

## Jealousy in Sport: Exploring Jealousy's Relationship to Cohesion

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### **Abstract:**

The present study continued the development and revision of the Sport Jealousy Scale (SJS) and investigated the relationships among jealousy, cohesion, and satisfaction with athletes. The original SJS (now SJS-II) was revised and given to 236 Division I athletes along with the Group Cohesion Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985), the Revised Self-Report Jealousy Scale (SRJS-II; Bringle, Roach, Andler, & Evenbeck, 1977), and the Satisfaction Questionnaire (Widmeyer & Williams, 1991). Jealousy was negatively correlated with both cohesion ( $r = -.23, p < .01$ ) and satisfaction ( $r = -.22, p < .01$ ). Following Baron and Kenny's (1986) three-step model for testing mediation, satisfaction partially mediates the relationship between jealousy and cohesion. The results confirm the existence of jealousy in sport, provide psychometric evidence for a measure of sport jealousy, validate expected relationships among jealousy, cohesion, and satisfaction, and provide initial information on gender and sport differences in jealousy and cohesion. These findings will help researchers continue to examine jealousy and its correlates in sport teams, and may help coaches and professionals working with teams maintain positive team dynamics.

### **Article:**

#### **Introduction**

Jealousy seems to be common in sport as coaches, parents, and athletes often talk about jealousy. Recently, one of the authors was talking with a parent at a youth soccer tournament. The mother reported that her third-grade daughter had become jealous of the coach's attention given to other athletes. The mother was concerned that this jealousy would "get in the way" and eventually hurt her daughter's athletic potential in soccer.

Even though jealousy may be common in sport, there has been little research on this phenomenon in the sport setting. Much of the existing research has been outside the sport setting, specifically in the area of romantic relationships (Bers & Rodin, 1984; Bringle, Roach, Andler, & Evenbeck, 1977, 1979; Mathes & Severa, 1981). In the romantic literature, jealousy is defined as having a belief or suspicion that a relationship is in danger of being lost. Envy, however, is defined as wanting another's possessions, attributes or reputations (Bringle et al., 1977). One way to understand the difference between jealousy and envy is to consider a person's shoes. Jealousy is wanting to be "in" a person's shoes (or actually wanting to be another person), whereas envy is wanting "to own" their shoes. Other literature suggests that jealousy represents a triadic relationship (involving three people) whereas envy represents a dyadic relationship (involving two people; Bers & Rodin, 1984).

Even though the definitions of jealousy and envy can be easily separated, Bers and Rodin (1984) and Silver and Sabini (1978) argue that there is little value in differentiating envy and jealousy because the emotions, cognitions, and behaviors of both constructs are similar. They suggest that studying social comparison jealousy may be more appropriate than studying jealousy and envy separately. Social comparison jealousy is defined as "feelings, thoughts, and behaviors that occur when another person enjoys more success" (Bers & Rodin, 1984, p. 767). Bers and Rodin (1984) also name a separate category of jealousy in romantic relationships labeled "social relations jealousy" which is challenging one's exclusivity in a relationship. There have been romantic

relationships between coaches and athletes in sport; however, this type of jealousy will not be the focus of this study.

Researchers have identified a number of antecedents of social comparison jealousy. Specifically, Silver and Sabini (1978) state that social comparison jealousy results when one person diminishes the status or self-esteem of another person. For example, naming one athlete as team captain could lower another athlete's self-esteem and how important they feel as a member of the team. Bers and Rodin (1984) found that people react in a jealous manner when another person is superior in some way or when another achieves something that is desired. For instance, an athlete who does not travel to away games may be upset when another athlete does travel with the team. Bers and Rodin (1984) also found that people revealed more social comparison jealousy when an event was of greater importance. Thus, an athlete who is unable to travel to the conference tournament (a series of games that are usually important to a team and athlete) is more likely to become jealous than one who cannot travel to a less important event. In addition, Salovey and Rodin (1984) found that social comparison jealousy occurs when one receives negative information about oneself from another, and when the other person is similar to oneself. Social comparison jealousy in sport may be very common because athletes are similar and constantly compare themselves to each other. Therefore, when applying this research (Bers & Rodin, 1984; Salovey & Rodin, 1984; Silver & Sabini, 1978) to the sport setting, social comparison jealousy is likely when one athlete diminishes another athlete's status, is superior in some way, is similar to the athlete, and if the event is important.

In light of the social comparison processes inherent in competition, it is interesting that few studies have examined the role of jealousy in sport. The scarcity of scientific research may be partly due to a lack of instruments that measure jealousy in the sport domain. Pease (1987) developed the Social Comparison Jealousy Scale (SCJ) and investigated the relationship of social comparison jealousy to sport team cohesion, measured by the Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985) with 71 team sport participants. Results indicated a small negative, but non-significant, correlation between jealousy and team cohesion. Additionally, a one-factor structure emerged on the Social Comparison Jealousy Scale (SCJ). Pease argued that only one factor emerged because it is difficult to differentiate envy and jealousy (personal communication, July 28, 1998).

Pease's (1987) results should be interpreted with caution due to methodological limitations. First, minimal details of the test development and psychometric properties of the Social Comparison Jealousy Scale (SCJ) were reported. Specifically, the only detail reported was the scale items were reduced from 20 items to 12 items, with the alpha coefficient ( $\alpha = .83$ ) the only psychometric statistic reported. Finally, Pease's (1987) sample size was small, only 71 athletes, and may not have had sufficient power to detect a significant relationship.

