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Transformational leadership and childrens' aggression in team settings: A short-term longitudinal study

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ABSTRACT

Social learning theory posits that one crucial way individuals learn how to behave is by observing and modeling the behavior of salient others. We conducted a short-term longitudinal study using multisource data on 183 teenaged ice hockey players (M age = 13.39 years) in 16 hockey teams to test the effects of 3 potentially salient leadership influences (team coaches, team players, and parents) on players' on-ice aggression. We tested a cross-level mediated model in which player aggression (penalty minutes) as measured by referees was the criterion variable. After controlling for prior levels of player aggression, team-level aggression mediated the relationship between team-level coach transformational leadership and player aggression. Parents' transformational leadership did not influence player aggression when assessed simultaneously with team-level coach transformational leadership. Consistent with social learning theory, the findings suggest that transformational leaders model prosocial behavior for followers.

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How do role models such as leaders in organized settings influence others to "do good"? This question is of theoretical and practical importance in understanding the social determinants of interpersonal aggression in a variety of settings, including school (e.g., Espelage, Holt, & Henkel, 2003), sports (e.g., Loughead & Leith, 2001), the home (e.g., Brezina, 1999), and the workplace (e.g., Robinson & O'Leary-Kelly, 1998).

For decades, researchers have acknowledged that aggressive behavior can be learned from multiple sources simultaneously (Bandura, 1973; Kiesner & Kerr, 2004). In the current study, we investigated the extent to which the transformational leadership behaviors of amateur ice hockey coaches and players' parents exerted effects on player on-ice aggression, and the extent to which the effects of coaches' transformational leadership was mediated by the aggression exhibited by the team. Organized ice hockey is a particularly useful setting for studying the influence of different role models on aggression because of the diverse social influences across teams, the relatively high base rate of physical aggression, and the availability of reliable, other-source data of players' aggression.

The present study builds upon prior research on leadership and aggression in three important ways. First, there are currently no studies investigating aggression at the individual level of analysis while accounting for theoretically relevant group-level predictors. Past studies have focused on either individual- or group-level outcomes (Brown & Treviño, 2006a). Second, this study achieves greater ecological validity than studies that concentrate on a single social influence as it tests multiple influences on aggression. Third, this study uses a prospective design that systematically permits statistical control of prior levels of aggression. These conceptual and methodological strengths permit a robust test of multiple leadership influences on aggression.

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1. Social learning theory and aggression

Social learning theory (Bandura, 1973, 1977) proposes that aggression is learned vicariously through observation of and interaction with role models. According to social learning theory, when young people witness role models (e.g., parents, peers, teachers) behaving in certain ways in social situations, they are likely to learn such behaviors. Whether they subsequently choose to enact them or not will depend on person and environmental cues. The relevance of social learning theory-based predictions has been supported in research on adolescent aggression (e.g., Dishion, Spracklen, Andrews, & Patterson, 1996), family violence (e.g., Brezina, 1999), workplace aggression (e.g., Glomb & Liao, 2003), and athlete aggression (e.g., Kreager, 2007). Aggression can include verbal behavior, non-verbal behavior (e.g., ostracizing), and physical behavior (e.g., physical assaults) (Anderson & Bushman, 2002). The current study focuses on how social learning theory explains the relationship between transformational leadership and physical aggression in the context of youth ice hockey.

2. Transformational leadership and aggression

Social learning theory is central to theorizing on transformational leadership and prosocial leadership more generally (Brown & Treviño, 2006b). Building on earlier work by Bass (1998) and colleagues (e.g., Bass & Steidlmeier, 1999), Brown, Treviño, & Harrison (2005) argued that "transformational leaders contribute to observational learning about ethical values and ethical conduct by demonstrating ethical behavior and communicating with [followers] about conduct standards and values" (p. 122).

Understanding the nature of the four behaviors comprising transformational leadership may help explain why leaders who consistently engage in these behaviors serve as role models for prosocial behavior (e.g., Bass & Steidlmeier, 1999) and minimize the likelihood of aggressive follower behavior. First, transformational leaders 'do the right thing' (i.e., idealized influence) by modeling prosocial behaviors (Avolio, 1999; Simola, Barling, & Turner, 2010; Turner, Barling, Epitropaki, Butcher, & Milner, 2002). Second, these leaders set high expectations (i.e., inspirational motivation) for performance and non-aggressive behaviors. Third, transformational leaders challenge followers to think differently, which would include raising questions as to whether aggressive behavior is appropriate (i.e., intellectual stimulation). Finally, these leaders are mindful of individual needs of others (i.e., individualized consideration). In sum, transformational leaders adopt a prosocial orientation toward in-group and out-group members. When followers observe and mimic this other-orientation (rather than a self-orientation) they may be less likely to act aggressively and, with respect to a team sport context, aggress against teammates and opponents.

There is some empirical support among adult samples that having a transformational leader is associated with lower levels of follower aggression and more prosocial behavior (Organ, Podsakoff, & MacKenzie, 2006). One study found that after controlling for trait aggression, employees who perceived their supervisor as more charismatic (similar to transformational leadership) used less verbal aggression (Hepworth & Towler, 2004). More recently, Brown and Treviño (2006a) found that socialized charismatic leadership (defined as charismatic leadership that models ethical conduct) was associated with lower levels of interpersonal and organizational deviance in work groups, and this relationship was mediated by value congruence among group members. Based on the nature of transformational leadership and existing empirical evidence, we predict that transformational leaders model non-aggressive behavior, and that in turn this is related to lower levels of follower aggression.

Leadership has been studied across a wide array of contexts, including organized team sport (Hoption, Phelan, & Barling, 2007; Wolfe et al., 2005). In ice hockey, where aggression is frequent, the behaviors of coaches, peers, and parents can influence player aggression. In the next sections, we develop hypotheses describing how the behavior of these different social influences may be related to player aggression.

