



Self-determined motivation, social identification and the mental health of adolescent male team sport participants

Stewart A. Vella, Alex Benson, Jordan Sutcliffe, Colin McLaren, Christian Swann, Matthew J. Schweickle, Andrew Miller & Mark Bruner

To cite this article: Stewart A. Vella, Alex Benson, Jordan Sutcliffe, Colin McLaren, Christian Swann, Matthew J. Schweickle, Andrew Miller & Mark Bruner (2020): Self-determined motivation, social identification and the mental health of adolescent male team sport participants, Journal of Applied Sport Psychology, DOI: [10.1080/10413200.2019.1705432](https://doi.org/10.1080/10413200.2019.1705432)

To link to this article: <https://doi.org/10.1080/10413200.2019.1705432>



Published online: 23 Jan 2020.



Submit your article to this journal [↗](#)



Article views: 1355



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 4 View citing articles [↗](#)



Self-determined motivation, social identification and the mental health of adolescent male team sport participants

Stewart A. Vella^a, Alex Benson^b, Jordan Sutcliffe^c, Colin McLaren^c,
Christian Swann^d, Matthew J. Schweickle^a, Andrew Miller^e, and Mark Bruner^c

^aSchool of Psychology, University of Wollongong, Wollongong, NSW, Australia; ^bDepartment of Psychology, Western University, London, Ontario, Canada; ^cSchool of Physical and Health Education, Nipissing University, North Bay, Ontario, Canada; ^dSchool of Health and Human Sciences, Southern Cross University, Coffs Harbour, NSW, Australia; ^eSchool of Education, University of Newcastle, Callaghan, NSW, Australia

ABSTRACT

This study assessed whether participants' social identification with their team moderated the association between self-determined motivation and mental health and wellbeing among adolescent male team sports participants. Participants were 383 adolescent male team sports participants. Moderated regression analyses showed that, at average and higher levels of social identification, self-determined motivation was negatively associated with psychological distress. At higher levels of social identification, self-determined motivation was positively associated with wellbeing. At lower levels of social identification, there was no relationship between self-determined motivation and psychological distress or wellbeing. The mental health benefits associated with participation in organized sports may systematically vary according to levels of social identification, with the association magnified among those with higher levels of social identification. Attention to social identification processes in youth sport may be beneficial, and this should be tested using experimental designs.

Lay Summary: Self-determined forms of motivation are associated with better mental health outcomes among adolescent male sport participants. These outcomes may be magnified when sport participants strongly identify with their sports teams.

PRACTICAL IMPLICATIONS

- Self-determined forms of motivation may be the first focus for coaches and sport psychology practitioners.
- Where self-determination is high, enhancing social identification among sport participants could provide extra benefits for mental health.

ARTICLE HISTORY

Received 18 October 2018
Revised 28 November 2019
Accepted 12 December 2019

Sports participation during childhood and adolescence is associated with meaningful mental health benefits (e.g. Vella, Cliff, Magee, & Okely, 2015). Findings of studies included in a systematic review of the psychosocial outcomes of youth sport

participation are remarkable for the breadth of positive outcomes with positive associations, as well the consistency of the associated benefits (c.f. Eime, Young, Harvey, Charity, & Payne, 2013). Importantly, sports participation is associated with indices of wellbeing as well as mental health problems. According to Keyes' (2002) Mental Health Continuum, the consideration of these two distinct dimensions is necessary to fully understand the relationships between sport participation and mental health. For example, when compared with nonparticipants, sports participants report increased mental health, self-esteem, self-concept clarity, emotional regulation, psychological resilience, and wellbeing. Sport participants also report lower levels of suicidality as well as suicide attempts, anxiety symptoms, depressive symptoms, and emotional distress (Eime et al., 2013). Subsequent work among Australian children shows that dropout from organized sports is associated with a relative increase in the risk of diagnosis of a psychiatric disorder within three years of between 10 and 20% (Vella et al., 2015). Furthermore, the relationship between aspects of the sporting environment and indices of well- and ill-being among athletes (e.g. burnout) may systematically differ (Healy, Ntoumanis, van Zanten, & Paine, 2014), necessitating an investigation of both constructs.

Despite consistent positive associations between sports participation and mental health benefits (Eime et al., 2013), there are specific circumstances under which negative outcomes may be more likely. Fraser-Thomas, Côté, and Deakin (2005) present substantial evidence on the negative psychosocial consequences of participation in youth sports (e.g. hindered moral development, modeling inappropriate behavior, poor sportsmanship). Negative influences in youth sports encompass program design, coaches, and parents (Fraser-Thomas et al., 2005), with peers also appearing to play an important role in facilitating positive outcomes in youth sport (Benson & Bruner, 2018; Holt, Tamminen, Tink, & Black, 2009). While sports participation is associated with mental health benefits, there is likely a wide range of outcomes that are associated with the delivery and structure of various components of the sports program as well as overall program quality (Fraser-Thomas et al., 2005).

