, roller derby participants freely choose personally meaningful engagement and to make a strong commitment to enjoy the sport. This helps facilitate participant leisure identity development and career-like progression in the sport (Heo & Lee, 2010; Raisborough, 2006 Stebbins, 2001). In understanding roller derby participants' involvement and dedication to the sport, several studies (Beaver, 2012; Eklund & Masberg, 2014; Paul, 2015; Pavlidis & Fullagar, 2015; Raisborough, 2006) have shown a

substantial connection with the concept of serious leisure through the six distinguished qualities of serious leisure developed by Stebbins (1992), including: (1) perseverance, (2) a leisure career in their endeavor, (3) significant personal effort, (4) durable benefits, (5) unique ethos within the activity, and (6) strong identification with the chosen activity. For example, many roller derby participants wear their bruises and scars with pride and celebrate injury as an honor to the sport (Paul, 2015; Pavlidis & Fullagar, 2015; Storms, 2008), all of which enhance their internal identity as roller derby women and create a community to enable them to enforce their external identity through friendship and sense of belongingness (Fagundes, 2014).

Women athletes tend to show strong identification with roller derby. The "do it yourself" operation of roller derby league maintains and manages participants' athletic activity and organization and serves to protect the sport as a whole. It creates an alternative to differentiating between sports and a lifestyle creation, which defines the uniqueness of the sport and creates a space for women to develop their identity on and off the track (Beaver, 2012; Messner, 2002).

Other than as a sport, roller derby participants have created subcultures within the sport, such as music and fashion (Carlson, 2010; Pavlidis, 2012). Roller derby has its own artistic sensibilities toward outfits and make-up, whereby female athletes dramatically express their own individuality and identity (Paul, 2015). Popular music is also part of the creative assemblage in roller derby (Pavlidis, 2012). Roller derby women athletes are able to create their roller derby identity individually and collectively as a team (Pavlidis & Fullager, 2012; Raisborough, 2006) and reinforce their established identity in this competitive sport (Dionigi, 2002; Green, 1998).

The close relationship between serious leisure and athletic identity has been discussed in various sports, including swimming (Hastings, Kurth, Schloder, & Cyr, 1995), running (Goff, Fick, & Oppliger, 1997), and golfing (Siegenthaler & O'Dell, 2003). The strong identity associated with athletes is an evolving process of systematic involvement in sports where individuals are able to acquire a sense of being an athlete with who they are and how they want others to view them (Green & Jones, 2005; Kane & Zink, 2004; O'Connor & Brown, 2010; Stebbins, 2006). This process results in a reinforcing cycle of strengthening individuals' athletic identity and accruing benefits from the sport of their choice. Such benefits include enhancing personal confidence and self-esteem, fostering friendships, and creating lifelong and personal learning experiences (Brown et al., 2008; Dilley & Scraton, 2010; Dionigi, 2002; Patterson & Pegg, 2009).

Only a few studies have explored the relationship between serious leisure and athlete identity in women through a quantitative approach. Various qualitative studies have indicated that women athletes

increase their sports self-concept and empower personal identity and body through leisure spaces and experiences (Baghurst, Parish, & Denny, 2014; Bartram, 2001; Gillespie, Leffler, & Lerner, 2002; Mennesson, 2000; Raisborough, 2006). Roller derby women athletes are able to create their roller derby identity individually and collectively, (Pavlidis & Fullager, 2012; Raisborough, 2006) and reinforce their established identity in this competitive sport (Dionigi, 2002; Green, 1998). As a women-centered sport, roller derby offers a unique research opportunity to better understand how women experience and explore internal and external identity through their leisure pursuits (Ross & Shinew, 2008).

Method

Sampling and Data Collection

The population of the study consisted of roller derby competitors registered in the Women's Flat Track Derby Association (WFTDA) in the United States. Researchers collected 2037 e-mail addresses from the WFTDA online database (84 of which were invalid). An email invitation was sent out to 1953 usable email addresses, and 578 women roller derby athletes responded and completed the web-based survey. The survey remained available for four weeks in September of 2012. There was no follow-up invitation or reminder. Prior to data collection, the Institutional Review Board (IRB) at a south-central university in the United States approved the study.

