

Investigating the association between social identity and group-based self-conscious emotions and with sport commitment among adolescent female athletes

ISABELLE DORÉ*, EVA PILA**, JENNA GILCHRIST***, CATHERINE SABISTON

(*) *School of Kinesiology and Physical Activity Science, University of Montreal, Canada*

(**) *School of Kinesiology, Western University, Canada*

(***) *School of Public Health and Health Systems, University of Waterloo, Canada*

(****) *Faculty of Kinesiology and Physical Education, University of Toronto, Canada*

Due to the prevalence of sport dropout among female athletes during adolescence, identifying factors that mitigate this decline in participation is important. This study examined social identity and group-based self-conscious emotions as correlates of sport commitment among 239 young female athletes ($M_{age} = 14.07$ years, $SD = 1.37$ years, Range = 11–17 years). Data were analyzed using linear regressions. The ingroup affect component of social identity was associated with sport commitment (β ranging from .23 to .26, all $p < .01$). Group-based guilt, shame, and embarrassment were negatively related to sport commitment (β ranging from -.11 to -.15, all $p < .05$), while group-based authentic pride was positively associated with sport commitment ($\beta = .16$, $p < .01$). Group-based constructs such as social identity and self-conscious emotions may be worthwhile targets for interventions that aim to improve sport commitment and mitigate sport dropout.

KEY WORDS: Embarrassment, envy, group sport, guilt, shame, pride, social identity.

Funding for this study was provided from Social Sciences and Humanities Research Council of Canada and Sport Canada Insight

Grant, Grant #: 862-2013-0005. ID is supported by a Fond de recherche du Québec – Santé postdoctoral fellowship, EP is supported by a Social Sciences and Humanities Research Council Doctoral Scholarship, SB is supported by a Banting Social Sciences and Humanities Research postdoctoral fellowship. CMS holds a Canada Research Chair in Physical Activity and Mental Health.

Correspondence to: Isabel Doré, Ph.D. School of Kinesiology and Physical Activity Sciences, Faculty of Medicine, Université de Montréal 2100, boul. Édouard-Montpetit, Montréal, QC, Canada, H3T 1J4 (e-mail: isabelle.dore@umontreal.ca)

Declaration of conflicting interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Introduction

Sport engagement positively contributes to youth development (Holt, 2016). Involvement in sport promotes a range of adaptive psychosocial benefits, while also decreasing the risk of problem behaviors such as aggression and hyperactivity (Fraser-Thomas, Côté, & Deakin, 2005), and mental disorders such as anxiety and depression (Doré, O'Loughlin, Beauchamp, Martineau, & Fournier, 2016). Despite these potential benefits, sport participation declines during adolescence, especially among females, who are less likely to participate in organized, competitive, or recreational sport (Eime et al., 2016; Turner, Perrin, Coyne-Beasley, Peterson, & Skinner, 2015). The lower rates of sport participation among adolescent females have spurred many initiatives (e.g., working groups, policies, equity task forces) that are aimed at understanding the modifiable factors that can be targeted to keep adolescent females committed to and involved in sport. Social and emotional dynamics related to the sport experience may be particularly important contributors to sustained athletic engagement due to the elevated salience of the social self and peer relationships in adolescence (Frydenberg & Lewis, 1991; Rose & Rudolph, 2006). Identifying socio-emotional factors that contribute to sport commitment – a key predictor of sport participation and drop out (Williams, 2013) – may help to underscore the unique patterns of sport participation among adolescent girls.

Social Identity and Sport Commitment

Social identity may be an important social factor linked to sport commitment. -Social identity refers to “that part of an individual’s self-concept which derives from his/her knowledge of his/her membership of a social group (or groups) together with the value and emotional significance attached to that membership” (Tajfel, 1981, p. 255). Because of the developmental relevance of peer relationships, social integration and sense of belonging are key predictors of sport participation among adolescent girls (Motl, Dishman, Saunders, Dowda, & Pate, 2006; Voorhees et al., 2005). As such, one’s identity that is derived from their membership to a team may have particular relevance in predicting sustained engagement and participation in sport (Rees, Haslam, Coffee, & Lavalley, 2015). Three dimensions of social identity can be distinguished based on a multidimensional conceptualization (Bruner, Boardley, & Côté, 2014): (i) *ingroup affect* refers to the positive emotions experienced by an individual in relation to group membership, (ii) *ingroup ties* refers to the psychological bonding and belongingness with a

particular group and (iii) *cognitive centrality* refers to the importance attached to being a group member (Cameron, 2004). Each of these dimensions, and sport-based social identity broadly, have the potential to bolster adolescent's commitment to their sport activity as well as quality sport experiences (Bruner et al., 2014; Patrick et al., 1999) and potentially limit disengagement and dropout.

Group-Based Self-Conscious Emotions and Sport Commitment

In addition to one's social identity in sport, other related socio-emotional factors, such as group-based emotions, may also contribute to sport engagement and participation. Emotions are inherently social phenomena that are intimately tied to an individual's identity (Smith, 1993). When thinking about and evaluating one's social identity as part of a group, emotions are experienced on behalf of the group rather than on behalf of the individual (Kessler & Hollbach, 2005). However, to date, sport psychology researchers have predominantly focused on emotions at the individual level. Given the social context of sport and the importance of interpersonal relationships among adolescent girls, there is value in also examining these emotions at the level of the group/team.

Self-conscious emotions (i.e., guilt, shame, embarrassment, and pride) may be a particularly relevant subset of emotion that is relevant to the group. Self-conscious emotions are evoked by self-reflection and self-evaluation (Tangey & Tracy, 2012), and have been linked to motivation, decision-making, and behavior in physical activity contexts at the individual level (Gilchrist, Sabiston, Conroy, & Atkinson, 2018; Sabiston et al., 2010; Wang, Marchant, Morris, & Gibbs, 2004). Underscored by their relevance to behavioral engagement, self-conscious emotions are critical to understanding commitment and engagement in goal-directed behavior, such as sport. Despite the predominant focus of these emotions at the individual-level, they can also be considered group-based if experienced on behalf of the group one identifies with or belongs to (Smith, 1993; Smith & Mackie, 2008; Von Scheve & Ismer, 2013). Kessler and Hollbach (2005) proposed that a key difference between individual and group-based emotions is that individual emotions are elicited by events focused on *personal* identity and group-based emotions are elicited by events focused on *social* identity as a member of a particular group (e.g., sport team). In a systematic review of studies investigating emotions in team sports, approximately 60% of the studies reviewed highlighted the role that others had on players' emotions (Campo, Mellalieu,

Ferrand, Martinent, & Rosnet, 2012). Given the importance that others have in shaping individual's emotional experiences, it may be important to consider emotions at the group level, and to elucidate how group-based emotions may contribute to markers of sport engagement. This is particularly important for female athletes since social relationships and connectedness are priorities to their sense of self and wellbeing (Eime, Harvey, et al., 2013; Eime, Young, Harvey, Charity, & Payne, 2013).