In another of the few studies on jealousy in the context of sport, Schelling-Kamphoff and Huddleston (1999) developed a sport-specific jealousy measure and examined jealousy experienced by male and female athletes. They used the Revised Self-Report Jealousy Scale (SRJS-II; Bringle et al., 1977) as a model to develop the Sport Jealousy Scale (SJS). The non-romantic items ( $n = 8$ ) from the SRJS-II were adapted to the sport context and the other items were developed following interviews with three track and field coaches. Eleven categories of jealousy in sport emerged including categories such as scholarship money, awards, attention from coaches, and attention from public. Schelling-Kamphoff and Huddleston (1999) administered the SJS to 233 track and field athletes. Overall, results revealed males and females were moderately jealous (average a 2 on a 5 point scale) and no gender differences were found.

Several limitations exist in the development of the SJS. First, several items were developed by asking a very limited number of track and field coaches to think of situations of jealousy, and several of the items on the SJS may be specific to track and field. More psychometric analyses of the SJS are warranted as only split-half reliability and concurrent validity were reported. Given these limitations, more work is needed to develop a reliable, valid measure of jealousy in sport.

Parker (2001) furthered the work of Pease (1987) and Schelling-Kamphoff and Huddleston (1999) by using the Revised Sport Jealousy Scale (SJS-II) to examine jealousy and self-esteem with 97 athletes on both individual and team sports. She found that 77.3% of the athletes reported that they had experienced one of the eleven situations on the revised SJS. In addition, females (88%) were more likely than males (66%) to have experienced one of the situations. Parker (2001) also found that freshmen and sophomore starters reported more jealousy than freshmen and sophomore nonstarters, while junior and senior starters had a lower jealousy score than junior and senior nonstarters. Finally, Parker (2001) found a negative relationship between jealousy and self-esteem.

In addition to self-esteem, jealousy may also have a negative impact on a team's cohesion. Much of the current research investigating group cohesion in sport originates from the work of Carron, Widmeyer, and Brawley (1985); (Carron et al., 1998). The definition of group cohesion that is widely used in the literature is: “a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (Carron & Hausenblas, 1998, p. 229).

The Group Environment Questionnaire (GEQ) has been used to explore the difference in cohesion among coactive and interactive sports (Carron & Chelladurai, 1981; Widmeyer & Williams, 1991). Interactive sports, or team sports, require a combined effort of all members to achieve group goals. For instance, soccer, basketball, and volleyball are examples of interacting sports. In coactive sports, or individual sports, success is more exclusively based on an individual's performance versus a team performance and includes sports such as track and field, swimming and tennis. Cohesion research indicates that coacting teams exhibit a lower level of cohesion than interacting teams (Carron & Chelladurai, 1981). The difference between cohesion levels is due in part to intragroup rivalry and within team competition among coacting teams (Matheson, Mathes, & Murray, 1997). However, it is important to note that even though a higher cohesion level has been found in interacting sports, cohesion is still essential in coacting sports. Widmeyer and Williams (1991) conclude that cohesion may not contribute as much to the performance of coacting teams, yet, cohesion can still improve performance. Therefore, it is important to understand cohesion of both interacting and coacting teams, and the possible negative influence of jealousy on cohesion.

Several constructs have been found to relate to cohesion such as team satisfaction, team size, coaches efforts to foster cohesion and team goals. Widmeyer and Williams (1991) found that the best single predictor of cohesion on a team was total satisfaction, with total satisfaction including: 1) good competition, 2) social interaction, 3) improving skills, and 4) recognition to member satisfaction.

The present study has two purposes. The first purpose, to refine the Sport Jealousy Scale developed by Schelling-Kamphoff and Huddleston (1999), is summarized in Phase 1 of this study. The second purpose is to use the refined Sport Jealousy Scale to investigate the relationships of jealousy, team cohesion, and satisfaction, and that is summarized in Phase 2 of the study. Jealousy in sport is defined as feelings, thoughts and behaviors that occur when one person enjoys more success, attention and/or rewards than another in sport (modified from Bers & Rodin, 1984). In addition, jealousy is understood as a negative emotional reaction that is accompanied by thoughts of inadequacy when compared to others.

Four hypotheses were outlined before the data were collected:

1. It is expected that athletes would indicate they experience social comparison jealousy.
2. It is hypothesized that social comparison jealousy will have a negative relationship with both cohesion and satisfaction. Specifically, the GEQ subscale Individual Attraction to Group—Social (ATG-S) is expected to have the strongest correlation to jealousy of the four GEQ subscales.
3. Satisfaction is expected to mediate the relationship between jealousy and cohesion. That is, jealousy will be negatively related to satisfaction, which in turn will be related to cohesion.
4. Based on previous research, gender differences are expected in jealousy scores.

## PHASE I: REVISING THE SPORT JEALOUSY SCALE

### Method

The first phase of the current study involved revising the Sport Jealousy Scale (SJS) developed by Schelling-Kamphoff and Huddleston (1999). To develop a sound revised version of the Sport Jealousy Scale, coaches' interviews, expert ratings, and a pilot sample were included in Phase I of this project.

#### *Coaches' Interviews*

The purpose of the coaches' interviews was to provide examples of jealousy in sport that may need to be added to the original SJS and to evaluate the items of the SJS. Eight coaches representing four sports (track and field, tennis, basketball, and soccer) were interviewed. Both the women's team and men's team coaches were interviewed for each sport, and therefore, two coaches represented each sport. The coaches were selected from Division I universities in the surrounding area of Greensboro, North Carolina.