Instruments

Serious Leisure Inventory and Measurement (SLIM). A modified version (Gould et al., 2011) of the Serious Leisure Inventory and Measurement (SLIM; Gould et al., 2008) was used to measure amateur roller derby participants' level of involvement and personal durable outcomes. This 18-item instrument closely adhered to Stebbins's theoretical concept of amateur athletics' leisure pursuit (Gould et al., 2011). Respondents rated each item of the SLIM using a five-point scale from one, strongly disagree, to five, strongly agree, where a higher subscale score indicates a higher level of serious leisure pursuit. An average mean score of these items was calculated as a dependent variable for assessing roller derby participants' level of involvement.

Athletic Identity Measurement Scale (AIMS-Plus). The Athletic Identity Measurement Scale-Plus is one of the most popular instruments to assess elite and amateur athletes in sport psychology (Brewer & Cornelius, 2001; Cieslak, 2004; Jun & Kyle, 2012). Nineteen items of AIMS were used to measure participants' self-determined identity with the sport, including social identity (5 items), exclusivity (5 items), self-identity (3 items), negative affectivity (2 items), and positive affectivity (4 items). Respondents rated each item using a five-point scale from one, strongly disagree, to five, strongly agree, where a higher subscale score indicates a higher level of self-identification on each dimension.

Each sub-dimension of athletic identity was calculated as an independent variable.

Demographics and behavioral patterns. Other general demographic information was collected including age (18–34; 35–54; 55+), education level (less than Bachelors; Bachelor's degree and above), race (white; non-white), and household annual income (< $55,000; ≥ $55,000). Additional information specific to roller derby was collected to understand participants' engagement with the sport. Examples included whether participants were members of a roller derby organization, the frequency of their practices (several times per week, once per week, once per two weeks, once per month, and once every few months), and the numbers of participated bouts (match between two teams) in which they had competed in the past year.

Data Analysis

Descriptive analysis was used to report demographics of research participants, and a Pearson's *r* correlation was used to examine correlations between the dependent variable (serious leisure) and independent variables (demographics and athletic identity). The researchers used a hierarchical multiple regression to examine how well the set of independent variables (demographics and athletic identity) predicted the probability of women engaging in roller derby as a serious leisure pursuit and to determine if athletic identity improved the prediction of systemic pursuit of leisure above their demographics. Following the sequence, the first multiple regression model included four demographics (dichotomous variables): age, education, annual family income, and race. The second regression model added five athletic identity variables for predicting roller derby participants' level of seriousness. Tolerance and variance inflection factor (VIF) were utilized to diagnose multicollinearity among independent variables; all independent variables had a tolerance greater than .40 and VIF of less than 10 (Vaske, 2008). The Cronbach's alpha of the serious leisure variable and five sub-dimensions of athletic identity ranged from .68 (negative affectivity, 2 items) to .94 (serious leisure, 18 items). An alpha level of 0.05 significance was used in this study.

Results

The majority of participants ranged in age from 18 to 34 years old (69%) and no participants reported they were 55 or older. Slightly more than two-thirds (68.2%) of participants had a Bachelor's degree or higher. Ninety-three percent of research participants were Caucasian/White, while other ethnic groups were relatively small. Over two-thirds of participants had an individual membership with WFTDA. Almost all (98%) practiced once a week, and no participants reported their practice less than once a week. Participants reported competing on average 13 times over the previous year; 7 at home and 6 away. Table

1 reports the demographic and behavioral profile of participants. The average score of serious leisure (SLIM) was 4.24, while the average score of athletic identity factors ranged from 3.76 to 4.42, in which Positive affectivity was the highest score and Exclusivity the lowest (Table 2).