2.1. Influence of coaches

Although transformational leadership has not been examined directly in the context of hockey, there are data showing that low levels of coach transformational leadership behaviors are associated with higher levels of aggression in sport. For example, Shields, Bredemeier, Gardner, and Bostrom (1995) found that when players thought their coaches supported the notion of winning at all costs — which is contrary to the core transformational leadership component of idealized influence — they were more likely to aggress against opponents.

In studying the effects of transformational leadership on aggression in hockey teams, a critical issue is the appropriate level of analysis at which leadership should be conceptualized and operationalized (Yammarino, Dionne, Chun, & Dansereau, 2005). In the current study, we assess transformational leadership as a collective activity at the team level of analysis. Studies of leadership in sports and work teams reveal a bias toward the values, attitudes, and behaviors of 'the lone leader'. In many team-based organizations, it is a practical imperative to study leadership as a collective phenomenon, particularly when leadership is informally defined and executed by multiple leaders (Pearce & Conger, 2003). Our approach is consistent with calls for studying organizational phenomena with a greater sensitivity to the contexts in which they occur (Johns, 2006; Rousseau & Fried, 2001).

In organized sport, it is becoming increasingly common for coaching to be performed by a head coach and assistant coaches. In youth leagues, where coaches are volunteers, head coaches may sometimes have the greatest overall influence on team players (Côté, 2002), however head coaches sometimes miss games and practices and, furthermore, may have differential appeal to players for several reasons (e.g., likeability, perceived task competency). These situations provide opportunities for other coaches to develop and influence the team. Thus, providing leadership in this context is either deliberately shared or develops as a

collective activity over time. Consistent with this, Avolio, Sivasubramaniam, Murray, Jung, and Garger (2003) suggest that leadership groups "can collectively display a transformational style" (p. 151).

From a social exchange perspective (Blau, 1964), leadership is embedded in and is a product of ongoing social interaction (Fletcher & Kaufer, 2003). In a sports team, co-development of players is the primary social mechanism by which coaches collectively lead, inspire, and motivate players. Norms relevant to appropriate ways of playing emerge over time, and are collectively communicated among coaches and to the team.

Although research has conceptually and empirically linked collective transformational leadership to group outcomes (e.g., team effectiveness; Pearce & Sims, 2002), studies have yet to examine the effects of collective transformational leadership on follower aggression. Based on findings that transformational leadership is associated with lower individual and group aggression (e.g., Brown & Treviño, 2006a; Hepworth & Towler, 2004), and theoretical reasoning that transformational leaders model non-aggressive behavior, we hypothesize:

Hypothesis 1. Coach transformational leadership is negatively related to coach endorsement of aggression.

Hypothesis 2a. Coach transformational leadership is negatively related to player aggression.

Hypothesis 2b. Coach transformational leadership is negatively related to team aggression.

2.2. Influence of the peer group

From a social learning perspective, groups develop norms of behavior over time and reinforce these norms through active socialization and social interaction (Harris, 1995). This process is augmented by direct and vicarious experience of rewards and punishments (Bandura, 1973). Through these processes, group member attitudes toward appropriate forms of behavior, including aggression, can become shared. Thus, we conceptualize team aggression as a shared unit property (Kozlowski & Klein, 2000).

Studies of aggression in a range of organized settings (work, school, and sport) consistently find that individual aggression is correlated positively with norms, attitudes, and behaviors in the immediate social group (e.g., Espelage et al., 2003; Glomb & Liao, 2003; Mesch, Fishman, & Eisikovits, 2003; Stephens & Bredemeirer, 1996). Likewise, hockey teams develop collective norms about "how the game is played" and appropriate behavior toward opponents (e.g., Loughead & Leith, 2001). Gee and Leith (2007) noted that several studies have shown "that the longer athletes are exposed to pro-aggressive norms and values, the more likely it is that that they will adopt a similar viewpoint" (p. 571). Thus:

Hypothesis 3. Team aggression is positively related to individual player aggression.

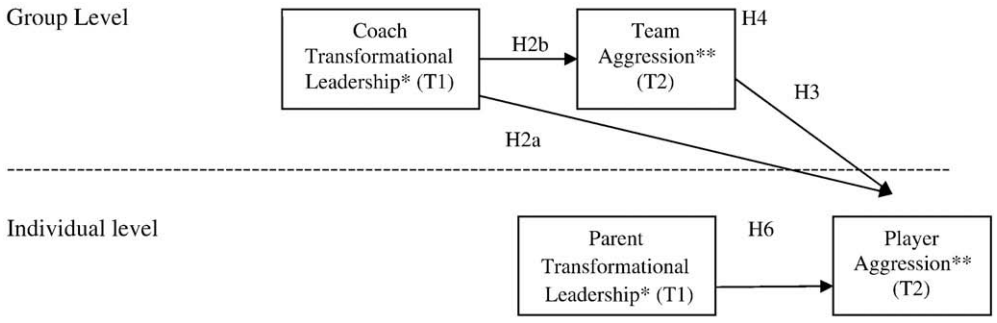
While recent studies show that transformational leadership is negatively related to aggression, just *how* transformational leaders influence individual follower aggression in group settings remains to be resolved. The process may be direct (whereby transformational leaders motivate and inspire individual followers to engage in prosocial behavior), and/or indirect (whereby transformational leaders motivate and inspire prosocial group norms and behaviors, and in turn leader-shaped behavioral norms encourage individuals to engage in prosocial behavior). Although existing studies lend support to a direct relationship (e.g., Hepworth & Towler, 2004), the possibility of indirect effects has received less attention (Brown & Treviño, 2006a), and we test this empirically in this study.