At the group level, three negatively valenced emotions (e.g. *guilt, shame, embarrassment*) and two positively valenced emotions (e.g. *authentic and hubristic pride*) can be distinguished (Tangney & Tracy, 2012). When experienced on behalf of the group, *group-based guilt* and *shame* are defined as "feelings experienced in response to the transgressions and failures of other individuals" (Tangney, Stuewig, & Mashek, 2007). While guilt and shame are often experienced concurrently, they are considered to have distinct causal attributions and outcomes (Tangney & Dearing, 2003). *Group-based guilt*, stemming from behavioral attributions, is experienced more often in competitive settings where morally undesirable behaviors are conducted or endorsed by the ingroup (Tangney & Dearing, 2003). In this way, group-based guilt may be associated with reparative actions or avoidance (Lazarus, 1991) and could be related to higher or lower levels of sport commitment depending on the attribution of the specific context. *Group-based shame*, stemming from characteristic attributions, is more likely to be experienced when a positive group identity is under threat due to a perceived characteristic flaw or failure (Schmader & Lickel, 2006), and may be associated with avoidance (Lazarus, 1991) that could transpire as low levels of commitment to sport. *Group-based embarrassment* can be conceptualized as the reaction to a perceived socially undesirable act of the group that is made public (Tangney, Miller, Flicker, & Barlow, 1996) and may be associated with an action tendency to withdraw from the group and thus likely related to lower levels of commitment. Finally, two types of *group-based pride* can be distinguished by their causal attribution regarding the group's achievement: *group-based hubristic pride* results from positive evaluations of the group as a superior entity and *group-based authentic pride* arises from a positive evaluation of the group's specific achievement (Tracy, Robins, & Tangney, 2007). Individuals reporting group-based authentic and/or hubristic pride may report higher levels of commitment to the team and sport more generally. Taken together, it is clear that different group-based self-conscious emotions are highly relevant in the social context of sport and are likely to be uniquely associated with sport commitment. As such, studying the emotions experienced on behalf of the team in sport is important in order to reflect the indi-

vidual's perception and appraisal of the group that may then impact one's commitment to the team.

Current Study

Both social identity and group-based emotions are grounded in social processes that hold potential for regulating behavior including sport commitment, particularly given the highly social nature of sport. The current study examined whether social identity dimensions (ingroup ties, ingroup affect, and cognitive centrality) and group-based self-conscious emotions (guilt, shame, hubristic and authentic pride, embarrassment) are associated with sport commitment among adolescent female athletes. Based on previous work and conceptualizations of the key constructs, it was hypothesized that social identity dimensions (ingroup ties, ingroup affect, and cognitive centrality) would be associated positively with sport commitment (Hypothesis 1). Based on the unique functional nature of the group-based self-conscious emotions, it was expected that group-based emotions would be associated with sport commitment, in addition to social identity (Hypothesis 2). Specifically, group-based shame and embarrassment may promote avoidance or withdrawal behaviors (Scanlan, Carpenter, Simons, Schmidt, & Keeler, 1993a) and thus are likely to be associated with lower commitment (Hypothesis 2.1). Although guilt typically has reparative functions and prosocial outcomes (Roos, Hodges, & Salmivalli, 2014), when contextualized to controllable behaviors of the group, guilt may contribute to retreating behaviors. For these reasons, group-based guilt may either be related to higher or lower commitment (Hypothesis 2.2). Finally, group-based authentic pride may promote persistence, effort, and improved performance (George & Feltz, 1995), and hubristic pride may be associated with social dominance and improved sense of self and thus were both expected to be positively associated with sport commitment (Hypothesis 2.3).

Methods

PARTICIPANTS AND PROCEDURES

Data for this study were collected as a planned sub-study within a prospective longitudinal cohort study (Pila et al., 2020; Sabiston, Pila, Crocker, Mack, Wilson, Brunet, & Kowalski, 2020) of adolescent girls in organized sport. This cohort study aimed at understanding self-evaluations and sport experiences in adolescent girls. The overall goal of the study was to

understand the role of appearance- and fitness-related self-conscious emotions on sport experiences (Pila et al., 2020). As an additional and unique goal, the current study examines the relationships between group-based self-conscious emotions, social identity, and sport commitment.

After obtaining ethics approval, participants were recruited via study advertisements made through administrative leadership and coaches at local community sport organizations that serve adolescent females in the community. Interested coaches then facilitated scheduling a time when research assistants could visit the team before or after a team practice, and complete a paper and pencil survey. Parental consent and participant assent were sought in person during this time. During the in-person survey completion, participants provided their email address and desire to be contacted for the follow-up survey, approximately one-year later. After the initial in-person data collection was completed, all follow-up contact with participants were conducted via email. The initial sample included 518 young female athletes 11-18 years of age ($M_{\text{age}} = 14.02$, $SD = 1.38$) involved in recreational or competitive team sport in [masked city and country names for review]. Participants completed a self-report survey once a year for three years ($n = 293$ and $n = 215$ in Years 2 and 3, respectively).

The main data for the current study (social identity and group-based emotions) were measured only at Time 2 while sport commitment was measured at both Time 2 and Time 3. Given the fluctuation in participation in sport and instability of team memberships during adolescence, cross-sectional analyses of the Time 2 data are conceptually and practically appropriate for constructs that are sport and team specific (i.e., social identity, group-based emotions). We argue that social identity and group-based emotions experienced with regards to the specific teams and sports that one is engaged at the specified time of measurement may be important to current commitment in sport but are unlikely to be relevant to commitment one year later, and may be influenced by extraneous temporally irrelevant factors. Consequently, the current study examined cross-sectional data collected at Time 2 (i.e., one year after the Time 1 data collection) among adolescent female athletes who remain involved in sport at Time 2. A sensitivity analysis using longitudinal data including the sport commitment scores at Time 3 among those who participate in this last cycle of the study was also completed.

MEASURES

Sport Commitment

Sport commitment was assessed using the 6-item subscale items from the Sport Commitment Questionnaire (Scanlan, Carpenter, Simons, Schmidt, & Keeler, 1993b). Items are

scored on a 5-point Likert scale, ranging from 1 (*not at all*) to 5 (*very much*). Support for the validity of the scores has been demonstrated among young male and female athletes ranging in age from 9-19 years, multiple ethnicities, and participating in multiple sports (Carpenter, Scanlan, Simons, & Lobel, 1993; Choosakul, Vongjaturapat, Li, & Harmer, 2009).

Social Identity

Social identity was assessed using the 12-item Social Identity Questionnaire for Sport (Bruner, Boardley, & Côté, 2014; Cameron, 2004). The scale assesses the three key dimensions of social identity using 4 items for each of ingroup ties, cognitive centrality, and ingroup affect. Items were scored on a 7-point Likert scale, anchored by 1 (*strongly disagree*) and 7 (*strongly agree*).

Group-Based Self-Conscious Emotions

The group-based emotions were assessed using questions developed specifically for this study, informed by previous theoretical and measurement work (Lickel, Schmader, & Spanovic, 2007; Schmader & Mendes, 2015; Tangney et al., 2007). Single items were used to assess each group-based self-conscious emotion. Participants were asked to indicate *How often do you feel:* (a) *guilty about the actions of your teammates*, (b) *ashamed of your teammates*, (c) *that your teammates are superior to others*, (d) *proud of your teammates*, and (e) *embarrassed by your teammates*, to assess group-based guilt, shame, hubristic pride, authentic pride and embarrassment, respectively. Each question was scored on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*), with higher scores reflecting higher frequency of each emotional experience. Single-item measures are commonly used for the assessment of self-conscious emotions (Gilchrist, Conroy, & Sabiston, 2017; Pila, Brunet, Crocker, Kowalski, & Sabiston, 2016) and their performance is similar to the multiple-item assessments (Cheung & Lucas, 2014; Leung & Xu, 2013).

