THE RELATIONSHIP BETWEEN COACH AND PEER LEADERSHIP AND TEAM COHESION WITHIN ELITE SWEDISH FLOORBALL PLAYERS

Sara Wilhelmsson
Thanks to Louise for all the support and to all of the participating athletes.
Abstract

The present study aimed to (1) examine the direct relationship between coach transformational leadership and peer transformational leadership on team cohesion within elite Swedish floorball players, (2) examine potential differences between coach leadership behaviours and peer leadership behaviours on team cohesion, and (3) examine gender differences in perceived coach leadership behaviours, peer leadership behaviours and team cohesion. A cross-sectional design was used and data was collected through self-assessment questionnaires of transformational leadership and team cohesion from 87 elite floorball players (59 females, 28 males). Age varied from 16 to 33 years ($M_{\text{age}} = 22.4$, $SD = 3.87$). Regression analyses revealed that both coach and peer transformational leadership predicted task cohesion, but coach transformational leadership had a stronger influence. There was no correlation between coach or peer transformational leadership and social cohesion. Independent t-tests indicate that female athletes tend to rate higher on peer transformational leadership and task cohesion. There were no gender differences regarding coach transformational leadership and social cohesion. The results from this study are discussed and a co-operation between coach and peer transformational leadership are purposed to increase task cohesion. Further research could refine which specific coach and peer transformational leadership behaviours that correlate to team cohesion, and further clarify the role gender might play.

Keywords: transformational, leadership, team cohesion

Abstrakt

Denna studie syftade till att (1) undersöka det direkta sambandet mellan tränarens transformella ledarskap och jämlikes transformella ledarskap för lagsammanhållning hos svenska elitidrottande innebandyspelare, (2) undersöka potentiella skillnader mellan tränarens transformella ledarskap och jämlikes transformella ledarskap på lagsammanhållning och (3) undersöka könsskillnader i uppfattningen av tränarens ledarskapsbetendena, jämlikes ledarskapsbetenden och lagsammanhållningen. En tvärsnittsdesign användes och data samlades in genom självskattningsformulär om transformellt ledarskap och lagsammanhållning från 87 elitidrottande innebandyspelare (59 kvinnor, 28 män). Ålder varierade från 16 till 33 år ($M_{\text{ålder}} = 22.4$ år, $SD = 3.87$). Regressionsanalyser visade att både tränarens och jämlikes transformella ledarskap förutsa uppgiftsrelaterad sammanhållning, men tränarens transformella ledarskap hade ett starkare inflytande. Det fanns ingen korrelation mellan tränarens eller jämlikes transformella ledarskap och socialt relaterad sammanhållning. Oberoende t-tester indikerade att kvinnliga idrottare tenderar att skatta högre på jämlikes transformella ledarskap och uppgiftsrelaterad sammanhållning. Det fanns inga könsrelaterade skillnader när det gällde tränarens transformella ledarskap eller socialt relaterad sammanhållning. Resultaten från denna studie är diskutera och ett samarbete mellan tränarens och jämlikes transformella ledarskap föreslås för att öka uppgiftsrelaterad sammanhållning. Ytterligare forskning kan specifisera vilka specifika transformella ledarskapsbeteenden som har en koppling till lagsammanhållning och ytterligare forskning kan även klargöra vilken roll genus kan spela.

Nyckelord: transformellt, ledarskap, lagsammanhållning
The relationship between coach and peer leadership and team cohesion within elite Swedish floorball players

Within the sport setting it has been emphasized that coach leadership can have an important role in influencing the athletes’ cognitions, experiences, their affects and also performance-related outcomes (see Horn, 2008, for a review). The leaders within the sport context influence their followers’ physical and psychological development as well as performance (Gould, Greenleaf, Chung, & Guinan, 2002). Leaders within sport can be considered both coaches and peers (Carron & Hausenblas, 1998). Recent studies have examined who is perceived to be a peer leader (Loughead & Hardy, 2005; Loughead, Hardy & Eys, 2006; Price & Weiss, 2011). According to Price and Weiss (2011) athletes perceived to possess high athletic ability, intrinsic motivation and peer acceptance were seen as peer leaders. Loughead and Hardy (2005) found that both team captains and other team members can serve as peer leaders. Further, their findings suggest that coaches and peers show different kind of leader behaviours. Athletes perceived coaches as more autocratic and instructing, while peers showed more behaviours linked to positive feedback, social support and democratic decision-making. To date, coach leadership has been widely investigated within research, by adopting many different paradigms (e.g. through observational analysis, reports of coach behaviour, use of questionnaires and qualitative interviews) (Partington & Cushion, 2013; Aoyagi, Cox & McGuire, 2008; Vallée & Bloom, 2005) and frameworks (e.g. the Multidimensional Model of Leadership (MML) and the Mediational Model of Coach Leadership). However, in the last decade the theory of transformational leadership has been a popular framework and considered usable when studying leadership in sport. Gomes (2014) claims that the sport context consists of all the factors of transformational leadership. This includes leaders (such as coach and captain), followers (athletes), and a common purpose (physical performance goal).