Research on how transformational leadership intersects with group processes has increased over the past decade (Yammarino et al., 2005). Studies of leadership have used cross-level mediated models to evaluate the effects of leadership on individual behavior in group settings (e.g., Chen & Bliese, 2002). Consistent with these conceptualizations of leadership and our application of social learning theory, we hypothesize that team aggression mediates the relationship between coach transformational leadership and individual player aggression. This proposed cross-level mediated model is depicted in Fig. 1.

Hypothesis 4. Team aggression mediates the relationship between coach transformational leadership and individual player aggression.

2.3. Influence of parents

In the context of youth sport, there is growing concern (e.g., van den Nieuwenhof, 2005) about the prevalence and effects of parental behavior on player attitudes and behavior. In this study, we conceptualize parents' behaviors in terms of transformational leadership. Popper and Mayseless (2003) conceptually linked transformational leadership behaviors with good parenting practices. They noted that transformational managers "set goals and standards for performance, but are not critical, judgmental, or aggressive" (p. 45) toward employees — similar to how transformational parents set limitations and rules, and apply consistent discipline. We argue that even when parents do not occupy a formal leadership role in an organized setting in which their children are involved, they may still exert powerful influences on their childrens' behavior (Côté & Hay, 2002). Prosocial parenting — providing encouragement, support, consistent discipline, and affection to children — models an orientation of respect for others that is associated with lower levels of aggression (Brendgen, Vitaro, Tremblay, & Lavoie, 2001; Wyatt & Carlo, 2002). Further, studies of adolescent relationships with "very important" non-parental adults (e.g., guardians) report similar findings



Note. T1 = Time 1, T2 = Time 2, * Player-reported data source, ** Referee-reported data source. H = hypothesis.

Fig. 1. Proposed cross-level mediated model of player on-ice aggression.

(Greenberger, Chen, & Beam, 1998; Rishel, Sales, & Koeske, 2005). We hypothesize that transformational leadership behaviors enacted by these role models will be related to lower aggressive behavior in players:

Hypothesis 5. The transformational leadership behaviors of a player's most influential non-coach adult (e.g., parent) is negatively related to that adult endorsing aggression.

Hypothesis 6. The transformational leadership behaviors of a player's most influential non-coach adult (e.g., parent) is negatively related to that individual player's aggression.

3. Method

3.1. Study context

Players, coaches, and parents/guardians were associated with one of two recreational ('house') leagues in a medium-sized Canadian city. These leagues promote broad access to the sport irrespective of player socio-economic background and skill, and guarantee equal playing time to all players.[1] Sixteen of the 17 teams in the two participating leagues provided data for the current study.

3.2. Design and procedure

The panel design involved two time periods. "Time 1" refers to the period from the beginning until the midpoint of the season (i.e., approximately October 2003 to January 2004). Surveys were completed at the midpoint of the season following a game or practice.[2] "Time 2" refers to the period following this survey until the end of the season (i.e., approximately January 2004 to March 2004). Players competed in an average of 12.77 games (SD = 3.30) during Time 1 and an average of 13.54 games (SD = 4.18) during Time 2.

Participating teams received $300 toward registration in a hockey tournament or other team benefit. Participation was voluntary (parental permission was received for all players) and players were asked not to discuss the survey with team mates while completing it in the team dressing room. Only researchers were present while players completed questionnaires. Simultaneously, coaches completed a short survey. Parents/guardians also completed a short survey, which they returned by mail to the researchers.

[1] The first author makes this claim based on 16 years experience in amateur ice hockey, primarily as a referee, but also as a coach and score keeper. With one exception (one league allowed body checking, the other did not), both house leagues played by the same rules (Hockey Canada, 2003).

[2] We assessed the appropriateness of our survey for younger participants by, first, matching the language used in the survey with the reading comprehension ability of an average 13 year-old. This was done by analyzing the draft survey with Microsoft® Office Word 2003's spelling and grammar checker, ensuring that the Flesch-Kincaid Grade Level score (a function of average sentence length and average number of syllables per word) was equal to the Canadian school grade of the average-aged player (i.e., Grade 8). Second, we pilot tested our survey with a team of similarly-aged hockey players not included in the study to ensure that hockey lingo (e.g., "high sticking") was contextually appropriate.

3.3. Participants

The 16 teams included 248 players, with 211 players (85% response rate; 96% male), 327 parents/guardians (estimated response rate = 75%; 50% male), and 48 coaches (response rate = 91%; 98% male) completing surveys. Of these, 183 players provided useable data ($M = 13.39$ years, range: 11–15; playing experience $M = 6.54$ years).[3] On average, each team consisted of 14 non-goalie players and three coaches.

3.4. Measures

3.4.1. Player aggression

Penalty minutes received by players for specific rule violations during games were operationalized as player aggression. Penalties involve temporary removal of offending players from the game. At the end of the season, officials provided original copies of "game sheets" for each game, with 90% of these records received. Game sheets included information about the team roster, individual and team performance, and the number and duration of penalties. Penalties are recorded by neutral scorekeepers who work games with trained referees.

Consistent with other studies using hockey penalty minutes as a proxy for aggression (e.g., Bushman & Wells, 1998), penalties were classified as aggressive and non-aggressive. Aggressive penalties are infractions where the intended motive is to intimidate, physically impede, or injure an opponent. For example, "high sticking" an opponent on the helmet can result in a two minute penalty; if a referee believes that the intent was to injure an opponent, a more severe penalty of 15 minutes can be imposed. In contrast, non-aggressive penalties are assessed for violations of technical rules. Table 1 categorizes penalties and their rate of occurrence among the sample of players for the entire season.