One of the key indicators of quality youth sports programs is that they provide the conditions necessary for intrinsic forms of motivation (Bean, Harlow, Mosher, Fraser-Thomas, & Forneris, 2018). According to self-determination theory (SDT), autonomous (or self-determined) forms of motivation are the result of satisfaction of the basic psychological needs of autonomy, competence and relatedness. When people act in self-determined ways, they act out of personal value, importance and interest and are free to regulate their behaviors accordingly (Deci & Ryan, 2012). Furthermore, according to SDT, there are four types of behavior regulations that exist on a continuum of self-determination (Silva et al., 2010). The most self-determined form of behavioral regulation is intrinsic motivation whereby people act out of enjoyment for an activity. The second most self-determined form of behavioral regulation is identified regulation, whereby actions are undertaken because they are valued, rather than intrinsically enjoyed. Introjected regulation, the third in the continuum, is not considered a self-determined form of motivation because people act due to internalized pressures such as shame or guilt. Lastly, external regulation is when one's actions are externally controlled by rewards and punishments, and in the absence of any internalization or value for the reasons underlying those rewards and punishments.

Social environments such as sports programs that fulfill one's basic psychological needs and facilitate self-determined behavior can enhance wellbeing (Hortop, Wrosch, & Gagné, 2013) and protect against negative psychological outcomes such as suicidal ideation (Britton, VanOrden, Hirsch, Niemiec, & Williams, 2014; Bureau et al., 2012). For example, the extent to which an athlete's goal pursuits are self-determined predicts later well- and ill-being. Specifically, the extent to which goal striving was externally regulated was positively associated with athlete ill-being. In addition, the extent to which an athlete's goal strivings were self-determined was positively associated with wellbeing and negatively associated with ill-being. More broadly, this is consistent with SDT which proposes that those who act in more self-determined ways through the satisfaction of basic psychological needs will have higher levels of wellbeing (Ryan & Deci, 2000). To address this, quality sports programs may consider coach education that encompasses strategies (e.g. autonomy-supportive behaviors) that foster self-determined motivation among youth participants (Mageau & Vallerand, 2003).

Although many domains of life provide social environments in which one's self-determination can be fostered (e.g. work, sport, friends), the relationship between self-determination and well- and ill-being likely varies by the importance placed on those domains. That is, domains that are central to the life of an individual are likely to have a greater influence on wellbeing. One construct that captures the internalized importance of one's social domains is social identity. Social identity is defined as "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.255¹. Theory of social identification suggests that integrating group characteristics, experiences, and values into one's self-concept through social identification processes can potentiate the effect of group experiences on individual outcomes (Hornsey, 2008).

Although social identity is considered a global construct, in sport three central components have been articulated. Cognitive centrality refers to the salience of group membership. Ingroup ties represent perceptions of similarities and connectedness that one has with group members. Finally, ingroup affect refers to the affective component of one's social identity. Given that youth athletes who strongly identify with their team appear to be more affected by their sport team experiences (Bruner et al., 2018), we propose that social identity may play a key moderating role in the extent to which participation in organized sports is associated with mental health benefits. Specifically, the association of sport-related self-determination with mental health and wellbeing may be stronger at higher levels of social identity. While the evidence to support social identity as critical to one's health and wellbeing is rapidly increasing (Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018), there has been no investigation of how social identity may moderate the relationships between self-determination and mental health. Testing potential moderating effects will extend current knowledge of social identity in sport as a correlate of a diverse range of positive outcomes including moral behaviors, self-worth, and positive developmental outcomes (Bruner et al., 2017; 2018; Martin, Balderson, Hawkins, Wilson, & Bruner, 2018). It is also consistent with the proposition that the relationship between need satisfaction and self-determination with positive

outcomes such as wellbeing can be moderated by intrapersonal constructs such as social identity (Gillet, Fouquereau, Lafrenière, & Huyghebaert, 2016; Hofer & Busch, 2011).

The aim of this study was to examine whether one's social identification with one's sports team moderates the association between self-determined motivation in sport and two distinct indicators of mental health – psychological distress (i.e. symptoms of depression and anxiety), as well as emotional, psychological, and social wellbeing. In line with Keyes' Mental Health Continuum model (Keyes, 2002), we measured both psychological distress and wellbeing as distinct indicators of mental health. Consistent with the findings of Healy, Ntoumanis, van Zanten, and Paine (2014), we hypothesized that higher levels of self-determined motivation would be negatively associated with psychological distress (H1a) and positively associated with wellbeing (H1b). Further, we hypothesized that social identification would moderate the relationship between self-determined motivation and mental health outcomes. Specifically, among athletes who report a higher social identity, we expected a stronger positive association between self-determined motivation and wellbeing (H2a), and a stronger negative association between self-determined motivation and psychological distress (H2b).