The primary researcher contacted the coaches by telephone to explain the research study and ask for their participation. The researcher then conducted the interview in person at the coach's office. At the beginning of the interview, the researcher provided each coach with a brief description of the research project and defined social comparison jealousy as feelings, thoughts and behaviors that occur when one person enjoys more success, attention and/or rewards than another in sport (modified from Bers & Rodin, 1984). The coach was then asked to provide specific examples of social comparison jealousy that they have witnessed in sport. After the examples had been discussed, a list of social comparison jealousy situations taken from the original version of the Sport Jealousy Scale (SJS; Schelling-Kamphoff & Huddleston, 1999) was given to the coach. For each situation listed, the coach was asked to indicate if the situation reflected jealousy and if the situation occurred in their sport. Specifically, they indicated if they believed each situation reflected social comparison jealousy in sport with a yes/no response. Additionally, they rated how often each situation occurred in their sport using a response format of 1 to 5 (1 = *never*, 5 = *always*). Therefore, the researchers were able to eliminate items that did not reflect jealousy or never occurred in sport.

#### *Expert Ratings*

The SJS was given to eight judges to evaluate after items were added from the coaches' interviews. The judges were graduate students and faculty with doctoral degrees trained in sport and exercise psychology. A Likert scale of 1 to 5 (1 = *not at all*, 5 = *very much*) was provided for each item asking the experts to rate how well each item reflected social comparison jealousy (content) and how clear and understandable each item was (clarity). A section was added after each item for suggestions. The experts' responses and the ratings received from the coaches were used to determine if any current items should be deleted or reworded.

#### *Pilot Sample*

After making changes based on the coaches' interviews and the expert ratings, the Revised Sport Jealousy Scale (SJS-II), the Self-Report Jealousy Scale (SRJS-II; Bringle et al., 1977), the Group Environment Questionnaire (GEQ; Carron et al., 1985), a Satisfaction Questionnaire adapted from Widmeyer and Williams (1991), and a demographics questionnaire were given to 57 athletes. One incomplete questionnaire was deleted; therefore, the data analysis included 56 male ( $n = 15$ ) and female ( $n = 41$ ) athletes from Division I sport teams. The pilot sample included female and male track and field athletes, male and female basketball athletes, and female

soccer athletes. They completed all five questionnaires that were administered to the Phase 2 sample to estimate the length of time to complete the questionnaires and to detect any additional changes on the questionnaire or problems that may occur in the administration process. Athletes were asked to make comments in the space provided by each item if the question was difficult to read or understand. In addition, reliability and validity were computed before the SJS-II was given to a larger number of athletes in Phase 2.

## Measures

*Sport jealousy scale (SJS-II)* The SJS-II was used to measure the amount of social comparison jealousy an athlete experiences in sport. The SJS-II that was given to the pilot sample contained 13 items with a response format of 1 (*pleased*) to 5 (*extremely upset*), whereas the final version of the SJS-II included 11 items. The SJS as originally developed by Schelling-Kamphoff and Huddleston (1999) contained 26 items. The SRJS-II was used as a model to develop the SJS and the non-romantic items on the SRJS-II were reworded and transferred to the SJS. The reliability of the original scale was moderately high ( $\alpha = .79$ ), and the concurrent validity with the non-romantic items on the SRJS-II was reported as moderate ( $r = .43$ ). The reliability of the final scale (SJS-II) in Phase 2 was higher ( $\alpha = .87$ ), and the concurrent validity with the non-romantic items on the SRJS-II was similar ( $r = .45$ ).

*Revised self-report jealousy scale (SRJS-II)* The SRJS-II (Bringle et al., 1977) was used to measure jealousy in day-to-day interactions not specific to sport. The non-romantic items of the SRJS-II were also used to establish concurrent validity of the SJS-II. Psychometric analyses were conducted with two samples of 162 and 147 college students. Coefficient alpha was reported as  $r = .88$  and  $r = .92$  for the two samples. Factor analysis was determined by combining the two samples, and a three-factor structure emerged (minor romantic, non-romantic, and major romantic jealousy). The non-romantic subscale includes questions such as, “Your brother or sister seems to be receiving more affection and/or attention from your parents,” and “You and a co-worker worked very hard on an extremely important project. However, your boss gave your co-worker full credit for it.” Concurrent validity of the SRJS-II has also been established with Bem's Social Reliability Index ( $r = .28$ ; Bem, 1974).

*Group environment questionnaire (GEQ)* The GEQ measured cohesiveness on the athlete's respective team. The GEQ, developed by Carron et al. (1985), is an 18-item scale that includes 4 factors (Group Integration-Task, GI-T; Group Integration-Social, GI-S; Individual Attractions to the Group-Social, ATG-S; and Individual Attractions to the Group-Task, ATG-T). Sample items on the GEQ include: “Our team is united in trying to reach its goals for performance,” and “For me this team is one of the most important social groups to which I belong.” Carron et al. (1985) reported the internal consistency of the GEQ factors using over 200 athletes from 26 different teams as: ATG-T (.75), ATG-S (.64), GI-T (.70), and GI-S (.76). Concurrent validity has been established for the GEQ with the Sport Cohesion Questionnaire, Team Climate Questionnaire, and the Bass's Orientation Inventory (Brawley et al., 1987). In addition, over 40 studies have established the content, predictive, and factorial validity of the GEQ (Carron et al., 1998). In Phase 2 of this study, internal consistency of the GEQ included: ATG-T (.68), ATG-S (.66), GI-T (.82), and GI-S (.78).

*Satisfaction questionnaire* A set of satisfaction questions adapted from Widmeyer and Williams (1991) was designed to assess satisfaction of the athletes in this sample. Specifically, participants were asked how satisfied they were with (a) the role they have on their team, (b) the social interaction they have with their teammates, (c) the interactions they have with their coach, (d) the opportunities they have to develop and demonstrate their skills, and (e) the opportunities for competition they have as a member of their team. The participants responded using a 5-point response format of 1 (*very dissatisfied*) to 5 (*very satisfied*). Three items (b, d, and e) were adapted from Widmeyer and Williams (1991), while the other two items were added by the researchers to incorporate a wider variety of satisfaction questions. No previous psychometric properties were reported by Widmeyer and Williams (1991) on the Satisfaction Questionnaire. However, in Phase 2 of this study, the item analysis of all 5 items resulted in good internal consistency ( $\alpha = .82$ ).