The criterion variable was calculated by dividing the total number of aggressive penalty minutes assessed to a player by the number of games played by that player during Time 2. This provided a comparable individual-level rate of player aggression.

3.4.2. Coach transformational leadership

An adapted version of the Global Transformational Leadership Scale (Carless, Wearing, & Mann, 2000) was used to measure coach transformational leadership. This short measure, which was altered slightly to fit the study setting, was suitable for use by young players in a team dressing room. Players first identified the team coach who "has the most influence on your attitudes and involvement in hockey," and then responded to seven items (see Appendix A) measured on a 5-point scale ranging from 0 (*not at all*) to 4 (*always*). This scale had an acceptable reliability ($\alpha = .80$).

3.4.3. Parent or adult transformational leadership

Players were asked to identify the (non-coach) adult who "has the most influence on your attitudes and involvement in hockey," and then respond to the adapted transformational leadership scale. This scale had an acceptable reliability ($\alpha = .84$).

3.4.4. Team aggression

Team aggression during Time 2 was calculated by summing the total penalty minutes by players on each team and dividing by the number of team games played during Time 2.

3.4.5. Endorsement of aggression

Coaches and parents/guardians responded to three items measuring the degree to which they endorsed their players/child enacting typical acts of on-ice aggression. The items ("I tell my players/child that it is acceptable to slash or high stick an opponent," "I tell my players/child that it is acceptable to cross check an opponent," and "I congratulate my players/child when they 'rough up' an opposing player") were measured on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). Exploratory factor analysis showed that the items loaded on to a single factor (parents: 66% variance explained; coaches: 65% variance explained), had acceptable item loadings (parents: M item = .70; coaches: M item = .70), and had adequate reliabilities (parents: $\alpha = .72$; coaches: $\alpha = .65$).

3.4.6. Prior aggression

Player aggression during Time 1 was calculated by summing the total penalty minutes per player and dividing by the number of games played by that same player during Time 1.

[3] Given the fundamental differences in the role of hockey goalies compared with other team players, all goalies ($n = 22$) were removed from the main analysis. The role of an ice hockey goalie is to prevent opponents from shooting the puck into their goal. Some teams have two goalies, and in these cases participation in games is either divided between the two goalies or one goalie is used as a backup. For these reasons, hockey goalies have few opportunities for direct physical contact with opponents and therefore accumulate fewer penalties than other team players who more frequently come into contact with opponents. In the current sample, goalies received significantly fewer aggressive penalties minutes per game than their team mates during both Time 1, $F(22, 246) = 6.56$, $p < .05$, and Time 2, $F(22, 246) = 4.27$, $p < .05$. In addition, transformational leadership scores for six non-goalie players were excluded because the nominated parent and coach was the same person (a violation of data independence).

Table 1
Mean player ($N = 226$) penalty minutes per game by penalty type (Times 1 & 2).

Penalty	Mean
Aggressive penalties	.435
Roughing	.084
Game misconduct	.067
Misconduct	.054
Interference	.032
Tripping	.031
Slashing	.030
High sticking	.026
Cross checking	.015
Holding	.014
Hooking	.013
Unsportsmanlike conduct	.013
Elbowing	.012
Body checking	.010
Boarding	.010
Fighting	.006
Checking from behind	.006
Charging	.006
Roughing after the whistle	.004
Kneeing	.001
Spearing	.001
Non aggressive penalties	.011
Too many players	.007
Bench minor	.003
Delay of game	.001

3.5. Data aggregation

We conceptualized coach transformational leadership, coach endorsement of aggression, and team aggression as team-level constructs. To determine whether it is statistically appropriate to aggregate these variables, we calculated intraclass correlations coefficients (ICCs) for these variables.

Based on the theoretical arguments advanced earlier about collective leadership in teams, we argue that player ratings of a single influential coach are not independent of ratings of other influential coaches. Scores for coach transformational leadership were ICC(1) = .14, $F(15, 181) = 2.83$, $p < .001$, ICC(2) = .65. By convention, ICC(2) values of .70 or higher are considered satisfactory; in this case, the relatively lower value may be due to low sample size (Brown & Treviño, 2006a). Team r_{wg} values for coach transformational leadership ranged between .74 and .96, thus exceeding the .70 cutoff suggested by James, Demaree, and Wolf (1984). The $r_{wg(j)}$ value for coach transformational leadership was high (.94).

We also treated coach endorsement of aggression as a group construct, ICC(1) = .07, $F(15, 46) = 1.22$, $p > .05$, ICC(2) = .19, despite its low ICC(1) and ICC(2) values, for three reasons. First, $r_{wg(j)}$ values, which take into account group size, for coach endorsement of aggression were acceptable (.93). Second, the nature of the items may have encouraged socially desirable responses from coaches, limiting variance in the team level scores. Third, the F ratio was greater than 1.00 (George, 1990) in spite of the limited number of teams in the analysis.

Finally, team aggression, ICC(1) = .13, $F(15, 225) = 3.19$, $p < .001$, ICC(2) = .68, exhibited statistically significant variance at the team level.

4. Results

Table 2 shows descriptive statistics and zero-order correlations for the study variables. There were no differences ($p > .05$) between levels of aggression at either Time 1 or Time 2 for players who responded to the survey and those who did not.[4]

In terms of the adult who most influenced players, fathers were most commonly cited (65%), followed by mothers (16%), and others (e.g., guardians, 15%), suggesting that, on average, a male parent served as the primary adult (non-coach) role model.

We tested the cross-level mediated model (Hypotheses 2–4) using random coefficient models as implemented in R (Pinheiro & Bates, 2000).