Transformational and transactional leadership has been a popular leadership theory in organizational psychology and it is a theory that has grown in sport psychology within the recent years (Arthur & Tomsett, 2015). Transformational and transactional leadership was first introduced and conceptualized by Burns (1978) in the political context. Bass (1985) later introduced this into the organizational domain and developed it further. Bass and Riggio (2006) refer to transactional leadership as leader behaviours that, depending on the followers’ behaviour, gives the followers either rewards or disciplines. Transformational leadership, on the other hand, has been defined as leader behaviours that inspire, empower and stimulate followers to reach a higher level than they thought was possible (Bass & Riggio, 2006). Historically these constructs were considered behaviours that were independent of one another. However, Bass (1985) argued that transformational and transactional leadership do not sit at opposite ends of a continuum, but instead operate in conjunction with one another and that the best leaders are both transformational and transactional.

According to Bass and Riggio (2006) transformational leadership has been considered to consist of the following behaviours; inspirational motivation (i.e. inspire and motivate the followers by formulating meaningful and challenging visions and clearly state expectations), intellectual stimulation (i.e. stimulate new ways of thinking by encourage creativity and include the followers to the process of problem solution), idealized influence (i.e. act like a role model for the followers) and individual consideration to the followers (i.e. take into consideration the different needs among the followers and contribute to the individual development of the followers). In comparison, transactional leadership is thought to include: contingent reward (i.e. give reward when followers show desirable behaviours), management by exception-active (i.e. to actively monitor the errors and mistakes made by the followers and correct them if it is necessary) and management by exception-passive (i.e. to correct errors and mistakes made by the followers after passively waiting for them to occur) (Bass & Riggio, 2006). Contingent
reward is seen as more effective than both types of management by exception (Bass & Riggio, 2006). Transactional leadership is considered effective in motivating others, but transformational leadership provides greater outcome by increasing the followers’ satisfaction, effectiveness and effort (Bass & Riggio, 2006). In a meta-analysis, Judge and Piccolo (2004) tested the relative validity of transactional and transformational leadership and found support for the concept. Their findings support Bass (1985) view that transactional and transformational leadership operate in conjunction with one another, called the augmentation hypothesis. For example, transactional leadership is needed for transformational leadership to be possible. The augmentation hypothesis has also been supported within the sport context (Rowold, 2006). In 2000, transformational and transactional leadership was used in a sport setting for the first time by Zacharatos, Barling and Kelloway (2000). Since then, in the last decade, it has been a popular framework in sport and has been conducted on coach leadership in many studies (for a review, see Arthur, Bastardoz & Eklund, 2017).

A measurement instrument of transformational leadership was developed by Hardy, Arthur, Jones, Shariff, Munnoch, Isaacs and Allsop (2010) to be used in a military setting. These authors combined aspects from two commonly used measurements of transformational leadership within the organizational context (e.g., the Transformational Leadership Inventory and the Multifactor Leadership Questionnaire-5X) and developed a self-assessment questionnaire named the Differentiated Transformational Leadership Inventory (DTLI). The DTLI have been modified to fit in a sport setting by Callow, Smith, Hardy, Arthur & Hardy (2009) and consists of seven sub-dimensions: intellectual stimulation, fostering acceptance to group goals and team work, inspirational motivation, individual consideration, providing an appropriate role model, high performance expectations and contingent reward. Although transformational leadership is a recent development in sport (Arthur et al., 2017), it has been linked to several athlete outcomes; these include variables such as communication (Smith, Arthur, Hardy, Callow & Williams, 2013), need satisfaction and well-being (Stenling & Tafvelin, 2014), sacrifice (Cronin, Arthur, Hardy & Callow, 2015), performance (Charbonneau, Barling & Kelloway, 2001), collective efficacy (Price & Weiss, 2013), motivation (Stenling & Tafvelin, 2014; Charbonneau et al., 2001), lower aggression (Tucker, Turner, Barling & McEvoy, 2010), satisfaction with the coach (Rowold, 2006), positive developmental outcomes (Vella, Oades & Crowe, 2013), and team cohesion (Callow et al., 2009; Cronin et al., 2015; Smith et al., 2013). However, the study concerning team cohesion was limited.