*Demographics questionnaire* The demographics questionnaire served as a cover page and included information on the participant's age, gender, sport, and scholarship type. Athletes were also asked to indicate if they had received any specific awards including: all-American, all-conference, team captain, awards/honors for the coach, and/or most valuable player.

## **Data Analysis**

Several analyses were conducted with the data from the pilot sample. First, the reliability of the SJS-II was determined using item-total correlation and internal consistency (alpha coefficients). Additionally, the non-romantic items of the SRJS-II were correlated with the SJS-II to examine concurrent validity.

## **Results**

### **Coaches Interviews**

Eight coaches were interviewed to provide situations of jealousy in sport and rate the original items of the Sport Jealousy Scale (SJS). No items were added to the SJS after the coaches' interviews because all of the situations the coaches discussed were already items on the SJS. However, six items from the SJS were deleted as a result of the coaches' interviews. All six items were rated by at least two coaches as not reflecting jealousy and at least two coaches indicated they never or rarely witnessed each situation on their team.

### **Experts' Ratings**

After the revisions from the coaches' interviews were applied to the original SJS, the SJS-II was given to eight sport and exercise psychology experts. The experts rated each item relative to how well each situation reflected jealousy, and how clear and understandable each item was. Additionally, a space was provided after each item for the experts to indicate any changes or rewording that was necessary. Each item was rated on clarity and jealousy reflection according to a scale of 1 to 5 (1 = *not at all*, 2 = *a little*, 3 = *somewhat*, 4 = *quite a bit*, 5 = *very much*). Items were deleted if at least one expert rated an item as 1 = not at all reflecting jealousy. Additionally, items were deleted if they received at least two ratings of 2 (*a little*) reflecting jealousy. With these criteria, six additional items were deleted from the SJS-II, leaving fourteen items.

### **Reliability and Validity of the SJS-II with Pilot Sample**

Item analysis of all fourteen items on the SJS-II indicated an alpha of .85, indicating good internal consistency. Examination of item descriptive statistics revealed that the mean responses for the items on the SJS-II ranged from 1.43 to 3.14. The lowest mean response, 1.43, was a concern, and the item had the lowest standard deviation, .60. When looking closer at the item analysis of the SJS-II, the alpha of the scale if the item was deleted would increase from .85 to .86. Therefore, the item was deleted from the SJS-II, and the alpha was then raised to .86. The Revised Sport Jealousy Scale (SJS-II) now contained 13 items.

Following the item analysis, a factor analysis was calculated to determine if the SJS-II reflected one unidimensional construct. A Principal Component Analysis revealed a five-factor structure. However, 36.38% of the variance was accounted for by the first factor, compared to 12.32% accounted for by the second factor. Additionally, all of the items loaded on Factor 1, and several of the loadings on Factors 2 through 5 were negatively correlated with the first factor. Furthermore, a steep drop of eigenvalues shown by the scree plot

suggested a one-factor structure. Therefore, Principal Component Analysis was conducted again, forcing the items to a one-factor structure. All items had factor loadings over .52 on the single factor.

Concurrent validity was calculated for the SJS-II by correlating the SJS-II with the total score of the SJRS-II and the non-romantic items on the SRJS-II. This was based on the work of Schelling-Kamphoff and Huddleston (1999) who argued that sport jealousy is a separate construct from romantic jealousy, and that sport and romantic jealousy are too extreme to compare. In this case, both sport jealousy's correlation with the total score of the SRJS-II and the non-romantic items of the SRJS-II are reported to provide evidence of validity. Specifically, the SJS-II and the total score of the SRJS-II had a significant correlation of .46 ( $p < .01$ ) whereas the SJS-II and the non-romantic items of the SRJS-II correlated significantly at .55 ( $p < .01$ ) providing evidence of concurrent validity of the SJS-II.

## **PHASE 2: INVESTIGATING THE RELATIONSHIP OF JEALOUSY, COHESION, AND SATISFACTION**

### **Method**

In the second phase of this project, the revised SJS was administered to individual and team sport athletes to investigate the relationships among jealousy, cohesion, and satisfaction. It was expected that athletes would indicate they experience social comparison jealousy. It was also hypothesized that social comparison jealousy has a negative relationship with both cohesion and satisfaction. Furthermore, satisfaction was expected to mediate the relationship between jealousy and cohesion, and gender differences were expected in jealousy scores.

### **Participants**

Two hundred and forty-three student-athletes competing at Division I universities participated in the second phase of the project. Seven questionnaires were deleted because they were incomplete, leaving 236 complete questionnaires from student-athletes representing ten universities in central North Carolina. Individual ( $n = 121$ ) and team ( $n = 115$ ) sports were equally represented, with athletes from this sample participating in one of four sports: two individual or coactive sports (track and field and tennis), and two team or interactive sports (soccer and basketball). Specifically, 82 soccer, 33 basketball athletes, 104 track and field, and 17 tennis athletes participated in the research project. Males ( $n = 112$ ) and females ( $n = 124$ ) were relatively equally distributed throughout the sample of athletes. The mean age of the athletes was 19.8 years old, with a range of 18 to 24 years old.

### **Measures**

The athletes completed the following questionnaires: the Sport Jealousy Scale (SJS-II), the Revised Self-Report Jealousy Scale (SRJS-II), the Group Environment Questionnaire (GEQ; Carron et al., 1985), a Satisfaction Questionnaire adapted from Widmeyer and Williams (1991) and a demographics questionnaire. A complete description of each questionnaire along with the psychometrics was presented in the Phase I methods section.