[4] Further, there is no evidence in the current sample to suggest that higher levels of aggression are beneficial to either individual or team performance. The relationship between player aggression and player performance (goals and assists per game) during Time 2 was non-significant ($r = .06$, $p > .05$, $N = 226$). The relationship between team aggression and team performance (percentage of games won) during Time 2 was in fact negative ($r = -.53$, $p < .05$, $N = 16$). This replicates findings from studies involving professional hockey players. Engelhardt (1995) found that teams that accumulated more penalties for fighting placed lower in team performance rankings. Further, Gee & Leith (2007) found that aggressive penalties were not associated with individual performance.

Table 2
Descriptive statistics and intercorrelations ($N = 16$-226).

	N	M	SD	1	2	3	4	5	6	7
1. Time 2 player aggression	226	.41	.73							
2. Time 1 player aggression	226	.48	.80	.62**						
3. Time 2 team aggression	16	.36	.27	.43**	.32**					
4. Coach transformational leadership	16	3.24	.25	−.27**	−.13	−.50**				
5. Coach aggression attitudes	16	.38	.33	.14*	.14*	.17**	−.71**			
6. Parent transformational leadership	183	3.30	.59	−.16*	−.11	−.12	.15*	−.11		
7. Parent aggression attitudes	111	.36	.57	.01	.06	.09	−.11	.12	−.20*	

Note. Time 2 team aggression, coach transformational leadership, and coach attitudes toward aggression are group means from 16 teams assigned back to individual players. As a result, correlations and significance tests associated with these variables need to be viewed with caution. * $p < .05$ (2-tailed) ** $p < .01$ (2-tailed).

4.1. Coach TFL and endorsing aggression: Hypothesis 1

To test whether coach transformational leadership is negatively associated with endorsing acts of aggression, we correlated aggregate player reports of coach transformational leadership with aggregated coach self-reports of attitudes toward aggression. The substantial correlation ($r = -.71$, $p < .01$, $N = 16$) supports the notion that transformational coaches are less likely to endorse the use of on-ice aggression.

4.2. Coach TFL, team aggression, and player aggression: Hypotheses 2–4

To test the cross-level mediated model in which player aggression is the criterion variable (see Fig. 1), we followed the procedure described by Kenny, Kashy, and Bolger (1998). For every step in the analysis in which Time 2 player aggression was the dependent variable, we controlled statistically for Time 1 player aggression (see Table 3). The first criterion, that coach transformational leadership must be negatively related to the criterion variable, was supported ($\gamma = -.56$, $p < .01$). The second criterion requiring that coach transformational leadership must be related to the proposed mediator (i.e., team aggression) was fulfilled ($\gamma = -.11$, $p < .001$). Taken together, the first two steps support Hypotheses 2a and 2b. Kenny et al.'s (1998) third criterion, that team aggression be related to the criterion variable, was supported by the data ($\gamma = .71$, $p < .001$). Full mediation is achieved when the relationship between the predictor variable and the criterion variable reverts to zero when the mediator variable is controlled (Hypothesis 4). The results showed that coach transformational leadership was no longer significantly related to the player aggression ($\gamma = -.27$, $p > .05$), but the relationship between team aggression and individual player aggression remained significant ($\gamma = .58$, $p < .01$). These results support a cross-level, fully-mediated model in which coach leadership affects individual player aggression via team-level aggression.

4.3. Parent TFL, endorsing aggression, and player aggression: Hypothesis 5 and 6

We also tested whether parent transformational leadership is negatively associated with endorsing acts of aggression. Hypothesis 5 was supported by the significant correlations between player-reported parent transformational leadership scores

Table 3
The mediating role of team aggression (Steps 1-4) controlling for Time 1 aggression.

Variable	Parameter estimate	SE	df	t test	p
Step 1: DV = Time 2 player aggression					
(Intercept)	1.970	.576	209	3.423	.001
Time 1 player aggression	.538	.047	209	11.465	.000
Coach transformational leadership	−.562	.177	14	−3.179	.007
Step 2: DV = Time 2 team aggression					
(Intercept)	.885	.054	210	16.347	.000
Coach transformational leadership	−.106	.013	14	−8.039	.000
Step 3: DV = Time 2 player aggression					
(Intercept)	−.075	.061	209	−1.232	.219
Time 1 player aggression	.488	.047	209	10.316	.000
Time 2 team aggression	.706	.142	14	4.960	.000
Step 4: DV = Time 2 player aggression					
(Intercept)	.846	.573	209	1.476	.141
Time 1 player aggression	.491	.047	209	10.408	.000
Coach transformational leadership	−.271	.168	13	−1.616	.130
Time 2 team aggression	.577	.163	13	3.552	.004

Table 4
The impact of coach and parent transformational leadership controlling for Time 1 aggression.

Variable	Parameter estimate	*SE*	*df*	*t* test	*p*
DV = Time 2 aggression					
(Intercept)	1.088	.599	165	1.818	.071
Time 1 player aggression	.580	.049	165	11.876	.000
Coach transformational leadership	−.265	.171	13	−1.551	.145
Time 2 team aggression	.470	.158	13	2.979	.011
Parent transformational leadership	−.076	.063	165	−1.198	.233

and parents' self-reported endorsement of aggression ($r = -.20$, $p < .05$). This further supports our argument that transformational leaders are less likely to endorse the use of aggression.

When parent transformational leadership was included as an individual-level predictor variable in the cross-level mediated model, it was not statistically related to Time 2 player aggression ($\gamma = -.08$, $p > .05$), and thus Hypothesis 6 was not supported (see Table 4).

5. Discussion

We tested a cross-level mediated model that accounted for the influence of two different adult role models on players' aggression in the context of ice hockey. The data provide strong support for a negative relationship between transformational leadership behaviors and follower aggression. Moreover, the model showed that the relationship between coaches' leadership and players' aggression is mediated by team aggression, suggesting that transformational leaders indirectly affect individual follower aggression by discouraging aggression in the followers' salient social group. Although the zero-order correlation between parental leadership behaviors and players' aggression was significant, parents' transformational leadership was not related to player aggression when entered into the cross-level model. These results extend our understanding of the relationship between transformational leadership and follower aggression in several important ways.