Covariates

Potential confounders of the associations of interest included age, ethnicity, mother's education (i.e., proxy for socio-economic status), as well as number of years that participants have been involved in sport.

DATA ANALYSIS

Psychometric Analysis

Confirmatory factor analysis (CFA) using robust maximum likelihood method of estimation was performed to assess the one-factor structure of the sport commitment scale in the current sample. Several robust fit indices were reported to assess the model fit: the Satorra-Bentler scaled chi-square ($SB\chi^2$), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the Tucker-Lewis index (TLI); values $<.08$ for RMSEA and SRMR, $>.95$ for CFI, and $>.90$ for TLI were used to make decisions about model fit (Chen, 2007).

Confirmatory factor analysis (CFA) was then performed to assess the internal structure of the Social Identity Scale in the current sample. Based on theory and previous research supporting a one factor structure (Bruner, Eys, Evans, & Wilson, 2015), a three factor structure (Benson, Bruner, & Eys, 2017) and a bifactor structure, with a global factor and three factors (Bruner & Benson, 2018) among youth, two models were compared in the present study: a single-factor structure, in which a single dimension describes social identity within the sport context (Model 1) and a three-correlated factor structure, wherein the factors represent ingroup ties, cognitive centrality and ingroup affect (Model 2). We examined the pattern matrix of item loadings and .40 was used as the cut-point for acceptable factor loadings (Hair, Black, Babin, & Anderson, 2010). The parameter estimates in CFA were obtained using the robust maximum likelihood method due to multivariate non-normality.

Descriptive Analysis

Prior to analysis, the data were checked for normality, outliers, and multicollinearity. Missing data on the main variables of interest (group-based emotion, social identity and sport commitment) were minimal (<5%); values were imputed for sport identity subscales and sport commitment. Imputation by mean was conducted if data for at most one item was missing in each of the three sport identity subscales or in the sport commitment scale. Descriptive statistics (i.e., frequencies, range, means, standard deviations) were calculated for all study variables. Included and excluded participants were compared using T-test and Chi-squared test. Bivariate correlations explored the associations between all three social identity constructs, group-based emotions, sport commitment and covariates.

Main Analysis

To test all the study hypotheses, linear regression analyses were conducted to assess the associations between social identity and group-based emotions with sport commitment. Covariates (i.e. age, mother's education, ethnicity, and years involved in primary sport) were included on step 1 of the model, followed by all three social identity subscales (i.e. ingroup ties, cognitive centrality and ingroup affect) on step 2, and the group-based emotion at step 3. Since group-based emotions were moderately correlated and since we were interested in their unique contribution to sport commitment, separate models were run for each of the five emotions. Model adequacy statistics (F ,

R^2 , R^2) are reported for each models and beta coefficient and 95% CI are presented for all variables at each step of the analysis. The same analytical strategy was used for sensitivity analysis assessing social identity and group-based emotions with sport commitment at Time 3. Finally, sensitivity analyses were conducted to test whether each of the three social identity subscales (ingroup ties, cognitive centrality and ingroup affect) introduced in separate models were associated with commitment; these models also included group-based emotions. For those last sensitivity analyses, only statistics of model adequacy (F , R^2 , R^2) of the final model (step 3) are reported and beta coefficient and 95% CI only for social identity subscales and group-based emotions are shown. Confidence intervals were calculated and significance level was set at 0.05. All statistical analyses were performed using SPSS V20.

Results

Results of the CFA indicate an adequate fit of a single-factor structure for the 6 items from the commitment subscale: $SB\chi^2(9) = 27.88$, $CFI = .97$, $TLI = .92$, $RMSEA = .10$, 90% CI (.06, .13), $SRMR = .03$. Furthermore, internal consistency and reliability were examined using both Cronbach's alpha and a composite reliability coefficient (Jöreskog's rho). The convergent validity rho (average variance extract [AVE]) was also computed to measure the amount of variance captured by the scales in relation to the variance due to random measurement error. Cronbach's alpha and Jöreskog's rho values above .70 and AVE >.50 were used as cut-points for assessing acceptable coefficients (Hair et al., 2010). In the present study, all 6 items were internally consistent ($\alpha = .91$) and we found adequate composite reliability coefficient ($\rho = .92$) and Average Variance Extract ($AVE = .65$).

For the social identity scale, CFA based on a unidimensional factor structure (Model 1) showed poor model fit, $SB\chi^2(54) = 428.49$, $CFI = .80$, $TLI = .76$, $RMSEA = .22$, 90% CI (.20, .24), $SRMR = .09$. In contrast, a three-correlated factor structure (Model 2) exhibited excellent model fit, $SB\chi^2(51) = 106.49$, $CFI = .97$, $TLI = .96$, $RMSEA = .07$, 90% CI (.05, .08), $SRMR = .06$. Additionally, internal consistency coefficients for all three subscales included ingroup ties ($\alpha = .95$), cognitive centrality ($\alpha = .90$) and ingroup affect ($\alpha = .92$). The composite reliability and the AVE coefficients were also high (ranging from .90 to .95 for rho and from .70 to .82 for AVE). Given this evidence, the three subscale scores were used in all analyses.

There were no statistically significant **differences** between participants followed up at Time 2 ($n = 294$) and those with Time 1 data only ($n = 224$) in age, mother's education, and sport commitment at Time 1 (all p

>.05). Participants with only Time 1 data reported significantly less years involved in their primary sport, compared to participants with both Time 1 and Time 2 data ($p = .013$). The analytical sample was restricted to participants followed-up who were still involved in at least one sport ($n = 270$); and only eligible participants with complete data (after imputation for sport commitment and social identity scales) for all variables of interest were included in the analysis ($n = 239$, $M_{\text{age}} = 14.07$ years, $SD = 1.37$ years, Range = 11–17 years, 80.6% of the follow-up sample). There were no significant differences between participants with missing data ($n = 31$, 11.5%) and those with complete data ($n = 239$, 46.1% of initial sample at Time 1) for all variables of interest. Among participants retained for the present analysis, 65.4% declared their mother has a university degree and 76.4% self-reported their ethnicity as Caucasian. On average, participants reported participating in their self-identified primary sport for 7.26 ($SD = 3.08$) years at Time 1. Sensitivity analysis using longitudinal data including the sport commitment scores at Time 3 included only those who participate in this last cycle of the study, remain involved in sport at Time 3, and provide complete data for all variables of interest ($n=130$, 25.1% of initial sample at Time 1).

Negative group-based emotions were experienced (i.e., a rating of at least a 2 on the 5-point Likert-type scale) by approximately half of the sample: 59.5% of the participants experienced group-based guilt, 45.1% experienced group-based shame and 46.0% experienced group-based embarrassment. A majority of the participants reported experiencing group-based pride: 77.6% and 98.7% declared experiencing hubristic and authentic pride, respectively.