The correlation between serious leisure, demographics, and athletic identity is shown in Table 2. Serious leisure was negatively correlated with education level (r = - .11, p < .01) and family annual income (r = - .16, p < .01). Among the demographics, participants' age was negatively correlated with education (r = - .09, p < .05) and positively correlated with family income (r = .27, p < .01). Roller derby participants' level of serious leisure was positively correlated with their athletic identity, ranging from .16 (negative affectivity) to .64 (positive affectivity). Positive correlations between athletic identity variables were between .18 and .61.

A two-step hierarchical regression investigated how well the set of independent variables (demographics and athletic identity) predicted participants' probability of engaging in the sport as a serious leisure pursuit, and to determine if the addition of demographic variables improved the prediction of serious leisure. Table 3 shows the detailed results of each regression model. Results of the first model [R^2 = .04, F(4, 573) = 5.51, p < .001] indicated that participants' demographic variables accounted for 4% of their serious leisure in roller derby. Annual family income and education level were statistically significant in this model, respectively (β = - .16, p < .001; β = - .10, p = .02).

The second model used demographics and athletic identity to predict roller derby participants' serious leisure pursuit which showed a statistically significant relationship [R^2 = .65, F(5, 568) = 200.07, p < .001; adjusted R^2 = .65]. The addition of athletic identity to the prediction of level of seriousness in leisure led to a statistically significant increment in R^2 of .61, p < .001. Within the second model, all five athletic identity variables were statistically significant, including positive affectivity (β = .50, p < .001), self-identity (β = .26, p < .001), exclusivity (β = .13, p < .001), social identity (β = .09, p = .003), and negative affectivity (β = - .08, p = .005). Annual family income was the only demographic variable that remained statistically significant in the second model (β = - .07, p = .012).

Discussion

This study represents an initial exploration of the relationship between roller derby participation as a systematic leisure pursuit and its association with demographics and athletic identity through a quantitative approach. The characteristics of roller derby women participating in the study were similar to those reported in the WFTDA's demographic survey (2012) and previous roller derby studies (Beaver, 2012; Carlson, 2010; Eklund & Masberg, 2014). The majority of roller derby participants in the United States are White/Caucasian,

between the ages of 25 and 45, have a four-year college degree, and have an annual household income of about $55,000 (WFTDA, 2012).

In the present study, participants' education and income were negatively correlated with their level of serious leisure in the sport, indicating that participants with a higher income and education reported a less serious involvement in the sport. However, there was a positive correlation between roller derby participants' age and income, suggesting that the women athletes between the age of 35 and 54 were more likely to have higher annual income than the younger group. It is possible that the younger roller derby women may have attained a higher education/degree, but their annual income was lower because of the length of their working history. Although household income, a demographic variable, was significant in the final hierarchical regression model, it is relatively minimal compared to other psychological variables (i.e., athletic identity variables) in predicting roller derby participants' consistency and dedication in their leisure pursuit.

This study expanded upon previous qualitative research by supporting the connection between athletic identity and serious leisure (Green & Jones, 2005; Kane & Zink, 2004; Stebbins, 2006). All five athletic identity variables (two external variables and three internal variables) significantly predicted roller derby participants' serious leisure pursuit. This result confirmed that internal/self-identity and external/social identity are important for individuals to form and define "who they are" as athletes (Anderson & Taylor, 2010; Hurst, Hale, Smith, & Collins, 2000; Stryker & Burke, 2000). The results also showed that women roller derby participants' internal identity factors, such as self-identity and positive identity, were stronger predictors than external factors in responding to their level of systematic leisure pursuit. Similar to other roller derby studies, roller derby women exhibit a strong will and identity in the sport, and could their leisure participation as a space for them to develop internal identity outside of their traditional role in the family (Dionigi, 2002; Green, 1998; Pavlidis & Fullager, 2013; Raisborough, 2006).

The results of the study also revealed that participants showed the strongest association with the sport through their internal athletic identity components, including positive affectivity and self-identity. Positive affectivity (personal rewards) have been the most substantial variable to predict serious leisure participants (Misener, Doherty, & Hamm-Kerwin, 2010). It is possible that leisure as the central aspect of participants' lives provides an opportunity for women to empower their internal identity and establish social identities within the sport community and with those who understand the benefits and culture of the sport (Brown et al., 2008; Dilley & Scraton, 2010; Kane & Zink, 2004; Raisborough, 2006). Regardless of external

identification from outsiders, internal identity in relation to the sport and as athletes might be more important for participants' systematic pursuit and long-term commitment to roller derby.