### **Procedures**

The questionnaires were administered either at practice ( $n = 163$ ), or at a track and field meet ( $n = 73$ ), with two separate data collection procedures. For the team practice data collection, coaches from selected Division I

universities were contacted by phone to obtain their permission to administer the questionnaires to their athletes. Thirteen coaches, including some from Phase 1, agreed to participate. After obtaining permission from the coaches, the researcher met with the athletes before or following the team's practice.

To contact additional participants, the first author attended the Southern Conference Track and Field Meet. At the meet, coaches were asked for permission to administer the questionnaires, and after receiving the coach's permission, athletes were asked to participate. The administrator emphasized that participation was voluntary and if in any way it would affect their performance at the meet, they were asked to decline participation. Two other data collectors were trained in the procedures of this study and administered the questionnaires at the track meet.

For all participants, the researcher briefly explained that the questionnaire assessed team relations and emotions within the team. The athletes were informed that participation was voluntary, complete confidentiality was guaranteed, no names were requested, their coach would not have access to the data, and only group statistics would be reported. The athlete returned the questionnaires with the signed informed consent to the researcher when they finished.

### *Data Analysis*

Several of the same analyses used in Phase 1 were conducted with the Phase 2 including item analysis and factor analysis of the SJS-II. All of the items on the SRJS-II and the non-romantic items on the SRJS-II were correlated with the SJS-II. To provide additional concurrent validity, the SJS-II was correlated with the Satisfaction Questionnaire adopted from Williams and Widmeyer (1991).

Correlation analyses were used to investigate the relationships among social comparison jealousy, satisfaction, and cohesion. An overall correlation was calculated using the total score on the GEQ, and four separate correlations were calculated for each of the GEQ's sub-scales (GI-T, GI-S, ATG-T, and ATG-S). Baron and Kenny's (1986) three-step model for testing mediation was followed to determine whether satisfaction mediates the relationship between jealousy and cohesion. In addition, a 2 × 2 MANOVA (Gender × Individual/Team Sport) was used to explore group differences on social comparison jealousy and cohesion.

## **Results**

### *Reliability of the SJS-II*

Item analysis of all 13 items resulted in good internal consistency ( $\alpha = .86$ ), but item descriptive statistics and item analysis raised several concerns. First, the corrected item-total correlations for two items on the SJS-II were below .40 (.36 and .37), and these items did not add to the reliability of the scale. With the items deleted, the alpha level on the scale rose slightly from .8627 to .8648, and therefore, both items were deleted from the scale, leaving 11 items on the SJS-II. The final 11-item revision of the Sport Jealousy Scale (SJS-II; see Appendix) has good internal consistency ( $\alpha = .87$ ).

### *Factor Analysis of the SJS-II*

A factor analysis provided additional evidence for the deletion of the two items discussed above. Principal Component Analysis revealed a two-factor structure, and these two items had the lowest factor loadings on Factor 1 (both below .44). Factor analysis was then recalculated after deleting the two items with the hopes that a one-factor structure would emerge. A two-factor structure was evident, but several issues were raised with the

second factor. First, the first factor accounted for 43.58% of the variance, while the second factor only accounted for 13.10% of the variance. Second, the scree plot of the factor structure indicated a steep drop of eigenvalues, suggesting a one-factor structure. Third, the item loadings of Factor 2 were inconsistent, with several items loading negatively on the second factor, and all items but one loading higher on the first factor. The second factor was not clear, structurally or conceptually. Therefore, Principal Component Analysis was calculated again, forcing the items to one factor, and all items loaded over .40 on the single factor.

### *Concurrent Validity of the SJS-II*

Concurrent validity of the SJS-II was examined with the Revised Self-Report Jealousy Scale (SRJS-II) and the Satisfaction Questionnaire (based on Widmeyer & Williams, 1991). Specifically, the total score of the SJS-II was correlated with the total scores of the SRJS-II and the Satisfaction Questionnaire. In addition, the total score of the SJS-II was correlated with the non-romantic items of the SRJS-II because romantic jealousy and sport jealousy are quite different, but the non-romantic items are similar enough to sport jealousy to assess validity. All three correlations with the SJS-II were significant, supporting the validity of the SJS-II. The SJS-II and the SRJS-II were correlated at  $r = .41$  ( $p < .01$ ), the SJS-II and the non-romantic items of the SRJS-II correlated at  $r = .45$  ( $p < .01$ ), and the Satisfaction Questionnaire had a significant negative correlation of  $r = -.22$  ( $p < .01$ ).

### *Intensity of Jealousy*

Overall, 97.5% of the athletes indicated that at least one of the situations on the SJS-II would make them at least mildly upset. However, the mean of the 11-item Revised Sport Jealousy Scale (SJS-II) was 24.1, with an average item score of 2.2, indicating the athletes in the sample were “mildly jealous.” A score of 26 on the SJS-II was the most frequent score, with 90.7% of the participants scoring between 11 and 33. The lowest possible score of 11 was represented in the sample; however, the highest possible score of 55 was not represented. In fact, only 2.4% of the athletes ( $n = 6$ ) indicated they were extremely jealous (averaging a 4 or higher on the 5 point scale).

### *Relationship of Jealousy to Cohesion and Satisfaction*

It was expected that jealousy and cohesion would have a negative relationship, and that the GEQ subscale Individual Attractions to the Group-Social (ATG-S) would have a stronger negative relationship to jealousy. As expected, the relationship between jealousy and total cohesion was negative and significant ( $r = -.23$ ,  $p < .01$ ). Contrary to expectations, ATG-S did not have the strongest relationship to jealousy of the four GEQ subscales. Instead, Individual Attractions to the Group-Task (ATG-T) had the strongest negative relationship to jealousy ( $r = -.29$ ,  $p < .01$ ). Group Integration-Task (GI-T) also had a significant negative relationship to jealousy ( $r = -.20$ ,  $p < .01$ ), as did Individual Attractions to Group-Social (ATG-S;  $r = -.16$ ,  $p < .05$ ). However, the relationship between Group Integration-Social (GI-S) and jealousy was not significant ( $r = -.11$ ,  $p > .05$ ).