Descriptive statistics and Pearson's correlations are presented in Table 1. Social identity subscales were positively inter-correlated, (r vary from .62 to .74, all $p < .01$). Group-based guilt, shame, and embarrassment were positively inter-correlated (highest correlations observed for shame and embarrassment; $r = .61$, $p < .01$). No statistically significant correlations were observed for group-based hubristic pride with the other emotions. Group-based authentic pride was negatively correlated with group-based guilt, shame, and embarrassment. Correlations between social identity and group-based emotions vary according to the social identity construct: 1) ingroup ties was positively correlated with group-based authentic pride and negatively correlated with group-based shame and embarrassment; 2) cognitive centrality was only correlated with group-based authentic pride; 3) ingroup affect was correlated with all group-based emotions, except for group-based hubristic pride. All three social identity constructs were moderately positively associated with sport commitment; the highest correlation was

TABLE I
Descriptive Statistics, Pearson R Correlations Among Study Variables For Adolescent Female Athletes ($n = 239$)

	Score range	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11
Ingroup Ties	1-7	5.20 (1.52)											
Centrality	1-7	4.51 (1.55)	.63**										
Ingroup Affect	1-7	5.56 (1.42)	.74**	.62**									
Social Identity	1-7	5.09 (1.32)	.90**	.86**	.89**								
GB Guilt	1-5	1.99 (.98)	-.07	.04	-.15*	-.07							
GB Shame	1-5	1.70 (0.93)	-.24**	-.10	-.28**	-.23**	.48**						
GB Hubristic pride	1-5	2.52 (1.06)	.00	.05	.03	.03	.27**	.22**					
GB Authentic pride	1-5	4.00 (0.93)	.36**	.25**	.38**	.37**	-.17**	-.40**	.05				
GB Embarrassment	1-5	1.72 (0.93)	-.17*	-.06	-.20**	-.16*	.34**	.61**	.09	-.32**			
Commitment	1-5	4.32 (0.78)	.40**	.30**	.50**	.45**	-.23**	-.31**	-.06	.32**	-.23**		
Age	11-17	14.08 (1.36)	.00	.03	.10	.05	.01	.08	.03	.06	.08	.00	
Years of Involvement	1-13	7.26 (3.08)	.13*	.08	.14*	.13*	-.14*	-.11	-.05	.13	-.14*	.09	.32**

GB: Group-Based

observed between ingroup affect and commitment ($r = .50$, $p < .01$). Negatively valenced emotions were inversely associated with sport commitment, whereas authentic pride was positively associated with commitment; no association was observed for hubristic pride.

Table II present results from linear regression models. In the first step (Model 1), potential confounders were introduced in the model and we found that none of them were statistically significantly associated with sport commitment. In the second step (Model 2), social identity subscales were added to the model; contrary to our hypothesis 1, a statistically significant association was observed only for ingroup affect with sport commitment, but not for cognitive centrality or ingroup ties. In the final step (Models 3, A to E), when group-based emotions were entered in separate model, as expected in hypothesis 2.1 and 2.2, we observed that guilt, shame, and embarrassment were negatively associated with sport commitment, whereas group-based authentic pride was positively associated with sport commitment, which partially support hypothesis 2.3. Contrary to what was expected, hubristic pride was not negatively associated with sport commitment in addition to social identity.

In sensitivity analysis looking at perceived sport commitment at Time 3, none of the social identity subscale or group-based emotion were statistically significantly associated with sport commitment (see Supplementary material S1). Sensitivity analyses conducted for each of the three social identity subscales introduced in separate models, and also including group-based emotions, show that each social identity dimension (e.g. ingroup ties, ingroup affect, and cognitive centrality) was positively associated with commitment when considered separately (see Supplementary material S2).

TABLE II
Multivariate Regression Analysis Examining The Cross-Sectional Associations Between Group-Based Emotions, Social Identity In Sport, And Sport Commitment At Time 2 Among Adolescent Female Athletes (N = 239)

	Model 1	Model 2	Model 3A Guilt	Model 3B Shame	Model 3C Hubristic Pride	Model 3D Authentic Pride	Model 3E Embarrassment
	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI	$\hat{\beta}$ 95%CI
Step 1							
Age	-.01 (-.09, .07)	-.02 (-.09, .05)	-.02 (-.09, .05)	-.01 (-.08, .06)	-.02 (-.09, .05)	-.02 (-.09, .05)	-.01 (-.08, .06)
Mother education	-.08 (-.30, .13)	-.08 (-.27, .11)	-.12 (-.31, .07)	-.10 (-.28, .09)	-.07 (-.26, .11)	-.13 (-.33, .06)	-.10 (-.28, .09)
Ethnicity	-.07 (-.31, .18)	-.11 (-.32, .11)	-.08 (-.30, .13)	-.10 (-.31, .12)	-.11 (-.32, .11)	-.12 (-.33, .10)	-.10 (-.31, .11)
Years in primary sport	.03 (-.01, .07)	.01 (-.02, .05)	.01 (-.02, .04)	.01 (-.02, .04)	.01 (-.02, .04)	.01 (-.02, .04)	.01 (-.02, .04)
Step 2							
SI: Ingroup Ties		.03 (-.06, .13)	.04 (-.06, .13)	.03 (-.07, .12)	.03 (-.06, .12)	.02 (-.07, .11)	.03 (-.06, .12)
SI: Cognitive centrality		-.02 (-.09, .06)	.00 (-.08, .08)	.00 (-.08, .07)	-.01 (-.09, .06)	-.01 (-.09, .06)	.00 (-.08, .07)
SI: Ingroup Affect		.26 (.16, .36)**	.24 (.14, .34)**	.23 (.13, .33)**	.26 (.17, .36)**	.24 (.14, .34)**	.24 (.14, .34)**
Step 3							
Group-based emotion			-.13 (-.22, -.04)**	-.14 (-.24, -.04)**	-.07 (-.15, .02)	.13 (.02, .23)*	-.14 (-.23, -.04)**
.04)**							
R ²	.01	.26	.28	.28	.26	.27	.29
ΔR ²	.01	.25	.27	.27	.25	.26	.28
F	.76	11.38**	11.14**	11.18**	10.31**	11.83**	11.26**

($\hat{\beta}$): unstandardized regression coefficients; CI: confidence intervals, SI : Social Identity.
* $p < .05$; ** $p < .01$

Discussion

The present study examined the associations between social identity, group-based emotions, and sport commitment among young female athletes. Consistent with the social identity approach suggesting that strong identification to the team promotes positive sport experiences (Bruner et al., 2015; Bruner, Eys, Wilson, & Côté, 2014), the present findings indicate that when all social identity constructs are considered together in the same model, ingroup affect is the unique aspect of social identity that is positively associated with commitment. These findings extend previous literature by showing that group-based emotions of guilt, shame and embarrassment were negatively associated with sport commitment whereas group-based authentic pride was positively associated with sport commitment.