This present research is of specific interest to team cohesion. Cohesion is seen as a vital ingredient in team sports (Weinberg & Gould, 2011). Many researchers have considered cohesion to be the most essential small group variable (for a review, see LeBlanc & Mohiyeddini, 2011) and it has been linked to factors, such as attachment (Spink, Wilson & Odnokon, 2010) and collective efficacy (Heuzé, Sarrazin, Masiero, Raimbault & Thomas, 2006). Research has also shown that there is a circular relation between performance and cohesion (Carron, Colman, Wheeler & Stevens, 2002). Good performance lead to increased cohesion and high cohesion lead to better performance. Cohesion has been defined in several ways (Weinberg & Gould, 2011), although the definition by Carron, Brawley and Widmeyer (1998) is most commonly used. Carron et al. (1998) define cohesion as “the tendency for a group to stick together and remain united in pursuit of its instrumental objectives and/or for the satisfaction of member affective needs” (p.213). It is a dynamic process that is instrumental (because groups are formed for a purpose), affective (because the members’ feelings are affected by the interaction in the group) and multidimensional (Carron & Brawley, 2000). Cohesion is multidimensional because it can be considered in two ways: task cohesion and social cohesion. Task cohesion refers to the group members’ willingness to work together to
reach a united goal, while social cohesion is the degree of how much the members enjoy each other (Carron et al., 1998).

Carron and Brawley (2008) claim that social cohesion tends to develop later than task cohesion within sport teams. This is because sport teams can be seen as task-oriented and have therefore a primary focus on their task – to perform. The social aspects of cohesion (e.g. to get to know each other) tend to be secondary to performance and therefore develop later. The development of social cohesion can be seen as a result of more time spent together and more social interactions. To evaluate cohesion in sports teams, Carron, Widmeyer and Brawley (1985) developed a questionnaire named the Group Environment Questionnaire (GEQ). The GEQ measures both the social and task dimensions of cohesion. Team cohesion, using the GEQ as the dominant measurement tool, has been found to be affected by several antecedents and leadership has been suggested to be one of these (Carron, 1982; Jowett & Chaundy, 2004). Using transformational leadership as a framework, coach leadership in sport has been a popular topic for the last decade and has been linked to cohesion in previous studies (Callow et al., 2009; Cronin et al., 2015; Smith et al., 2013). To be specific, Callow et al. (2009) conducted a study to examine the relationship between perceived coach transformational leadership and team cohesion among ultimate Frisbee players in the United Kingdom. Their findings suggest that task and social cohesion were predicted by different transformational leadership behaviours. Specifically, task cohesion was predicted by individual consideration, high performance expectations, and fostering acceptance to group goals and promoting team work. Social cohesion was only predicted by fostering acceptance to group goals and promoting team work. Further research needs to be done in order to generalize Callow et al.’s (2009) findings since the study was made within a single sport setting (ultimate Frisbee) and with the team captain defined as the coach.

Transformational leadership has also been examined in sport from the perspective of peer leadership in addition to coach leadership (e.g. Price & Weiss, 2011). Price and Weiss (2011) used transformational leadership as a framework and examined perceived peer transformational leadership and the relationship to team outcomes including cohesion among American adolescent female soccer players. Their findings showed that players who were rated high in transformational leadership by their teammates were associated with greater ratings of social cohesion, and players who rated themselves high in leadership reported both greater social and task cohesion. This therefore, suggests a relationship between peer leadership and team outcomes (Price & Weiss, 2011). However, the research on the differences between coach and peer leadership behaviours in relationship to team cohesion has been restricted (Fransen, Decroos, Vande Broek & Boen, 2016). To the author’s knowledge, only one study has examined the mentioned difference using transformational leadership as a framework. Price and Weiss (2013) examined the relationship of coach and peer leadership and team outcomes among adolescent female soccer players using transformational leadership as a framework. The results showed that peer transformational leadership was positively associated with both social and task cohesion. Coach transformational leadership was only positively associated with task cohesion. Their findings suggest that coach leadership and peer leadership has an equal impact on task cohesion, but peer leadership has a stronger relation to social cohesion than coach leadership.