Using regression analysis, another contribution from the study was finding a negative coefficient between serious leisure and negative affectivity, meaning negative outcomes are not actually "negative" effects to roller derby participants. The result was unexpected, as in general, athletes tend to experience high negative outcomes when they have a high expectation for their performance and do not meet those expectations (Brewer, Shelby, Linder, & Petitpas, 1999; Tasiemski & Brewer, 2011). It is possible that an amateur athlete's ability to transform a negative or unpleasant experience into a positive practice may help explain a long-term dedication of systematic pursuit rather than being worried about professional career and livelihood. As Raisborough (2006) stated, amateur athletes tend to "structure their lives in such way to privilege their time and resources for their serious leisure" (p. 245).

Although these findings make a unique contribution to the understanding of women roller derby participants in the serious leisure context, there are several limitations in the study, which may provide opportunities for further inquiry. Convenience sampling and a single email invitation was the only approach used to recruit potential research participants. This approach might contain some biases in the results. Such biases may include underrepresentation or overrepresentation of particular groups and issues related to internet access or responding to a survey online.

Having electric and paper-based questionnaires with random sample techniques might be helpful for including a more diverse roller derby sample and a better ability to generalize results to the entire population. It also could be beneficial to study the leisure constraints of different age groups to investigate whether motivations for participation differ by age. Additionally, most research participants were in a roller derby group/league, which may result in a higher level of seriousness in their participation in the sport.

Demographic variables were included in this model to investigate the difference between amateur athletes in serious leisure context. However, a limited choice of demographic items might contain some restrictions to the results. Some additional variables should be considered for future studies: (1) demographic variables such as marital status, with or without children, and physical condition; and (2) additional behavioral variables, such as years of involvement in roller derby, skill-level, money spent on roller derby, distance traveled to practice or compete, and lifestyle alteration for the sport. It might be beneficial to apply the recreation specialization theory to explore how amateur roller derby participants gain a career-like experience and to examine

recreationalists' cognitive development through sport, such as motivation and satisfaction (Needham, Scott, & Vaske, 2013; Scott, 2012; Tsaur & Liang, 2008). This may increase the understanding of how to foster roller derby participants' dedication in leisure pursuit and assist to promote a supportive environment for women to enjoy physical activities and sports as their leisure pursuit in general.

Finally, research participants did not intrinsically define themselves as serious leisure participants. The researchers defined Serious Leisure by the participants' SLIM score: a higher the score showed a higher level of seriousness. It might be helpful to include women roller derby participants' perspective on leisure and their experience in systematically pursuing roller derby as their leisure activity for further understanding their free time use as serious leisure participants and their identity with the sport.

Conclusion

This study supports roller derby, a women-dominated sport, as a serious sport and leisure space for women to develop their identity as women and as athletes. Roller derby could help women gain physical skills and a sense of pride through their leisure pursuit and their own identity (Carlson, 2010; Messner, 2002; Paul, 2015; Pavlidis, 2012; Ross & Shinew, 2008). This study utilized a quantitative approach and sampling with a larger participant pool than previous studies in roller derby. The researchers then explored the relationship between serious leisure and athletic identity for a better understanding of how women athletes' dedication and embodied experiences through sport participation. Although roller derby might struggle to be viewed as a sport from outsiders (Breeze, 2013), roller derby participants showed a strong commitment and career-like progression in gaining the knowledge and skills necessary to be successful at the sport.