Additionally, it was expected that jealousy and satisfaction would have a negative relationship. The correlation between jealousy and satisfaction was significant ( $r = -.22$ ,  $p < .01$ ), suggesting that as jealousy increases satisfaction decreases. Satisfaction also had a significant relationship with group cohesion ( $r = .51$ ,  $p < .01$ ), and all four sub-scales of the GEQ, ATG-T (.51), ATG-S (.42), GI-T (.44), and GI-S (.29). Table 1 summarizes the correlations between jealousy, satisfaction, and the sub-scales of the GEQ.

**Table 1 Correlations Between Jealousy, Cohesion, and Satisfaction**

	<b>Jealousy</b>	<b>Satisfaction</b>
Total Cohesion Score	-.23*	.51*
ATG-Task	-.29*	.51*
GI-Task	-.20*	.44*
ATG-Social	-.16**	.42*
GI-Social	-.11	.29*
Satisfaction	-.22*	—

\*Correlation is significant at the  $p < .01$  level (2-tailed).

\*\*Correlation is significant at the  $p < .05$  level (2-tailed).

\*Correlation is significant at the  $p < .01$  level (2-tailed).

\*\*Correlation is significant at the  $p < .05$  level (2-tailed).

To evaluate the mediating effect of satisfaction in the relationship of jealousy and cohesion, we followed Baron and Kenny's (1986) three-step model for testing mediation. The first step, which includes regressing satisfaction on jealousy, was significant,  $F(1, 234) = 12.30$ ,  $R = .22$ ,  $p < .001$ , with an  $R^2$  of .050, an adjusted  $R^2$  of .046, and a  $\beta$  of -.22. The second step, which includes regressing cohesion on jealousy, was also significant,  $F(1, 234) = 13.22$ ,  $R = .23$ ,  $p < .001$ , with an  $R^2$  of .053, an adjusted  $R^2$  of .049, and a  $\beta$  of -.23. The third step of Baron and Kenny's model includes regressing cohesion on both jealousy and satisfaction. For mediation to occur, the effect of jealousy on cohesion must be less in the third step compared to the second. Perfect mediation occurs if jealousy has no effect in the third step. The third step of Baron and Kenny's model was significant,  $F(2, 233) = 44.90$ ,  $R = .53$ ,  $p < .001$ , with an  $R^2$  of .278 and adjusted  $R^2$  of .272, and both jealousy ( $t = -2.15$ ,  $\beta = -.12$ ,  $p < .05$ ) and satisfaction ( $t = 8.52$ ,  $\beta = .49$ ,  $p < .001$ ) significantly predicting cohesion. The effect of jealousy was less in the third step than in the second step indicating only partial mediation of satisfaction. Therefore, these results support the prediction that jealousy influences cohesion through the mediating relationship of satisfaction. However, jealousy does add directly to cohesion and the influence of jealousy is not totally mediated by satisfaction.

### *Gender and Individual/Team Sport Differences*

A Multivariate Analysis of Variance (MANOVA) was calculated to investigate differences in jealousy and cohesion scores between genders and individual and team sport participants. A  $2 \times 2$  (Male/Female  $\times$  Individual/Team Sport) MANOVA revealed a main effect for team/individual sport, Wilks's  $\lambda = .97$ ,  $F(2, 231) = 3.65$ ,  $p < .05$ ,  $\eta^2 = .03$ . Contrary to expectations, the analysis indicated an interaction effect between gender and individual/team sport on jealousy and cohesion, Wilks's  $\lambda = .97$ ,  $F(2, 231) = 4.04$ ,  $p < .05$ ,  $\eta^2 = .03$ .

Univariate effects were examined to clarify the multivariate results. Specifically, team and individual sport participants did not differ on their scores on the SJS-II, but did differ significantly on their GEQ scores,  $F(1, 232) = 5.70$ ,  $p < .05$ ,  $\eta^2 = .02$ . Univariate interaction effects were significant for both the SJS-II,  $F(1, 232) = 5.67$ ,  $p < .05$ ,  $\eta^2 = .02$  and the GEQ,  $F(1, 232) = 4.01$ ,  $p < .05$ ,  $\eta^2 = .02$ . Specifically, male team and individual athletes scored similarly on both the SJS-II and the GEQ. Female team and individual athletes differed, however. Female team athletes scored higher on cohesion and lower on jealousy than females competing on an

individual sport. See Table 2 for the descriptive statistics of these four groups on both the jealousy and cohesion scales.

**Table 2 Descriptive Statistics of Jealousy and Cohesion Scores**

	Jealousy		Cohesion	
	Males	Females	Males	Females
Team Sport	$M = 23.36$ $SD = 6.69$ $n = 704$	$M = 22.51$ $SD = 7.41$ $n = 45$	$M = 114.53$ $SD = 21.06$ $n = 70$	$M = 120.96$ $SD = 19.49$ $n = 45$
Individual Sport	$M = 22.69$ $SD = 8.50$ $n = 42$	$M = 26.67$ $SD = 7.68$ $n = 79$	$M = 113.24$ $SD = 28.99$ $n = 42$	$M = 106.22$ $SD = 28.10$ $n = 79$

## Discussion

The results presented here confirm the existence of jealousy in sport, provide psychometric evidence for a measure of sport jealousy, validate expected relationships among jealousy, cohesion, and satisfaction, and provide initial information on gender and sport differences in jealousy and cohesion.