One limitation with the presented research on the differences between coach and peer leadership behaviours relationship to team cohesion, is that it has predominantly been investigated within samples of American athletes and with youth sport teams (i.e. players age varied between 14 and 18 years), and those participating in lower levels of competition (Price & Weiss, 2013). The research on transformational leadership in sports has been restricted with respect to the levels of sport participants (Arthur et al., 2017). Arthur et al. (2017) describe that
previous studies have been made on youth athletes and athletes with “lower-level abilities” (p. 79) (i.e. none elite athletes). Quantitative investigations of elite athletes have been non-existent and are therefore needed. In it’s guidelines for elite athlete study contracts, Umeå University (2015) defines team elite athletes as an athlete playing in one of the two highest national leagues, provided that there are at least four leagues in that sport. Otherwise, only the highest league is accepted. Previous research on transformational leadership and team cohesion has predominantly been limited to samples from America (Cronin et al., 2015; Price & Weiss, 2013) or the United Kingdom (Callow et al., 2009; Smith et al., 2013) and little is known about this within greater European and Scandinavian countries.

Another limitation with the current research on concurrently coach and peer leadership behaviours’ relationship to team cohesion is in relation to gender. Current findings illustrate that the research has been restricted specifically to soccer teams with female athletes (Price & Weiss, 2013). Therefore, further investigations need to be conducted that include both female and male athletes and athletes within alternative sport types. To the present author’s knowledge, the only study that has examined gender differences within transformational leadership and follower outcomes is Cronin et al. (2015). They compared personal sacrifice and teammate sacrifice as mediators of the relationship between coach transformational leadership and task cohesion. Findings suggested that there are gender differences, where personal sacrifice was a greater mediator among male athletes and team sacrifice was more crucial for female athletes. Their findings also showed that male athletes rated their coaches higher on the transformational leadership behaviours compared with female athletes. Also, compared to female athletes, male athletes rated their teams higher on task cohesion.

In light of the limitations associated with previous research within the area of leadership and team cohesion the aim of the present study is to take inspiration from Price and Weiss (2013) research on peer leadership and Callow et al.’s (2009) research on coach leadership and team cohesion and develop this area further. Specifically, the present study will aim to (1) examine the direct relationship between coach transformational leadership and peer transformational leadership on team cohesion within elite Swedish floorball players, (2) examine potential differences between coach leadership behaviours and peer leadership behaviours on team cohesion, and (3) examine gender differences in perceived coach leadership behaviours, peer leadership behaviours and team cohesion.

Based on the results of Price and Weiss’ (2013) and Callow et al.’s (2009) studies the first two hypotheses were the following:

Hypothesis 1. High levels of perceived coach and peer transformational leadership will have a positive and significant correlation to task and social cohesion.

Hypothesis 2. High levels of perceived coach and peer transformational leadership will have an equally positive and significant impact on task cohesion, and high levels of perceived peer transformational leadership will have significantly greater positive impact on social cohesion than high levels of perceived coach transformational leadership.

In addition, based on the results of Cronin et al.’s (2015) study, the third hypothesis was the following:

Hypothesis 3. Male athletes will score significantly higher on coach transformational leadership behaviours, peer transformational leadership behaviours and team cohesion, than female athletes.
Method

Participants

The participants that comprised the study were 87 elite floorball players. Of the 87 participants, 59 (67.8 %) were females and 28 (32.2 %) were males from 6 teams. The age of the athletes varied from 16 to 33 years (\(M_{\text{age}} = 22.4, SD = 3.87\)). Umeå University’s (2015) definition of an elite athlete was used within this study, and therefore the participants were a part of a floorball team playing in one of the two highest floorball leagues in Sweden. In order to have enough experience with their team, team captain and coach, selection criteria to participate was to have played for the current team for a minimum of two months. The athletes had played for the current team for an average of 26.5 months (\(SD = 30.5\)). The mean time spent with the current coach was 13.0 months (\(SD = 10.5\)) and with the current team captain was 5.6 months (\(SD = 6.4\)).