Consistent with our hypothesis, social identity was associated with sport commitment. More specifically, ingroup affect was positively associated with sport commitment in all models. Ingroup affect refers to the emotional quality of group membership which plays a fundamental role in social identity theory (Tajfel, 1978; Tajfel & Turner, 1979); negative ingroup affect can lead to various strategies in attempts to achieve a more positive identity such as leaving the group (Cameron, 2004). Consequently, it is not surprising to observe that higher level of ingroup affect is associated with greater commitment to the sport group in the current study. Contrary to the hypothesis, ingroup ties and cognitive centrality were not associated with sport commitment when all three social identity subscales were included in the models. These findings could be attributable to the strong correlation observed between all three dimensions of social identity which may obscure independent associations of these constructs with sport commitment. Sensitivity analyses were run to test whether each of the three social identity subscales introduced in separate models were associated with commitment. Results show that each social identity dimension (e.g. ingroup ties, ingroup affect, and cognitive centrality) was positively associated with commitment when considered separately (see Supplementary material S2). These results suggest that social identity, as a comprehensive construct including ingroup ties, cognitive centrality and ingroup affect, is associated with sport commitment in the current study. Consequently, our results suggest that strategies to strengthen one's identity and belongingness to a team may promote enhanced commitment to sport.

Notably, our study also demonstrates that group-based emotions contribute to perceived sport commitment, in addition to social identity. More specifically, in support of the hypotheses, negatively valenced group-based self-conscious emotions (guilt, shame, embarrassment) were

negatively related to sport commitment whereas group-based authentic pride was positively related to sport commitment. This finding is in support of past research whereby intrapersonal self-conscious emotions motivate goal-directed and achievement behaviors (Sabiston et al., 2010; Tracy & Robins, 2004), and suggests that interpersonal self-conscious emotions may be similarly associated with adaptive behavioral outcomes. Since group-based negative emotions represent perceived group failures (Tangney & Tracy, 2006), it stands to reason that individuals who feel guilty, ashamed, or embarrassed on behalf of their teammates will be more likely to retreat or disengage from the interpersonal contexts (i.e., sport) that are perpetuating these undesirable affective states (Kessler & Hollbach, 2005). Indeed, our findings support that the presence of negative emotion towards the group is associated with decreased commitment to sport. The positive association between group-based authentic pride and sport commitment align with previous research and provide further evidence in support of the benefits of experiencing a positive and supportive sport team of group climate (Fontana, Fry, & Cramer, 2017). Finally, a negative non-significant association between hubristic pride and sport commitment was observed. Previous evidence suggest that hubristic pride is associated with social dominance, validation, and extrinsic goal pursuit (Carver et al., 2010; Damian & Robins, 2013) which are key determinants to behavioral disengagement (Deci & Ryan, 2000) which was not confirmed in our study. Overall, our results exemplify the unique functions of each specific group-based emotion on sport commitment, thereby highlighting the importance of exploring how discrete group-based emotions function to promote engagement in sport contexts.

This study is novel in that it presents an initial step towards understanding how group-based self-conscious emotions may be tied to sport commitment in female youth sport above and beyond social identity. To date, the study of interpersonal emotions in sport has been overlooked when compared to intrapersonal approaches (Tamminen & Crocker, 2013). Very few researchers examine these emotions at the group level, despite the capacity and nature of self-conscious emotions to be experienced with reference to social contexts that are salient to one's identity (Tangney & Tracy, 2012). This gap in the sport psychology literature is particularly surprising considering the inherently social nature of the self-conscious emotions, which are rooted in representations of the self with reference to others, and are central to motivating social goals, and the socially evaluative nature of sport. Further, this work comprehensively considers each of the self-conscious emotions, some of which have rarely been assessed in sport (i.e. embarrassment).

Results from the current study suggest that both emotions at the group level and social identity might be targeted in order to promote sport commitment and protect prevent sport drop out in adolescent female athletes. This is of particular interest knowing that physical activity and sport participation decline earlier and faster in adolescent females compared to males (Eime, Harvey, Charity, et al., 2016; Eime, Harvey, Sawyer, et al., 2016; Howie, McVeigh, Smith, & Straker, 2016; Lounassalo et al., 2019). Interventions directed to female athletes to reduce negative emotions (guilt, shame, envy, embarrassment) and promote positive emotions (authentic pride) at the group level, along with strategies to strengthen one's identity and belongingness to a team should be developed to enhanced commitment to sport.

The cross-section design and the potential bi-directional nature of associations precludes a study of mechanisms or causal pathways linking social identity, group-based emotion and sport commitment. For example, social identity might be a mechanism through which group-based emotions impact sport commitment. Indeed, negative sport experiences can impact emotions which lead individuals to disengage from their identities (Benson & Bruner, 2018). Given that group-based emotions can be determinants of ingroup identification (Kessler & Hollbach, 2005), future research using a longitudinal design should investigate whether the effect of group-based emotions on sport commitment is mediated by social identity in sport. Conversely, some evidence suggests that those who highly identify with the group are less likely to perceive and experience shame or guilt in the first place than are less identified group members (Costabile & Austin, 2018; Lickel, Steele, & Schmader, 2011), which suggests that ingroup social identity is a precondition for group-based emotions. Following this evidence, future research should also investigate whether group-based emotions is on the causal pathway of the association between social identity and sport commitment. As it stands with the current study, it is clear that sport commitment for a sample of adolescent female athletes is associated with both group-emotions and social identity. The affective focus is important and future research is needed to also identify if similar relationships are noted for male athletes.

Limitations

Despite the novel contributions of this study, several limitations need to be highlighted. The convenience sample of adolescent females involved in organized sport limits generalizability. Although the descriptive analysis suggest that the participants included in the current analysis are representative from the study sample, these comparisons are restricted to data collected. It

is possible that other systemic factors not assessed in the study (e.g. girls who drop out of sport may no longer participate in a « sport study ») could introduce selection bias resulting from loss due to follow-up. This sample is restricted to females; results may vary for males, especially due to the documented sex differences in needs for social connectedness and peer relations in adolescence. The study relied on self-report measures which are subject to misclassification and social desirability. Single-items were developed specifically for the present study to measure group-based emotions. By their nature, single-item measures do not address internal consistency; reliability could only be discussed through test-retest with repeated measures (Leung & Xu, 2013) which was impossible due to the cross-sectional design of the study. However, single-item measures have demonstrated utility and perform similarly compared to the multiple-item assessments in areas such as health and social science research (Cheung & Lucas, 2014; Leung & Xu, 2013). Furthermore, one-item measures of self-conscious emotions are commonly used (Gilchrist et al., 2017; Pila, Brunet, Crocker, Kowalski, & Sabiston, 2016). Assessment of group emotions is challenging and we are not able to ensure whether participants responded to the group-based emotions items about their group as a whole or about specific team mates. More research is needed to validate these measures. The associations between group-based emotions, social identity, and sport commitment might be influenced by the type of sport or level of competitiveness, for which we do not have information in the present study; future studies should explore these specific characteristics of the sport context. Finally, a longitudinal design with multiple and closer time points would enable examining mechanisms and drive causal inferences linking social identity, group-based emotions, and sport experience outcomes.