First, from a social learning perspective, transformational leaders model prosocial behavior through their words and actions (e.g., Brown et al., 2005). Consistent with this, and in support of Hypotheses 1 and 5, player reports of coach and parent transformational leadership were negatively related to coach- and parent-reported endorsement of aggression, respectively. In other words, the more coaches and parents endorsed aggression, the less transformational they were seen by players. These results support a social learning argument for the main results and suggest that our measure of leadership captured classic (and not pseudo) transformational leadership (Barling, Christie, & Turner, 2008).

Second, our results indicate how a negative association between transformational leadership and aggression in group settings might emerge. Within the cross-level model, coaches' leadership behaviors influence players' behaviors directly, which supports prior research on the role of leaders on aggression (e.g., Hepworth & Towler, 2004). However, we extend this research by showing the effects of coaches' transformational leadership behaviors on overall team-level aggression, which, in turn, affects individual-level aggression. In this sense, our results isolate a key mechanism through which adults and peers simultaneously influence individual player aggression. In a similar way, research on safety climate has found support for the notion that supervisors have an indirect effect on employee safety behavior through group safety norms (Zohar, 2000).

The unique characteristics of youth ice hockey may explain why there was an indirect relationship between coach leadership and player aggression. During team games and practices, coaches commonly communicate performance issues to the entire team. Given the physical setting of games and practices (team players share a dressing room and team bench), coaches have few opportunities for personal, confidential conversations with players. For example, if during a game, players start "playing rough," it is common for coaches to address this issue with all players seated at the team bench. Coaches may instruct their players not to play rough because it is not the right way to compete. After hearing these messages, players may adopt a less aggressive style of play. In turn, after watching their teammates on the ice, teammates on the bench may subsequently behave less aggressively toward opponents. In this way, coach transformational leadership in ice hockey may influence team aggression norms, and, in turn, these norms may influence individual player behavior.

Third, and contrary to our initial hypotheses, parents' transformational leadership behaviors were not associated with players' aggression when accounting for the influence of coaches' leadership, team aggression, and prior levels of player aggression. Three interrelated factors might account for this. First, most prior research on predicting children's aggression focuses on isolating single influences. When simultaneously contrasting different social influences (i.e., coaches, parents, peers) in a multivariate model, not all of these social influences exerted significant effects. In this sense, the model tested in this study achieves greater ecological validity than single social influence models as it reflects the multiple role models in children's social world. Second, consistent with the function of model salience within social learning theory, the age of the children in this study (M age = 13 years) might limit the extent to which parents directly influence children's behaviors. As children enter adolescence, parents' direct influence might be lessened as the socializing effects of peers and other adults who control valued resources (e.g., social approval) increases (Harris, 1995). Finally, and related to our previous point, because parents have limited ability to choose their child's hockey team members, parents' direct influence on their childrens' aggression in this context may be limited.

5.1. Study strengths and limitations

Studying organizational processes in a team sports context carries many benefits. First, we used reliable multi-source data (i.e., player, coach, and parent survey data, and observational reports of player aggression by trained referees). Using cross-source and mixed-method data eliminates biases related to same-source and common method variance. Second, the prospective design enabled statistical control of prior levels of player aggression, providing more systematic evidence of the predictive relationship between leadership and aggression than is available with cross-sectional designs. Third, the inclusion of both coach and parent leadership allows for a comparison of their respective influence over children's aggression. Fourth, while levels of physical aggression are frequently truncated in research (Dupré, Inness, Connelly, Barling, & Hoption, 2006), the range of aggression found within ice hockey enhances statistical conclusion validity and captures a wider domain of aggression.

At the same time, several limitations exist. First, the context of this study (youth ice hockey) may be unique in terms of the prevalence and social permissibility of physical and verbal aggression (Widmeyer, Dorsch, Bray, & McGuire, 2002). In addition, leadership may have direct effects where dyadic leader-follower role modeling occurs. Threats to the external validity may be rendered less plausible given that some of the main effects that emerged replicate those of previous studies of adult samples in non-sport contexts (e.g., Brown & Treviño, 2006a). Replication of the current findings to workplaces, for example, with samples not restricted primarily to males, remains to be demonstrated. Second, the way in which we operationalized transformational leadership by emphasizing a single referent (i.e., the most influential coach) may underestimate the strength of distributed leadership. Future research should use a group referent for measures of collective leadership. Third, we analyzed data from 16 teams, a relatively small sample size for multilevel research; despite this, our cross-level results were statistically significant. Lastly, future research using larger samples should test competing mediators using multi-level structural equation models.

5.2. Implications for practice

Aggression is an important issue in organized settings. The current study isolates the role of adults' transformational leadership in children's aggression. Leadership training has been shown to be effective in increasing transformational leadership, and, in turn, changing follower behavior (e.g., Barling, Kelloway, & Weber, 1996; Dvir, Eden, Avolio, & Shamir, 2002). Such training may also prove effective in reducing followers' aggression, and the effects of transformational leadership training with sports coaches, teachers, and parents should be studied. It might also be beneficial for leader selection for organizations to consider candidates' past leadership behaviors: those who engage in aggression themselves, or who condone subordinate aggression, may not be suited for certain types of leadership positions (e.g., coaching children and adolescents). Conversely, young leaders who have experienced prosocial role models may be more appropriate candidates for leadership positions (Brown & Treviño, 2006b).