Measures

All of the measures that were employed in the present study were validated self-assessment questionnaires that were adapted to the Swedish language. The questionnaires included the following:

**Team Cohesion.** Team cohesion was measured with a Swedish version of the Group Environment Questionnaire (GEQ; Carron et al., 1998). The GEQ consists of 18 items that measure four dimensions of team cohesion. Nine items assess social cohesion and include two dimensions; individual attractions to group-social (e.g. “Some of my best friends are on this team”), and group integration-social (e.g. “Our team would like to spend time together in the off season”). Nine items assess task cohesion and include; individual attractions to group-task (e.g. “I do not like the style of play on this team”) and group integration-task (e.g. “We all take responsibility for any loss or poor performance by our team”). Participants responded to each of the questions on a Likert scale ranging from 1 (strongly disagree) to 9 (strongly agree) in relation on how well they perceived it was in line with their team. The GEQ has been a commonly used measurement for cohesion in sport and has been systematically evolved for use in many studies thus ensuring its validity and reliability (Carron et al., 1998). The present study demonstrated a Cronbach’s alpha coefficient of .68 for social cohesion, and .75 for task cohesion.

**Transformational Leadership.** Transformational leadership was measured with a Swedish version of the Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010). The DTLI consists of 31 items that measures six different dimensions of transformational leadership and one dimension of transactional leadership. The transformational leadership dimensions include: individual consideration (e.g. “Recognizes that different athletes have different needs”), inspirational motivation (e.g. “Talks in a way that makes me believe I can succeed”), intellectual stimulation (e.g. “Challenges me to think about problems in new ways”), fostering acceptance of group goals and promoting team work (e.g. “Encourages athletes to be team players”), high performance expectations (e.g. “Always expects us to do our best”), and appropriate role model (e.g. “Is a good role model for me to follow”). The transactional leadership dimension is contingent reward (e.g. “Gives us praise when we do good work”). Participants responded to each item on a Likert scale ranging from 1 (not at all) to 5 (all the time) in relation to how often their leader shows that behaviour. The DTLI was completed twice – first in relation to their coach and a second time in relation to their peer leader. For peer leader, athletes were asked to think of their team captain. The only difference between the two questionnaires was that the word “coach” was changed to “team.
captain”. The DTLI has been developed to be used in a sport context and has shown good psychometric properties (Callow et al., 2009). The present study demonstrated Cronbach’s alpha coefficients of .95 of the overall scale for both coaches respectively peers.

**Design**

A cross-sectional research design was used. It was a descriptive study and data was collected in a sport setting. A cross-sectional research design was chosen, and data was collected all in one time, because of limited time frame. Data was collected between 13th November 2017 and 7th December 2017.

**Procedure**

Athletes and coaches from nine teams in one of the two highest floorball leagues in Sweden were first contacted via e-mail and informed about the nature of the study and were asked for permission to implement the study with their team. Once they agreed to let their teams participate, each team was visited before one of their practices and the athletes were informed about the nature of the study, the study goals along with study confidentiality and anonymity. Upon having given consent to participate, the multi-section questionnaires were handed out and participants were asked to complete the questionnaire independently from their coach, their peer leader and the rest of the team. The researcher waited outside, in order to not see who participated and not, but was around in case any of the participants were unsure of the questions being asked. The procedure for completing the multi-section questionnaire took approximately 15 minutes. After the multi-section questionnaires were completed each participant placed them in a black plastic bag. When all the multi-section questionnaires were collected, they were sorted in numerical order based on their code numbers.

**Statistical analysis**

The collected data were analysed in IBM SPSS Statistics Subscription. Descriptive statistics such as means (Ms) and standard deviations (SDs) were calculated among the demographic variables. Items for each subscale of the GEQ, respective the DTLI was turned into computed variables according to Carron et al. (1998) respective Callow et al. (2009). The different subscales of the GEQ computed into the variables social cohesion and task cohesion. A global DTLI score was computed for coach transformational leadership behaviour respective peer transformational leadership behaviour. Then correlation analyses were made between coach transformational leadership behaviour, peer transformational leadership behaviour, social cohesion and task cohesion. Finally, regression analyses and an independent T-test were made.