Conclusion

The current study contributes to the existing literature in three important ways. First, our study confirmed the importance of examining social identity in sport to better depict how the social context of sport may impact sport commitment. Low team social identification may be a risk factor for perpetuating negative sport experiences, and should be targeted in intervention-based initiatives aiming at sustaining sport participation and promoting positive development of adolescent females. Secondly and most notably, this study identified group-based self-conscious emotions as unique and relevant correlates of sport commitment among young female athletes. The present findings emphasize the importance of promoting adaptive sport experiences

APPENDIX 1
Multivariate Regression Analysis Examining The Longitudinal Associations Between Group-Based Emotions, Social Identity In Sport At Time 2 And Sport Commitment At Time 3 Among Adolescent Female Athletes (N= 130)

	Model 1	Model 2	Model 3A Guilt	Model 3B Shame	Model 3C Hubristic Pride	Model 3D Authentic Pride	Model 3E Embarrassment
	β 95%CI	β 95%CI	β 95%CI	β 95%CI	β 95%CI	β 95%CI	β 95%CI
Step 1							
Age	-.03 (-.15, .08)	-.05 (-.17, .07)	-.05 (-.17, .07)	-.05 (-.17, .06)	-.05 (-.17, .07)	-.05 (-.17, .07)	-.05 (-.17, .07)
Mother education	-.01 (-.30, .29)	-.03 (-.33, .27)	-.03 (-.33, .27)	-.02 (-.33, .29)	-.03 (-.33, .27)	-.03 (-.33, .28)	-.03 (-.34, .27)
Ethnicity	.17 (-.18, .52)	.14 (-.21, .50)	.16 (-.21, .52)	.13 (-.23, .49)	.15 (-.21, .50)	.14 (-.21, .50)	.16 (-.20, .52)
Years in primary sport	.02 (-.03, .07)	.02 (-.03, .08)	.02 (-.03, .08)	.02 (-.03, .08)	.02 (-.03, .08)	.02 (-.03, .08)	.02 (-.03, .08)
Step 2							
SI: Ingroup Ties	-.01 (-.17, .15)	-.01 (-.17, .15)	-.01 (-.18, .15)	-.01 (-.17, .16)	-.02 (-.18, .15)	-.01 (-.18, .15)	-.02 (-.18, .15)
SI: Cognitive centrality	.02 (-.10, .13)	.02 (-.10, .13)	.02 (-.10, .14)	.02 (-.10, .13)	.03 (-.09, .14)	.02 (-.10, .14)	.02 (-.09, .14)
SI: Ingroup Affect	.09 (-.08, .25)	.09 (-.08, .25)	.08 (-.09, .25)	.09 (-.08, .26)	.08 (-.08, .25)	.09 (-.08, .25)	.09 (-.08, .25)
Step 3							
Group-based emotion	-.02 (-.17, .12)	-.02 (-.17, .12)	-.02 (-.17, .12)	.03 (-.13, .19)	-.05 (-.18, .08)	.00 (-.17, .17)	-.04 (-.19, .12)
R ²	.02	.04	.04	.04	.05	.04	.04
Δ R ²	.02	.02	.02	.02	.03	.02	.02
F	.53	.75	.66	.67	.73	.65	.68

(β): unstandardized regression coefficients; CI: confidence intervals, SI: Social Identity.

* $p < .05$; ** $p < .01$

APPENDIX 2
Multivariate Regression Analysis Examining The Associations Between Group-Based Emotions And Each Of The Three Social Identity Subscales In Sport And Sport Commitment At Time 2 Among Adolescent Female Athletes (N = 239)

	Model 3A Guilt	Model 3B Shame	Model 3C Hubristic Pride	Model 3D Authentic Pride	Model 3E Embarrassment
	β 95%CI	β 95%CI	β 95%CI	β 95%CI	β 95%CI
SI: Ingroup Ties	.20 (.14, .26)**	.18 (.12, .24)**	.21 (.15, .27)**	.16 (.10, .23)**	.19 (.13, .26)**
Group-based emotion	-.17 (-.26, .08)**	-.20 (-.30, -.10)**	-.03 (-.12, .05)	.20 (.10, .31)**	-.14 (-.14, -.04)**
R ²	.20	.21	.17	.20	.20
ΔR^2	.04	.04	.01	.03	.04
F	9.88**	10.09**	9.93**	9.53**	9.83**
SI: Cognitive centrality	.16 (.10, .22)**	.00 (.08, .20)**	.15 (.09, .21)**	.11 (.05, .02)**	.15 (.08, .21)**
Group-based emotion	-.20 (-.30, -.10)**	-.24 (-.34, -.14)**	-.04 (-.14, .05)	.25 (.15, .25)**	-.17 (-.26, -.07)**
R ²	.15	.18	.11	.16	.16
ΔR^2	.06	.07	.01	.06	.06
F	6.94**	7.75**	4.56**	7.24**	7.08**
SI: Ingroup Affect	.26 (.20, .33)**	.13 (.18, .31)**	.28 (.22, .34)**	.24 (.17, .31)**	.26 (.20, .33)**
Group-based emotion	-.13 (-.22, -.04)**	-.15 (-.25, .06)**	-.04 (-.13, .04)	.16 (.06, .16)**	-.11 (-.20, -.01)**
R ²	.28	.28	.26	.27	.28
ΔR^2	.02	.02	.01	.02	.03
F	14.81**	14.96**	13.77**	14.51**	15.05**

(β): unstandardized regression coefficients; CI: confidence intervals, SI: Social Identity.
* $p < .05$; ** $p < .01$
Only results of step 3 models adjusted for age, mother education, ethnicity and years involved in primary sport and including one social identity subscale and the group-based emotion are presented.

in adolescent females by reinforcing positive self-conscious emotions (e.g. authentic pride) with reference to the group. Future research needs to deepen reflection on the measurement of self-conscious emotions on behalf of the group and provide psychometric assessments of such measures. More research is needed to explore longitudinally the potential causal and intermediate effect of group-based emotions and social identity on various sport participation outcomes such as drop out.

REFERENCES

- Benson, A. J., & Bruner, M. W. (2018). How teammate behaviors relate to athlete affect, cognition, and behaviors: A daily diary approach within youth sport. *Psychology of Sport and Exercise*, 34, 119-127. doi:10.1016/j.psychsport.2017.10.008
- Benson, A. J., Bruner, M. W., & Eys, M. (2017). A social identity approach to understanding the conditions associated with antisocial behaviors among teammates in female teams. *Sport, Exercise, and Performance Psychology*, 6(2), 129-142. doi:10.1037/spy0000090
- Bruner, M. W., & Benson, A. J. (2018). Evaluating the psychometric properties of the Social Identity Questionnaire for Sport (SIQS). *Psychology of Sport and Exercise*, 35, 181-188. doi:10.1016/j.psychsport.2017.12.006
- Bruner, M. W., Boardley, I. D., & Côté, J. (2014). Social identity and prosocial and antisocial behavior in youth sport. *Psychology of Sport and Exercise*, 15(1), 56-64. doi:10.1016/j.psychsport.2013.09.003
- Bruner, M. W., Eys, M., Evans, M. B., & Wilson, K. (2015). Interdependence and social identity in youth sport teams. *Journal of Applied Sport Psychology*, 27(3), 351-358. doi:10.1080/10413200.2015.1010661
- Bruner, M. W., Eys, M. A., Wilson, K. S., & Côté, J. (2014). Group cohesion and positive youth development in team sport athletes. *Sport, Exercise, and Performance Psychology*, 3(4), 219-227. doi:10.1037/spy0000017
- Cameron, J. E. (2004). A three-factor model of social identity. *Self and Identity*, 3(3), 239-262. doi:10.1080/13576500444000047
- Campo, M., Mellalieu, S., Ferrand, C., Martinet, G., & Rosnet, E. (2012). Emotions in team contact sports: A systematic review. *The Sport Psychologist*, 26(1), 62-97. doi:10.1123/tsp.26.1.62
- Carpenter, P. J., Scanlan, T. K., Simons, J. P., & Lobel, M. (1993). A test of the sport commitment model using structural equation modeling. *Journal of Sport and Exercise Psychology*, 15(2), 119-133. doi:10.1123/jsep.15.2.119
- Carver, C. S., Sinclair, S., & Johnson, S. L. (2010). Authentic and hubristic pride: Differential relations to aspects of goal regulation, affect, and self-control. *Journal of Research in Personality*, 44(6), 698-703. doi:10.1016/j.jrp.2010.09.004
- Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling*, 14(3), 464-504. doi:10.1080/10705510701301834
- Cheung, F., & Lucas, R. E. (2014). Assessing the validity of single-item life satisfaction measures: Results from three large samples. *Quality of Life Research*, 23(10), 2809-2818. doi:10.1007/s11136-014-0726-4
- Choosakul, C., Vongjaturapat, N., Li, F., & Harmer, P. (2009). The sport commitment model:

- An investigation of structural relationships with Thai youth athlete populations. *Measurement in Physical Education and Exercise Science*, 13(3), 123-139. doi:10.1080/10913670903039563
- Costabile, K. A., & Austin, A. B. (2018). A riot on campus: The effects of social identity complexity on emotions and reparative attitudes after ingroup perpetrated violence. *Aggressive behavior*, 44(1), 50-59. doi:10.1002/ab.21723
- Damian, R. I., & Robins, R. W. (2013). Aristotle's virtue or Dante's deadliest sin? The influence of authentic and hubristic pride on creative achievement. *Learning and Individual Differences*, 26, 156-160. doi: 10.1016/j.lindif.2012.06.001
- Deci, E. L., & Ryan, R. M. (2000). The « what » and « why » of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268. doi:10.1207/S15327965PLI1104_01
- Doré, I., O'Loughlin, J. L., Beauchamp, G., Martineau, M., & Fournier, L. (2016). Volume and social context of physical activity in association to mental health, anxiety and depression among youth. *Preventive Medicine*, 91, 344-350. doi:10.1016/j.ypmed.2016.09.006
- Eime, R. M., Harvey, J. T., Sawyer, N. A., Craike, M. J., Symons, C. M., Polman, R. C., & Payne, W. R. (2013). Understanding the contexts of adolescent female participation in sport and physical activity. *Research Quarterly for Exercise and Sport*, 84(2), 157-166. doi:10.1080/02701367.2013.784846
- Eime, R. M., Young, J. A., Harvey, J. T., Charity, M. J., & Payne, W. R. (2013). A systematic review of the psychological and social benefits of participation in sport for children and adolescents: Informing development of a conceptual model of health through sport. *International Journal of Behavioral Nutrition and Physical Activity*, 10(98), 1-21. doi:10.1186/1479-5868-10-98
- Eime, R. M., Harvey, J. T., Charity, M. J., Casey, M. M., Westerbeek, H., & Payne, W. R. (2016). Age profiles of sport participants. *BMC sports science, medicine and rehabilitation*, 8(1), 1. doi:10.1186/s13102-016-0031-3
- Eime, R. M., Harvey, J. T., Sawyer, N. A., Craike, M. J., Symons, C. M., & Payne, W. R. (2016). Changes in sport and physical activity participation for adolescent females: A longitudinal study. *BMC Public Health*, 16(533), 1-7. doi:10.1186/s12889-016-3203-x
- Fontana, M. S., Fry, M. D., & Cramer, E. (2017). Exploring the relationship between athletes' perceptions of the motivational climate to their compassion, self-compassion, shame, and pride in adult recreational sport. *Measurement in Physical Education and Exercise Science*, 21(2), 101-111. doi:10.1080/1091367X.2017.1278698
- Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education & Sport Pedagogy*, 10(1), 19-40. doi:10.1080/1740898042000334890.
- Frydenberg, E., & Lewis, R. (1991). Adolescent coping: The different ways in which boys and girls cope. *Journal of Adolescence*, 14(2), 119-133. doi:10.1016/0140-1971(91)90025-M
- George, T. R., & Feltz, D. L. (1995). Motivation in sport from a collective efficacy perspective. *International Journal of Sport Psychology*, 26, 98-98.
- Gilchrist, J. D., Conroy, D. E., & Sabiston, C. M. (2017). Experienced and anticipated pride and shame as predictors of goal-directed behavior. *Journal of Sport and Exercise Psychology*, 39(6), 438-442. doi:10.1123/jsep.2017-0011
- Gilchrist, J. D., Sabiston, C. M., Conroy, D. E., & Atkinson, M. (2018). Authentic pride regulates runners' training progress. *Psychology of Sport and Exercise*, 38, 10-16. doi:10.1016/j.psychsport.2018.05.007

- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th Edition ed.). Upper Saddle River, NJ: Pearson Prentice Hall
- Holt, N. L. (2016). *Positive Youth Development Through Sport*: Routledge.
- Howie, E. K., McVeigh, J. A., Smith, A. J., & Straker, L. M. (2016). Organized sport trajectories from childhood to adolescence and health associations. *Medicine and science in sports and exercise*, 48(7), 1331-1339. doi:10.1123/jpah.6.6.708
- Kessler, T., & Hollbach, S. (2005). Group-based emotions as determinants of ingroup identification. *Journal of Experimental Social Psychology*, 41(6), 677-685. doi:10.1016/j.jesp.2005.01.001
- Lazarus, R. S. (1991). *Emotion and adaptation*: Oxford University Press on Demand.
- Leung, S. O., & Xu, M. L. (2013). Single-item measures for subjective academic performance, self-esteem, and socioeconomic status. *Journal of Social Service Research*, 39(4), 511-520. doi:10.1080/01488376.2013.794757
- Lickel, B., Schmader, T., & Spanovic, M. (2007). Group-Conscious Emotions. In J. L. Tracy, R. W. Robins, & J. P. Tangney (Eds.), *The Self Conscious Emotions: Theory and Research* (pp. 351-370). New York: Guilford Press.
- Lickel, B., Steele, R. R., & Schmader, T. (2011). Group based shame and guilt: Emerging directions in research. *Social and Personality Psychology Compass*, 5(3), 153-163. doi:10.1111/j.1751-9004.2010.00340.x
- Lounassalo, I., Salin, K., Kankaanpää, A., Hirvensalo, M., Palomäki, S., Tolvanen, A., et al. (2019). Distinct trajectories of physical activity and related factors during the life course in the general population: a systematic review. *BMC Public Health*, 19(1), 27. doi: 10.1186/s12889-019-6513-y
- Motl, R. W., Dishman, R. K., Saunders, R. P., Dowda, M., & Pate, R. R. (2006). Perceptions of physical and social environment variables and self-efficacy as correlates of self-reported physical activity among adolescent girls. *Journal of Pediatric Psychology*, 32(1), 6-12. doi:10.1093/jpepsy/jsl001
- Patrick, H., Ryan, A. M., Alfeld-Liro, C., Fredricks, J. A., Hruda, L. Z., & Eccles, J. S. (1999). Adolescents' commitment to developing talent: The role of peers in continuing motivation for sports and the arts. *Journal of Youth and Adolescence*, 28(6), 741-763. doi:10.1023/A:1021643718575
- Pila, E., Brunet, J., Crocker, P. R. E., Kowalski, K. C., & Sabiston, C. M. (2016). Intrapersonal characteristics of body-related guilt, shame, pride, and envy in Canadian adults. *Body Image*, 16, 100-106. doi :10.1016/j.bodyim.2016.01.001
- Pila, E., Sabiston, C. M., Mack, D. E., Wilson, P. M., Brunet, J., Kowalski, K. C., & Crocker, P. R. E. (2020). Fitness-and appearance-related self-conscious emotions and sport experiences: A prospective longitudinal investigation in adolescent girls. *Psychology of Sport and Exercise*, 47, 101641. doi:10.1016/j.psychsport.2019.101641
- Rees, T., Haslam, S. A., Coffee, P., & Lavalley, D. (2015). A social identity approach to sport psychology: Principles, practice, and prospects. *Sports Medicine*, 45(8), 1083-1096. doi:10.1007/s40279-015-0345-4
- Roos, S., Hodges, E. V. E., & Salmivalli, C. (2014). Do guilt-and shame-proneness differentially predict prosocial, aggressive, and withdrawn behaviors during early adolescence? *Developmental psychology*, 50(3), 941-946. doi:10.1037/a0033904
- Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin*, 132(1), 98-131. doi:10.1037/0033-2909.132.1.98