6. Conclusion

Returning to the question posed at the beginning of this paper: How do role models such as leaders in organized settings influence others to “do good”?, our study demonstrates the direct and indirect effects of transformational leadership on individual and group prosocial behavior. Our research also points to the importance of assessing multiple role models simultaneously in understanding leadership influences on follower behavior. While our results await replication on older samples of males and females in non-sport contexts, possible implications from the current findings are strengthened given that they are based on multi-source longitudinal data and modeled across two levels of analysis.

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Appendix A. Adapted items from Carless et al.'s (2000) Global Transformational Leadership Scale.

The coach/(non-coach) adult that most influences me in hockey …

1. … communicates a clear and positive vision of the future.
2. … treats me as an individual, supports and encourages my development.
3. … gives encouragement and recognition to me.
4. … builds my trust, involvement, and cooperation.
5. … encourages me to think about problems in new ways and question my assumptions.
6. … is clear about their values and practices what he or she preaches.
7. … instils pride and respect in me and inspires me by being highly skilled.

References

Anderson, C., & Bushman, B. (2002). Human aggression. *Annual Review of Psychology*, *53*, 27—51.

Avolio, B. J. (1999). *Full leadership development: Building the vital forces in organizations.* Thousand Oaks, CA: Sage.

Avolio, B. J., Sivasubramaniam, N., Murray, W. D., Jung, D., & Garger, J. W. (2003). Assessing shared leadership: Development and preliminary validation of a Team Multifactor Leadership Questionnaire. In C. L. Pearce & J. A. Conger (Eds.), *Shared Leadership* (pp. 143—172). Thousand Oaks, CA: Sage.

Bandura, A. (1973). *Aggression: A social learning analysis.* Englewood Cliffs, NJ: Prentice-Hall Inc.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall Inc.

Barling, J., Christie, A., & Turner, N. (2008). Pseudo-transformational leadership: Toward the development and test of a model. *Journal of Business Ethics*, *81*, 851—861.

Barling, J., Kelloway, E. K., & Weber, T. (1996). Effects of transformational leadership training on attitudinal and financial outcomes: A field experiment. *Journal of Applied Psychology*, *81*, 827—832.

Bass, B. M. (1998). The ethics of transformational leadership. In J. Ciulla (Ed.), *Ethics, the heart of leadership* (pp. 169—192). Westport, CT: Praeger.

Bass, B. M., & Steidlmeier, P. (1999). Ethics, character, and authentic transformational leadership behavior. *Leadership Quarterly*, *10*, 181—217.

Blau, P. (1964). *Exchange and power in social life.* New York: Wiley.

Brendgen, M., Vitaro, F., Tremblay, R., & Lavoie, F. (2001). Reactive and proactive aggression: Predictions to physical violence in different contexts and moderating effects of parental monitoring and caregiving behavior. *Journal of Abnormal Child Psychology*, *29*, 293—304.

Brezina, T. (1999). Teenage violence toward parents as an adaptation to family strain: from a national survey of male adolescents. *Youth & Society*, *30*, 416—444.

Brown, M., & Treviño, L. K. (2006). Socialized charismatic leadership, values congruence, and deviance in work groups. *Journal of Applied Psychology*, *91*, 954—962.

Brown, M., & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *Leadership Quarterly*, *17*, 595—616.

Brown, M. E., Treviño, L. K., & Harrison, D. A. (2005). Ethical leadership: A social learning perspective for construct development and testing. *Organizational Behavior and Human Decision Processes*, *97*, 117—134.

Bushman, B., & Wells, G. (1998). Trait aggressiveness and hockey penalties: Predicting hot tempers on ice. *Journal of Applied Psychology*, *83*, 969—974.

Carless, S., Wearing, A., & Mann, L. (2000). A short measure of transformational leadership. *Journal of Business and Psychology*, *14*, 389—405.

Chen, G., & Bliese, P. D. (2002). The role of different levels of leadership in predicting self- and collective efficacy: Evidence for discontinuity. *Journal of Applied Psychology*, *87*, 549—556.

Côté, J. (2002). Coach and peer influence on children's development. In J. SilvaIII & D. Stevens (Eds.), *Psychological Foundations of Sport* (pp. 520—540). Boston: Allyn and Bacon.

Côté, J., & Hay, J. (2002). Family influences on youth sport performance and participation. In J. SilvaIII & D. Stevens (Eds.), *Psychological foundations of sport* (pp. 484—502). Boston, MA: Allyn and Bacon.

Dishion, T., Spracklen, K., Andrews, D., & Patterson, G. (1996). Deviancy training in male adolescents friendships. *Behavior Therapy*, *27*, 373—390.

Dupré, K., Inness, M., Connelly, C. E., Barling, J., & Hoption, C. (2006). Workplace aggression in teenage part-time employees. *Journal of Applied Psychology*, *91*, 987—997.

Dvir, T., Eden, D., Avolio, B. J., & Shamir, B. (2002). Impact of transformational leadership on follower development and performance: A field experiment. *Academy of Management Journal*, *45*, 735—744.

Engelhardt, G. M. (1995). Fighting behaviour and winning National Hockey League games — A paradox. *Perceptual and Motor Skills*, *80*, 416—418.

Espelage, D., Holt, M., & Henkel, R. (2003). Examination of peer-group contextual effects on aggression during early adolescence. *Child Development*, *74*, 205—220.

Fletcher, J. K., & Kaufer, K. (2003). Shared leadership: Paradox and possibility. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 21—47). Thousand Oaks, CA: Sage.

Gee, C. J., & Leith, L. M. (2007). Aggressive behavior in professional ice hockey: A cross-cultural comparison of North American and European born NHL players. *Psychology of Sport and Exercise*, *8*. (pp. 567—583).

George, J. M. (1990). Personality, affect and behaviour in groups. *Journal of Applied Psychology*, *75*, 698—709.