### *Intensity of Jealousy*

As hypothesized, athletes indicated they experienced social comparison jealousy. Specifically, nearly all athletes indicated that at least one of the situations on the SJS-II would make them at least mildly upset. On average, however, the athletes were only mildly jealous and few indicated they were extremely jealous. It would be important to administer the SJS-II to a large variety of athletes to better understand if this sample was just mildly jealous, or if this is a larger trend among athletes. Even though the athletes were only mildly jealous, their jealousy was linked significantly to lower cohesion and satisfaction. Therefore, coaches, sport psychology consultants, and others working with teams need to be concerned with jealousy within the team because even a small amount of jealousy could affect the cohesion and satisfaction among the athletes.

### *Relationships of Jealousy to Cohesion and Satisfaction*

As expected, jealousy and cohesion were found to have a negative, significant relationship in this study. These results suggest that jealousy may have detrimental effects on team processes, resulting in negative relations on a team, and decreasing team cohesion. Cohesion has been found to be essential to group maintenance (Carron & Hausenblas, 1998) and may be important to the performance of a team (Widmeyer, Carron, & Brawley, 1993; Mullen & Copper, 1994). If jealousy decreases cohesion on a team, even to a small effect, team processes and performance may be disrupted. Coaches, sport psychology consultants, and others working with athletic teams might benefit from combating jealousy and maintaining the cohesion on a team.

Because cohesion had a negative and significant correlation with jealousy, it may be important to consider the sub-scales that are contributing to this relationship. It was expected that all four sub-scales would have a negative and significant relationship to jealousy, and that the ATG-S sub-scale would have the strongest negative relationship. Jealousy is a social construct and it seems logical that the social aspect of cohesion would have the strongest relationship to jealousy. In addition, the Individual Attractions to the Group (ATG) scales assess an athlete's personal attraction to the team (Carron & Hausenblas, 1998) and it seems logical that the athlete's personal feelings such as how happy they are and how well they fit in the group would have a strong

relationship to jealousy. Therefore, it was expected that the ATG-S would have the strongest relationship to cohesion compared to the other three subscales on the GEQ. Contrary to the predictions, only three of the four sub-scales had a significant relationship to jealousy (ATG-T, GI-T, and ATG-S). Additionally, the Individual Attractions to Group-Task (ATG-T) had the strongest negative relationship to jealousy. Surprisingly, the task sub-scales had a stronger negative relationship, and contributed to the overall relationship between jealousy and cohesion to jealousy stronger than the social sub-scales.

Carron and Hausenblas (1998) define the task aspect of cohesion as “motivation towards accomplishment, productivity, and performance” (p. 239). It may be that an athlete's identity or ego is directly tied to group goals, the task aspect of cohesion. Especially athletes at the Division I level may be more interested in their performance or the performance of their team, than getting along or developing social relationships. Another possible explanation is that the items on the SJS-II may reflect task more than social aspects of sport. Specifically, when looking closely at the items of the SJS-II, only four of the eleven items are clearly social items.

Previous research suggests satisfaction relates to cohesion, and Widmeyer and Williams (1991) found that the best single predictor of cohesion on a team was satisfaction. In this study, satisfaction was moderately and significantly correlated with cohesion, supporting Widmeyer and Williams's (1991) conclusion. In addition, Bers and Rodin (1984) suggested that dissatisfaction is a consequence of jealousy. In this study, it was found that satisfaction partially mediates the relationship between jealousy and cohesion, indicating that jealousy negatively affects satisfaction, which in turn affects cohesion. Also, jealousy had a significant but weak direct relationship to cohesion, as well as a stronger indirect effect through satisfaction.

### *Gender and Team/Individual Sport Differences*

Previous research suggests that cohesion differs between individual and team sports, and that cohesion is more related to performance in team sports than individual sports. In addition, gender differences have been found for jealousy scores. Both gender and individual and team sports differences were examined, and the analysis revealed both a main effect for individual and team sports, and a significant interaction between sport type and gender.

Specifically, females on an individual sport were higher on jealousy scores and lower on cohesion scores than males on a team sport, males on an individual sport, and females on a team sport. Carol Gilligan (1982) stated that “women...define themselves in a context of human relationships” (p. 17). Perhaps cohesion has different emphases for females and males because of the female emphasis on relationships. In addition, research has found that females place more emphasis on the coach/athlete relationship than do males (Brooks, 1979; Sawula, 1972; Tuffey, 1995). Perhaps females experience more jealousy if another athlete has a better relationship with their coach or if another receives more of the coach's attention. The importance of the coach/athlete relationship could be a reason why females on an individual sport tend to have higher jealousy scores and lower cohesion scores. In addition, competing on an individual sport team may produce stronger reactions of jealousy because athletes are typically competing within a team for a spot. For example, in track and field, only a few athletes from one team can compete in each race. Our results are suggestive but limited, and further research is needed to address the roles of gender and sport type with cohesion and jealousy.

### *Practical Implications*

Several practical implications arise from this study. First, the negative relationship between jealousy and cohesion should be of concern to coaches, sport psychology consultants, and other professionals working closely with athletic teams. Cohesion, or the tendency for a group to stick together, can be important to sport teams for two reasons (Carron, 1982). First, coaches strive for an effective, cohesive team (Carron & Dennis,

1998). Second, cohesion has been found to be related to satisfaction of group members and team success and performance (Mullen & Copper, 1994; Widmeyer & Williams, 1991). Additionally, jealousy may have a strong effect on the interpersonal relations within a team. As Bers and Rodin (1984) state when others are jealous they may degrade the other person, which could affect the dynamics of the group and how well they work together toward group goals. Given the negative relationship between jealousy and cohesion, coaches may wish to take steps to reduce jealousy within their team.