- Sabiston, C. M., Brunet, J., Kowalski, K. C., Wilson, P. M., Mack, D. E., & Crocker, P. R. (2010). The role of body-related self-conscious emotions in motivating women's physical activity. *Journal of Sport and Exercise Psychology*, 32(4), 417-437. doi:10.1123/jsep.32.4.417
- Sabiston, C. M., Pila, E., Crocker, P. R. E., Mack, D. E., Wilson, P. M., Brunet, J., & Kowalski, K. C. (2020). Changes in body-related self-conscious emotions over time among youth female athletes. *Body Image*, 32, 24-33. doi:10.1016/j.bodyim.2019.11.001.
- Scanlan, T. K., Carpenter, P. J., Simons, J. P., Schmidt, G. W., & Keeler, B. (1993a). An introduction to the sport commitment model. *Journal of Sport and Exercise Psychology*, 15(1), 1-15. doi:10.1123/jsep.15.1.1
- Scanlan, T. K., Carpenter, P. J., Simons, J. P., Schmidt, G. W., & Keeler, B. (1993b). The sport commitment model: Measurement development for the youth-sport domain. *Journal of Sport and Exercise Psychology*, 15(1), 16-38. doi:10.1123/jsep.15.1.16
- Schmader, T., & Lickel, B. (2006). Stigma and shame: Emotional responses to the stereotypic actions of one's ethnic ingroup. In S. Levin & C. van Laar (Eds.), *Stigma and group inequality: Social psychological perspectives* (pp. 261-285). Mahwah, NJ: Erlbaum.
- Schmader, T., & Mendes, W. B. (2015). Putting feelings in a social context: Three case studies applying Gross's extended model of emotion regulation. *Psychological Inquiry*, 26, 116-122. doi:10.1080/1047840X.2015.962445
- Shiota, M. N., Campos, B., Keltner, D., & Hertenstein, M. J. (2004). Positive emotion and the regulation of interpersonal relationships. *The Regulation of Emotion* (pp. 129-157): Lawrence Erlbaum Associates.
- Smith, E. R. (1993). Social identity and social emotions: Toward new conceptualizations of prejudice. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, Cognition, and Stereotyping* (pp. 297-315). San Diego, CA: Academic Press.
- Smith, E. R., & Mackie, D. (2008). Intergroup emotions. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 428-439). New York: Guilford Press.
- Tajfel, H. (1978). *Differentiation between social groups*. London: Academic Press.
- Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology*: CUP Archive.
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations* (pp. 33-47). Monterey: Brooks/Cole Pub. Co.
- Tamminen, K. A., & Crocker, P. R. (2013). "I control my own emotions for the sake of the team": Emotional self-regulation and interpersonal emotion regulation among female high-performance curlers. *Psychology of Sport and Exercise*, 14(5), 737-747. doi:10.1016/j.psychsport.2013.05.002
- Tangney, J., & Dearing, R. (2003). *Shame and guilt*: Guilford Press.
- Tangney, J., Miller, R. S., Flicker, L., & Barlow, D. H. (1996). Are shame, guilt, and embarrassment distinct emotions? *Journal of Personality and Social Psychology*, 70(6), 1256-1269. doi:10.1037/0022-3514.70.6.1256
- Tangney, J., Stuewig, J., & Mashek, D. (2007). Moral emotions and moral behavior. *Annual Review of Psychology*, 58, 345-372. doi:10.1146/annurev.psych.56.091103.070145
- Tangney, J., & Tracy, J. (2006). Self-Conscious Emotions. In M. Leary & J. Tangney (Eds.), *Handbook of self and identity* (Second ed., pp. 754). New York: Guilford Press.
- Tangney, J., & Tracy, J. (2012). Self-Conscious Emotions. In M. Leary & J. Tangney (Eds.), *Handbook of self and identity* (2nd Edition ed., pp. 446-478). New York: Guilford Press.

- Tracy, J. L., & Robins, R. W. (2004). Putting the self into self-conscious emotions: A theoretical model. *Psychological Inquiry*, 15(2), 103-125. doi:10.1207/s15327965pli1502_01
- Tracy, J.L., R.W. Robins, and J.P. Tangney, *The self-conscious emotions: Theory and research*. 2007, New York: Guilford Press.
- Turner, R. W., Perrin, E. M., Coyne-Beasley, T., Peterson, C. J., & Skinner, A. C. (2015). Reported sports participation, race, sex, ethnicity, and obesity in US adolescents from NHANES physical activity (PAQ_D). *Global Pediatric Health*, 2, 1-9. doi:10.1177/2333794X15577944
- Von Scheve, C., & Ismer, S. (2013). Towards a theory of collective emotions. *Emotion Review*, 5(4), 406-413. doi:10.1177/1754073913484170
- Voorhees, C. C., Murray, D., Welk, G., Birnbaum, A., Ribisl, K. M., Johnson, C. C., . . . Jobe, J. B. (2005). The role of peer social network factors and physical activity in adolescent girls. *American Journal of Health Behavior*, 29(2), 183-190. doi:10.5993/AJHB.29.2.9
- Wang, J., Marchant, D., Morris, T., & Gibbs, P. (2004). Self-consciousness and trait anxiety as predictors of choking in sport. *Journal of Science and Medicine in Sport*, 7(2), 174-185. doi:10.1016/S1440-2440(04)80007-0
- Williams, L. (2013). Commitment to sport and exercise: Re-examining the literature for a practical and parsimonious model. *Journal of Preventive Medicine and Public Health*, 46(Suppl 1), S35-S42. doi: 10.3961/jpmph.2013.46.S.S35