Glomb, T., & Liao, H. (2003). Interpersonal aggression in work groups: Social influence, reciprocal, and individual effects. *Academy of Management Journal*, *46*, 486—496.

Greenberger, E., Chen, C., & Beam, M. (1998). The role of "very important" non-parental adults in adolescent development. *Journal of Youth and Adolescence*, *27*, 321—343.

Harris, J. R. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review*, *102*, 458—489.

Hepworth, W., & Towler, A. (2004). The effects of individual differences and charismatic leadership on workplace aggression. *Journal of Occupational Health Psychology*, *9*, 176—185.

Hockey Canada (2003). *Official rule book of hockey Canada*, 60th edition Ottawa: Hockey Canada.

Hoption, C., Phelan, J., & Barling, J. (2007). Transformational leadership in sport. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology: Contemporary themes* (pp. 45—60). NY: Routledge.

James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, *69*, 85—98.

Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of Management Review*, *31*, 386—408.

Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindsey (Eds.), *The handbook of social psychology* (pp. 233—265). 4th ed. Boston: McGraw-Hill.

Kiesner, J., & Kerr, M. (2004). Families, peers, and contexts as multiple determinants of adolescent problem behavior. *Journal of Adolescence*, *27*, 493—495.

Kozlowski, S. W. J., & Klein, K. J. (2000). A multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In Katherine Klein & Steve Kozlowski (Eds.), *Multilevel theory, research, and methods in Organizations*. San Francisco: Jossey-Bass.

Kreager, D. A. (2007). Sports and male violence. *American Sociological Review*, *72*, 705—724.

Loughead, T. M., & Leith, L. M. (2001). Hockey coaches' and players' perceptions of aggression and aggressive behavior of players. *Journal of Sport Behavior*, *24*, 394—407.

Mesch, G., Fishman, G., & Eisikovits, Z. (2003). Attitudes supporting violence and aggressive behavior among adolescents in Israel: The role of family and peers. *Journal of Interpersonal Violence*, *18*, 1132—1148.

Organ, D. W., Podsakoff, P. M., & MacKenzie, S. B. (2006). *Organizational citizenship behavior: Its nature, antecedents, and consequences.* Thousand Oaks, CA: Sage.

Pearce, C. L., & Conger, J. A. (2003). All those years ago: The historical underpinnings of shared leadership. In C. L. Pearce & J. A. Conger (Eds.), *Shared leadership: Reframing the hows and whys of leadership* (pp. 3—21). Thousand Oaks, CA: Sage.

Pearce, C. L., & Sims, H. P., Jr. (2002). Vertical versus shared leadership as predictors of the effectiveness of change management teams: An examination of aversive, directive, transactional, transformational, and empowering leader behaviors. *Group Dynamics: Theory, Research, and Practice*, *6*, 172—197.

Pinheiro, J. C., & Bates, D. M. (2000). *Mixed-effects models in S and S-Plus.* New York: Springer-Verlag.

Popper, M., & Mayseless, O. (2003). Back to basics: Applying a parenting perspective to transformational leadership. *Leadership Quarterly*, *14*, 41—65.

Rishel, C., Sales, E., & Koeske, G. F. (2005). Relationships with non-parental adults and child behavior. *Child and Adolescent Social Work Journal*, *22*, 19—34.

Robinson, S., & O'Leary-Kelly, A. (1998). Monkey see, monkey do: The influence of work groups on the antisocial behavior of employees. *Academy of Management Journal*, *41*, 658—672.

Rousseau, D. M., & Fried, Y. (2001). Location, location, location: Contextualizing organizational research. *Journal of Organizational Behavior*, *22*(1), 1—13.

Shields, D., Bredemeier, B., Gardner, D., & Bostrom, A. (1995). Leadership, cohesion, and team norms regarding cheating and aggression. *Sociology of Sport Journal*, *12*, 324—336.

Simola, S. K., Barling, J., & Turner, N. (2010). Transformational leadership and leader moral orientation: Contrasting an ethic of justice and an ethic of care. *The Leadership Quarterly*, *21*, 179—188.

Stephens, D., & Bredemeirer, B. (1996). Moral atmosphere and judgments about aggression in girls' soccer: Relationships among moral and motivational variables. *Journal of Sport & Exercise Psychology*, *13*, 158−173.
Turner, N., Barling, J., Epitropaki, O., Butcher, V., & Milner, C. (2002). Transformational leadership and moral reasoning. *Journal of Applied Psychology*, *87*, 304−311.
van den Nieuwenhof, L. (2005). Crossing the line. *The Weekend Australian Magazine*, 22−25 October 1–2.
Widmeyer, W. N., Dorsch, K. D., Bray, S. R., & McGuire, E. J. (2002). Explanations for the occurrence of aggression: Theories and research. In J. SilvaIII & D. Stevens (Eds.), *Psychological foundations of sport* (pp. 352−379). Boston: Allyn and Bacon.
Wolfe, R., Weick, K., Usher, J., Terborg, J., Poppo, L., Murrell, A. J., et al. (2005). Sport and organizational studies. *Journal of Management Inquiry*, *14*, 182−210.
Wyatt, J., & Carlo, G. (2002). What will my parents think? Relations among adolescents' expected parental reactions, prosocial moral reasoning, and prosocial and antisocial behaviors. *Journal of Adolescent Research*, *17*, 646−666.
Yammarino, F. J., Dionne, S. D., Chun, J. U., & Dansereau, F. (2005). Leadership and levels of analysis: A state-of-the-science review. *Leadership Quarterly*, *16*, 879−919.
Zohar, D. (2000). A group-level model of safety climate: Testing the effect of group climate on microaccidents in manufacturing jobs. *Journal of Applied Psychology*, *85*, 587−596.