Applying a multidimensional construct to study athletic identity might provide an insight to understanding how roller derby women athletes define themselves and construct their identity through the sport (Lamont-Mills & Christensen, 2006; Ryska, 2002). The study revealed that women roller derby participants' serious leisure pursuit was positively associated with their internal/personal and external/social identities as an athlete. Internal or personal components of athletic identity that are associated with roller derby are the most significant formation and preservation avenue for women athletes in creating their own identity as athletes in the competitive and full-contact sport. In addition, external or social components of athletic identity tend to influence how they evaluate and interpret their identity through a social context (Jun & Kyle, 2012; Martin et al., 1997; Stryker & Burke, 2000). Although internal and external components are important for an individual to define, maintain, and reinforce their identity as an athlete, in general, internal identity

components are stronger predictors than external ones.

This study also found that amateur athletes or recreation sport participants might gain a strong sense of self and positive psychological benefits, much like elite athletes, through their leisure pursuits. The results of this study suggest offering promotion for roller derby programs or contact sports (i.e., boxing, football) to foster women's engagement and a greater commitment to sport. This might create a space for women to redefine who they are and what they can do through sport participation, as well as facilitate equality for women in sports.

In order to promote roller derby as a sport for younger generations, women roller derby leagues could assist junior roller derby leagues by starting leagues/bouts, creating modified derby rules, safety training, and advancing skills of the sport (Cathorall & Puches, 2017). By doing so, it is possible to help the public understand the positive effects for roller derby participants physically and psychologically and alter negative stereotypes and restrictions for women participating in competitive sports and leisure pursuits (Dilley & Scraton, 2010; Paul, 2015; Roster, 2007).

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Tables

Table 1

Demographics and Behavioral Profile of Respondents

Variables	Frequency	Percentage
Age		
18–34	400	69.2%
35–54	178	30.8%
Race		
White	535	92.6%
Non-White	43	7.4%
Education		
Less than Bachelor's	184	31.8%
Bachelor's or above	394	68.2%
Household income		
< $55,000	321	55.5%
≥ $55,000	257	44.5%
Member of WFTDA*		
Yes	400	76.1%
No	132	22.8%
Practice Frequency		
Weekly*	565	97.8%
More than once	7	1.2%
Once		
Participated Bouts		
Annually		
Home bouts	M = 7.33; SD = 4.01	
Away bouts	M = 6.65; SD = 4.78	

Note: * Three participants did not response "Member of WFTDA" and six did not response "Practice Frequency Weekly"

Table 2

Pearson's Correlation between Serious Leisure and Participants' Demographics and Athletic Identity

	Demographics					
Variables	Age	Race	Education	Income		
Serious Leisure	0.01	-0.01	-0.11**	-0.16**		
Age	1	-0.06	-0.09*	0.27**		
Race		1	-0.02	-0.03		
Education			1	0.07		
Income				1		
	Athletic Identity					
Variables	Social identity	Exclusivity	Self-identity	Negative aff.	Positive aff.	Cronbach's alpha
Serious Leisure	0.38**	0.48**	0.62**	0.14**	0.64**	0.94
Social identity	1	0.49**	0.48**	0.27**	0.36**	0.69
Exclusivity		1	0.61**	0.37**	0.44**	0.70
Self-identity			1	0.29**	0.60**	0.71
Negative aff.				1	0.18**	0.68
Positive aff.					1	0.78
Mean	4.02	3.76	4.09	3.97	4.42	
SD	.73	.61	.63	.75	.41	

Note: $p < .05$*, $p < .01$**

Table 3

Hierarchical Regression Predicting Roller Derby Women's Serious Leisure from Demographics and Athletic Identity

	Serious Leisure			
	Model 1		Model 2	
Variable	*B*	*β*	*B*	*β*
Demographics				
Age	.04	.05	.04	.04
Race	-.01	-.01	-.02	-.01
Education	-.08	-.10*	-.02	-.02
Family income	-.13	-.16*	-.05	-.07*
Athletic identity				
Social identity			.62	.09**
Exclusivity			.09	.13**
Self-identity			.17	.26**
Negative affectivity			-.04	-.08*
Positive affectivity			.41	.50**
R	.19		.81	
R^2	.04**		.65**	
Change R^2			.61**	

Note: *$p < .05$, **$p < .001$; *B* = Unstandardized coefficients, *β* = Standardized coefficients