**Ethical consideration**

The participants were informed about the aim of the study and the research ethical principles (Vetenskapsrådet, 2002). Each player that met the criteria of the study got to decide whether to participate or not. To ensure anonymity, each multi-section questionnaire was given a unique code number and were randomly distributed. The researcher waited outside, in order to not see who participated and not.
Results

Descriptive statistics

First descriptive statistics were examined. Table 1 presents the means, standard deviations, reliability co-efficients and correlations for all variables under investigation. The means for coach transformational leadership and peer transformational leadership were moderate to high with peer transformational leadership slightly higher. This suggests that the current sample of athletes considered both their coach and peer to be showing transformational leadership behaviours. Mean scores for both task cohesion and social cohesion were also moderate to high, indicating that on average, the athletes perceived their teams as cohesive. To investigate the potential correlations between coach and peer transformational leadership, and task cohesion and social cohesion, bivariate correlations were calculated. There was a positive significant correlation between both coach transformational leadership and task cohesion, and peer transformational leadership and task cohesion. By contrast, there were no significant correlations between either coach transformational leadership and social cohesion, or peer transformational leadership and social cohesion. Overall, there were strong, positive correlations between both coach transformational leadership and peer transformational leadership, and task cohesion. Although the correlation between coach transformational leadership and task cohesion was a little stronger. Increases in transformational leadership behaviours correlated with increases in perceived task cohesion.

Table 1

Correlations, Means (M), Standard deviations (SD), and reliability co-efficients (α) for athletes’ (N = 87) ratings of coach transformational, peer transformational, task cohesion and social cohesion.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>α</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coach Transformational</td>
<td>3.43</td>
<td>.65</td>
<td>.95</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Transformational</td>
<td>4.02</td>
<td>.55</td>
<td>.95</td>
<td>.38**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Cohesion</td>
<td>6.39</td>
<td>1.14</td>
<td>.75</td>
<td>.55**</td>
<td>.46**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Cohesion</td>
<td>6.53</td>
<td>1.11</td>
<td>.68</td>
<td>-.06</td>
<td>.10</td>
<td>.07</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. ** p < .01.

Regression analysis

Next, to test hypothesis one and two, simple linear regressions were calculated. As there were no significant correlations found between coach transformational leadership behaviour or peer transformational leadership and social cohesion, social cohesion was excluded in the regression analysis. Therefore, only task cohesion was considered as the dependent variable. Two simple linear regressions were calculated to test if coach transformational leadership behaviour and peer transformational leadership behaviour significantly predicted athletes’ ratings of task cohesion. A significant regression equation was found for coach transformational leadership and task cohesion \( (F(1, 85) = 37.720, p < .000), \) with an \( R^2 \) of .31. Inspection of the standardized beta coefficients indicated that task cohesion was predicted by coach transformational leadership with \( \beta = .55, p < .01. \) Additionally, a significant regression equation was found for peer transformational leadership and task cohesion \( (F(1, 85) = 23.169, \)
$p < .000$), with an $R^2$ of .21. Inspection of the standardized beta coefficients indicated that task cohesion was predicted by peer transformational leadership with $\beta = .46$, $p < .01$. The results of the regression analyses are shown in Figure 1. Overall, 31% of the variation in task cohesion can be explained by coach transformational leadership, whereas peer transformational leadership can explain 21% of the variation in task cohesion.

![Figure 1](image.png)

** Figure 1. Regression analysis of how task cohesion differs in relation to coach transformational leadership and peer transformational leadership. ** $p < 0.01$.

** Independent T-test **

Finally, to test hypothesis three, which aimed to investigate gender differences in the rating of coach transformational leadership, peer transformational leadership, task cohesion and social cohesion, independent T-tests were calculated. There was a significant difference in the scores for female athletes ($M = 6.63, SD = 1.11$) and male athletes ($M = 5.88, SD = 1.04$) in terms of task cohesion ($p < .01$). Also, there was a significant difference in the scores for female athletes ($M = 4.13, SD = .56$) and male athletes ($M = 3.79, SD = .45$) in terms of peer transformational leadership ($p < .01$). On the other hand, there was no significant difference in scores for female athletes ($M = 3.46, SD = .65$) and male athletes ($M = 3.36, SD = .67$) in terms of coach transformational leadership ($p > .01$). Also, there was no significant difference in scores for female athletes ($M = 6.68, SD = 1.10$) and male athletes ($M = 6.21, SD = 1.09$) in terms of social cohesion ($p > .01$). Overall, there were significant gender differences in both task cohesion and peer transformational leadership. Female athletes tended to rate higher on both task cohesion and peer transformational leadership, compared with male athletes. There were no significant gender differences in the rating of coach transformational leadership and social cohesion.