Method

Participants

Participants were 387 adolescent males who were currently participating in team sports in New South Wales, Australia. Ages ranged from 12 to 19 years ($M = 14.64$ years, $SD = 1.71$). Most participants were drawn from football (soccer) clubs ($N = 335$; 86.0%), with participants also drawn from basketball ($N = 31$; 8.1%) and Australian Rules Football clubs ($N = 19$; 4.9%). The sports affiliation of two participants was not reported. All participants were engaged in their sport at a community (non-elite) level and were engaged with their team for an average of 3.39 days ($SD = 1.23$) and 5.65 ($SD = 3.62$) hours per week. Two participants were removed as they were over the age of 19 years (0.52%) and therefore not considered to be “adolescents”. The final sample included a total of 383 participants who were drawn from a total of 85 different sports teams (mean participants per team was 4.38). Of these, a total of 332 participants (86.7%) were included in analyses pertaining to psychological distress, and 322 (84.1%) were included in analyses pertaining to wellbeing, with some participants removed due to data missing on respective measures or as multivariate outliers.

Procedure

Following ethical approval from the first author's institutional Ethics Committee, all participants were approached to participate through their sports team. Participants who provided written informed consent and who received written parental consent (where participants were under the age of 16 years) completed measures at their training ground and within their sports team. All measures were completed on an iPad using the FileMaker Pro app, or using paper and pencil at the participant's sporting club in the absence of their coach and facilitated by a research assistant. Participants answered several questionnaires, taking approximately 30 minutes to complete. Data used in this study

pertain to a subset of the total number of measures completed by participants at baseline as part of the early phases of a larger study (see Vella et al., 2018 and Vella et al., 2019). The larger study tested a program aimed at developing mental health literacy and resilience among adolescent male sport participants. As a result of having a large battery of study measures, a decision was made in the design phase to reduce participant burden by reducing the length of some measures. Those that pertain to this study are noted in the following section, and the implications of this decision are further illustrated in the study limitations. Specifically, measures of social identity and self-determined motivation were shortened because they were not primary outcome measures of the broader study.

Measures

Self-determined motivation

To measure motivation in sport as conceptualized by self-determination theory, we used four items of the Behavioral Regulation in Sport Questionnaire (Lonsdale, Hodge, & Rose, 2008) to calculate a single index score. To capture the full range of behavioral regulations in the most concise manner, one item was selected for each of the subscales of external regulation; introjected regulation; identified regulation; and, intrinsic motivation. Items were selected as they were the highest loading items on each of the respective subscales among an adolescent sample (Viladrich et al., 2013). All items began with the stem “I participate in my sport...” and were rated on a 7-point Likert scale from 1 (*not at all true*) to 7 (*very true*). The items for external regulation (because I feel pressure from other people to play), introjected regulation (because I would feel ashamed if I quit), identified regulation (because I value the benefits of the sport), and intrinsic motivation (because it’s fun) were subsequently calculated into a Relative Autonomy Index (RAI). The RAI was calculated as: $(\text{external regulation} \times -2) + (\text{introjected regulation} \times -1) + (\text{identified regulation} \times 1) + (\text{intrinsic motivation} \times 2)$. Calculation of the RAI using subscale scores has been recommended by Guay, Mageau, and Vallerand (2003) and previously used with adolescents in a sport and exercise context (see Wallhead, Hagger, & Smith, 2010).

Social identity

Social identity was measured using three items drawn from the Social Identity in Sport Questionnaire (SIQS; Bruner & Benson, 2018). As above, the three items were chosen as they were the highest loading items on each of the subscales of the SIQS in an adolescent sample: ingroup ties (“I feel a sense of being “connected” with other members in this team”); cognitive centrality (“In general, being a member of this team is an important part of my self-image”); and, ingroup affect (“I feel good about being a member of this team”). Items are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). A total score was computed by summing each of the three items. Cronbach’s alpha in the current study was $\alpha = 0.83$.

Psychological distress

Psychological distress was measured using the Kessler-6 (K6; Mewton et al., 2016), a 6-item questionnaire assessing the level of depressive and anxiety symptoms that have

been experienced within the past month. Example items include “In the past 30 days about how often did you feel that everything was hopeless”, and “In the past 30 days about how often did you feel so depressed that nothing could cheer you up”. All items were rated on a 5-point Likert scale ranging from 1 (*none of the time*) to 5 (*all of the time*). Total scores were computed by summing all six items. In the current study, the Cronbach’s alpha coefficient for the six items was $\alpha = 0.81$. This measure of psychological distress has been previously used in a sample of adolescent male sport participants (Liddle, Deane, Batterham, & Vella, in press).