The interaction between gender and team/individual sport and the differences in cohesion and jealousy scores among females is important to those working with female athletes. In this study, females on individual sports had higher jealousy scores and lower cohesion scores. Reasons for these differences are not obvious from the current study, but deserve further investigation. By understanding factors that affect jealousy and relationships on female and male teams, coaches may better combat jealousy, increase cohesion and possibly improve the performance of the team (Carron & Hausenblas, 1998; Mullen & Copper, 1994; Widmeyer et al., 1993).

### *Limitations and Future Directions*

The current study provides a useful start for further research on jealousy in sport. However, it is important to consider the limitations of the study and results. First, the full range of scores on the Revised Sport Jealousy Scale (SJS-II), and particularly the highest range of scores (scoring between 50 and 55), was not reflected in this sample. If the full range of scores had been represented, resulting relationships and group differences might have been different.

Additionally, the current sample consisted of Division I track and field, tennis, soccer, and basketball athletes from the surrounding areas of North Carolina, and the results cannot be generalized to Division II, III, or NAIA athletes, other sport athletes, or other geographic regions. An additional concern was the environment when administering the questionnaires. Over two thirds of the questionnaires were administered either before or after team practice. The athletes may have been in a rush to complete the survey to start practice when completing the questionnaires before practice, or fatigued and/or in a rush to leave after practice. Furthermore, some questionnaires were administered at a conference track meet. Even though there were no differences between questionnaires administered at practice versus those at the track meet, the conditions were not ideal. The athletes could have been distracted by other athletes competing, or focused on their own events in the upcoming track meet.

Another concern that surfaced during administration of the Revised Sport Jealousy Scale was the response format (1 = *pleased*, 3 = *upset*, 5 = *extremely upset*). Numerous athletes had trouble with the “pleased” category, and at least one athlete in each group (about 30 groups) questioned how to answer if they did not care about a situation. The investigator suggested circling “pleased” if they did not care about a situation because it was closest to a neutral category. This response format was adopted from the Self-Report Jealousy Scale. Bringle (1995) stated that he used the “pleased” category to force a response in either the positive or negative direction. He also reported respondents having difficulty with the “pleased” category during his study. He suggested changing “pleased” to “at least somewhat pleased,” or “not at all upset.” Because numerous athletes had difficulty with this category, the “pleased” category should be changed in further research. In addition, changing the “pleased” category to “not at all upset” should ensure that the SJS-II has a balanced response format.

Additional recommendations for future research include continuing the work on the SJS-II, developing a theory of jealousy in sport, collecting qualitative data from coaches concerning their experiences with jealousy in sport, investigating social relations jealousy in sport, and, interviewing athletes at all levels about their experiences with jealousy. First, additional psychometrics analyses are recommended on the SJS-II. In this study, a one-factor structure emerged, however, Parker (2001) found a two-factor structure with the SJS-II. Therefore, more work needs to be done examining the factor structure. An application of structural equation

modeling may also be useful to construct a model of jealousy, cohesion, and satisfaction. Second, no theory exists related to jealousy in sport. A theory examining jealousy in sport would help guide researchers as well as those working in sport to better understand how jealousy operates in the sport setting. Third, the coaches in Phase 1 provided evidence of jealousy in sport and insights concerning the implications of jealousy and possible gender differences. Interviewing coaches may provide a unique perspective, and information on ways to decrease jealousy on sport teams. It also may be possible that jealousy has positive ramifications. For example, a coach in Phase I of this project discussed how jealousy could be positive because athletes compete to be better, therefore making the team stronger. Jealousy as a positive emotion has not been studied in sport. Fourth, social relations jealousy, the second type of jealousy proposed by Bers and Rodin (1984), has not been studied in sport. Social relations jealousy would be important to investigate given the romantic relationships that can develop between an athlete and coach. Bers and Rodin (1984) and Salovey and Rodin (1984) discussed several other consequences of jealousy including anxiety, a depressed mood, or anger. It would be important and interesting to investigate these emotions and their relation to jealousy in the sport domain. Fifth, interviewing athletes at all levels of development about their experiences with jealousy could also provide insight. It would be useful to collect similar data with other college, high school, and youth sport participants, and to interview parents of youth sport participants. Overall, few studies have been conducted on jealousy in sport and further research could advance our understanding about the impact of jealousy within and among sport teams.

## APPENDIX REVISED SPORT JEALOUSY SCALE (SJS-II)

*Directions:* Below are some situations in which you may have been involved, or in which you could be involved. Rate each with regard to *how you would feel* if you were confronted with the situations by circling the number that corresponds with your answer.

	Not at all upset	Mildly	Upset upset	Very upset	Extremely upset
1. A teammate receives more scholarship money even though you both have equal ability.	1	2	3	4	5
2. No matter what you do, your coach seems to be more interested in a teammate's performance than in your performance.	1	2	3	4	5
3. In practice, your coach encourages another athlete more than you.	1	2	3	4	5
4. You and your teammates have worked hard all season. When the team wins a big competition, you are not recognized for your contribution to the win.	1	2	3	4	5
5. A teammate seems to be receiving preferential treatment by the coaching staff.	1	2	3	4	5
6. The local paper interviews many of your teammates and fails to interview you.	1	2	3	4	5
7. A teammate rarely works hard in practice, however, during competition he/she performs better than you.	1	2	3	4	5
8. Your coach seems to have a better relationship with your teammate than with you.	1	2	3	4	5
9. Teammates' names are mentioned on the radio from your last contest. Your name is not mentioned.	1	2	3	4	5
10. Some teammates never seem to worry about their weight. On the other hand, you have to monitor what you eat.	1	2	3	4	5

	Not at all upset	Mildly	Upset upset	Very upset	Extremely upset
11. A teammate is more popular than you are with the other members of the team.	1	2	3	4	5

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