** Discussion **

The purpose of the present study was to (1) examine the direct relationship between coach transformational leadership and peer transformational leadership on team cohesion within elite Swedish floorball players, (2) examine potential differences between coach leadership behaviours and peer leadership behaviours on team cohesion, and (3) examine gender differences in perceived coach leadership behaviours, peer leadership behaviours and team cohesion. Based on previous research within the area (Callow et al., 2009; Cronin et al., 2015; Price & Weiss, 2013) three hypotheses were formulated: Firstly, we hypothesised that high levels of perceived coach and peer transformational leadership would be significantly and
positively associated with task and social cohesion. Secondly it was hypothesized that high levels of perceived coach and peer transformational leadership would be equally associated with task cohesion, and high levels of perceived peer transformational leadership would have a significantly greater impact on social cohesion than high levels of perceived coach transformational leadership. Finally, the third hypothesis proposed that there would be significant difference of perceived peer and coach transformational leadership and team cohesion, where male athletes would score higher than female athletes.

Firstly, as no correlations were found between coach and peer leadership and social cohesion, only task cohesion could be considered within the regression analysis. The first hypothesis was therefore only partly supported. The findings showed that both coach transformational leadership and peer transformational leadership had a significant positive association with task cohesion. These results are partly in line with Price and Weiss (2013) findings that both coach and peer transformational leadership positively correlated to task cohesion. However, in the present study that used Swedish elite athletes, the difference from Price and Weiss’ (2013) study is that there was no association between either of the two leadership categories and social cohesion in this study. A possible explanation for this difference may be the dynamic aspect of team cohesion (Carron et al., 1998). Within elite teams, task involvement is central and social aspect of cohesion may therefore be secondary. Also, Carron and Brawley (2000) have shown that social cohesion tends to develop later than task cohesion. The results might therefore differ if the date of collection of data was further into the season than the current three months.

According to Callow et al. (2009), fewer coach transformational leadership behaviours predicted social cohesion compared with task cohesion. Task cohesion was predicted by individual consideration, high performance expectations, and fostering acceptance to group goals and promoting team work. Social cohesion was only predicted by fostering acceptance of group goals and promoting team work. This could also provide some explanation as to why there was no correlation between transformational leadership styles and social cohesion in the present study. In the present study, all transformational leadership behaviours were computed into one variable and analysed together, as a global concept (Arthur & Tomsett, 2015), and therefore any possible differences between each transformational behaviour (e.g. intellectual stimulation, fostering acceptance of group goals and team work, inspirational motivation, individual consideration, providing an appropriate role model, high performance expectations and contingent reward) disappears. Future research could examine coach and peer transformational leadership using a differentiated approach (e.g. intellectual stimulation and providing an appropriate role model) and distinguish between each transformational leadership behaviour to examine possible differences between the different sub domains of transformational leadership behaviour and team cohesion.

In reference to the second hypothesis, coach and peer transformational leadership impact on task cohesion and social cohesion, was not supported, as social cohesion was excluded from further analysis. The results indicated that coach transformational leadership had a greater impact on task cohesion than peer transformational leadership. Specifically, coach transformational leadership can explain 31 % of the variation in task cohesion compared with peer transformational leadership that explained 21 % of the variation in task cohesion. Furthermore, the beta coefficients showed that the strength of the effect for coach transformational leadership was stronger on task cohesion than peer transformational leadership behaviour. This result partly supports previous findings by Price and Weiss (2013); that both coach and peer transformational leadership have a positive impact on task cohesion, but extends their findings, by indicating that coach transformational leadership has a greater impact than peer transformational leadership. Also, it is in line with Callow et al.’s (2009)
findings that task cohesion was predicted by the coach transformational leadership behaviours of high performance expectations, individual consideration, and fostering acceptance of group goals and promoting team work.

Based on these findings, it is possible that the coach leadership behaviours play a more important role among elite floorball teams in making them more task cohesive. A possible explanation to this could be that the athletes had on average spent more time with the current coach compared to the current team captain. The coach could, therefore, have had a greater possibility to have a stronger impact on task cohesion. This could also be a result of coach education, which team captains do not receive. Research has shown that transformational leadership behaviours can be learned (Dvir, Eden, Avolio & Shamir, 2002). Since participants in the present study were elite athletes, it can be assumed that the elite coaches had some kind of leadership education, in their journey to elite coaching pathways. The Swedish floorball association provides leadership education for a wide range of competition levels, from children and amateurs to elite athletes (Svenska Innebandyförbundet, n.d.). Additionally, in the present study peer leader was defined as the team captain. As Loughead and Hardy (2005) suggest, other team members can serve as peer leaders as well. It is therefore possible that there are other team members that play a more important leader role, affecting the results of a lower impact of peer transformational leadership on task cohesion. Although, since both coach and peer leadership predict task cohesion, a co-operation between coaches and peers could lead to an even greater impact on the task cohesion, a proposal that could be possibly embraced as a practical implication for future consideration.

In consideration of the third and final hypothesis relating to potential gender differences the findings showed that there were significant differences among female and male athletes in how they rate their peer transformational leadership and task cohesion. Female athletes tended to rate higher on both peer transformational leadership and task cohesion, compared with male athletes. On the contrary, there were no significant differences found in how female and male athletes rated their coach transformational leadership and social cohesion. These findings did not support the hypothesis, that male athletes would score higher on peer and coach transformational leadership and team cohesion. Also, it contradicts the findings by Cronin et al. (2015) that male athletes rated higher on both coach transformational leadership and task cohesion. However, it is in line with the finding made by Widmeyer, Brawley and Carron (1985), that teams with female athletes rate higher in task cohesion. Previous findings on gender differences and the results of the present study provide inconsistent results and future research should consider to still examine gender differences within their studies. However, since the participation in the present study was limited and only a third of the sample were of male athletes, these findings need to be interpreted with caution. These findings should therefore be seen as a preliminary and possible indication, and as mentioned by Cronin et al. (2015), further research needs to be done in order to clarify the role that gender may play in the relationship between transformational leadership and team cohesion.

The present study has several limitations. Data was collected through self-assessment questionnaires, which have some disadvantages including socially desirable responding (e.g. participants provide answers to questions that are perceived as socially likeable) (Morling, 2015). It is also possible, since the multi section questionnaires included two examples of the DTLI leading to a long questionnaire, that the participants used the response set acquiescence (e.g. answer “strongly agree” on every question, instead of making a carefully consideration) (Lelkes, Krosnick, Marx, Judd & Park, 2012). This is a common bias among long questionnaires (Lelkes et al, 2012), and if this happened within the present study, it could have affected participants by rating high on peer leadership (which was measured with the second DTLI). Since all data was collected through the same source (e.g. elite floorball players), there
may have been a common method bias (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). To overcome these limitations, future research could therefore try to split up the measures or use different sources when collecting data (Podsakoff et al., 2003). Additionally, the DTLI has shown to perform well when transformational leadership is seen as a differentiated concept, including different distinct factors (Arthur & Tomsett, 2015). The fact that transformational leadership was computed into one global concept within this study can be seen as a limitation. The results showed a correlation between both coach and peer transformational leadership and task cohesion, but the global concept limits the possibility to examine possible differences between the different transformational leadership behaviour facets (e.g. intellectual stimulation, fostering acceptance to group goals and team work, inspirational motivation, individual consideration, providing an appropriate role model, high performance expectations and contingent reward) and task cohesion. Future research could therefore adapt a differentiated approach to investigate if there are any differences among specific transformational leadership behaviours in coaches and peers and the correlation to task cohesion. Furthermore, data was collected early in the season of the Swedish elite floorball using a cross-sectional design. This creates limits in what kind of conclusion that can be made. Future research could consider the use of longitudinal research designs to investigate possible differences and developments across the season. It would be interesting to investigate if there would be some differences in the relationship to social cohesion. Finally, as data was collected from a small sample, further research needs to be conducted with larger sample sizes.

In summary, the findings of this study could be seen as expanding previous research (Callow et al. 2009; Cronin et al., 2015; Price & Weiss, 2013) by indicating that both coach transformational leadership and peer transformational leadership is associated with task cohesion among elite Swedish floorball players. Compared with peer transformational leadership, coach transformational leadership had a greater prediction on task cohesion. However, since both kinds of leadership show to have an impact on task cohesion, and that previous research have shown a circular relationship between team cohesion and performance (Carron et al., 2002), a co-operation between coaches and peers should be embraced by elite athlete teams in order to increase their outcomes.

References