Wellbeing

Wellbeing was measured using an adolescent version of the short form of Keyes’ Mental Health Continuum (MHC-SF; Keyes, 2002; Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011). This is a 14-item measure of an individual’s emotional, psychological, and social wellbeing. The MHC-SF asks participants “During the past month, how often have you experienced or felt the following?”. Example items include: “Happy” (emotional wellbeing); “That you belonged to a community (like a social group, your school, or your neighborhood)” (social wellbeing); and, “That you had experiences that challenged you to grow and become a better person” (psychological wellbeing). All items were rated on a 6-point Likert scale ranging from 1 (*never*) to 6 (*everyday*). Total wellbeing scores were computed by summing all items. Cronbach’s alpha in the current study was $\alpha = 0.93$. Previous work with adolescent sport participants has utilized this measure of wellbeing (McFadden, Bean, Fortier, & Post, 2016).

Statistical analyses

We used multilevel modeling in Mplus Version 7.4 (Muthén & Muthén, 2015) to account for the nesting of athletes within sports teams and to partition variance into within-group and between-group components. All models used a sandwich estimator to compute standard errors that are robust to non-normality (i.e. MLR estimator in Mplus 7.4). Assumptions for the multilevel models were first evaluated. Separate null unconditional models were specified to evaluate the between-group variance in psychological distress and wellbeing. The intraclass correlation coefficient for each criterion variable refers to the amount of variance explained by team membership, with 10% between-group variance in psychological distress and 9% between-group variance in wellbeing, supporting the inclusion of random intercepts. Next, we evaluated whether the effects of self-determined motivation and social identity significantly varied across groups. Neither of the slopes significantly varied at the group-level. As such, self-determined motivation and social identity were included in subsequent models as fixed effects.

We used multiple moderated regression analyses to examine whether the relations of self-determined motivation with psychological distress and wellbeing varied as a function of social identity. Following recommendations by Enders and Tofighi (2007), we partitioned each predictor into within-group and between-group components by group-mean centering to create individual-level variables for both self-determined motivation and social identity, and aggregating scores for each team to create team scores for self-determined motivation and social identity. To align with the substantive focus of our

research question, we specified the models to examine moderation at the individual-level of analysis (Preacher, Zhang, & Zyphur, 2016). As such, each random intercept model included the following fixed effects: self-determined motivation at the individual-level, social identity at the individual level, team self-determined motivation, team social identity, and the product term of social identity and self-determined motivation at the individual-level (i.e. a Level 1 interaction). Thus, we controlled for group-level effects while examining how self-determined motivation and social identity interacted at the individual-level to predict depressive symptoms and wellbeing. Significant interaction effects were followed-up by plotting the simple slopes between self-determined motivation and each criterion variable at 1 SD above and below the mean of social identity scores (Aiken & West, 1991). Following recommendations by Aguinis, Gottfredson, and Joo (2013), we inspected multivariate outliers first at the group-level and then at the individual level. We used the loglikelihood distance influence measure, which indicates the influence of an observation on the parameter estimates of a model (Cook & Weisberg, 1982). Although we did not identify multivariate outliers at the group-level, we identified three cases for psychological distress and two cases for wellbeing. All outliers had a loglikelihood distance influence measure more than three times the mean. To determine whether the outlier affected parameter estimates, analyses were conducted with and without the outlier cases included. Below, we report the analyses with the outliers excluded but note the differences in the results between the two analyses.

Results

Descriptive statistics

Means, standard deviations, range and bivariate correlations for all study variables are reported in Table 1. Of note are moderately strong positive correlations between social identity and self-determination, as well as social identity and wellbeing.

Multiple moderated regression

Please refer to Models 1a and 2a in Table 2 for detailed statistics regarding the moderated multiple regression models. We also conducted a sensitivity analysis by controlling for age at the individual-level and sport type at the group-level. The magnitude and direction of the relations remained similar at both the individual-level or group-level for both psychological distress and wellbeing (see Models 1b and 2b).

Table 1. Descriptive and bivariate statistics.

Variable	<i>M</i>	<i>SD</i>	Range	1	2	3	4
1. Self-determined motivation	13.39	5.91	–8 to 18	–			
2. Social identity	17.22	3.43	0–21	0.41**	–		
3. Psychological distress	10.68	3.83	6–30	–0.28**	–0.15**	–	
4. Wellbeing	67.58	11.87	14–84	0.28**	0.36**	–0.51**	–

Note: ** $p < .01$.

Table 2. Moderated multiple regression models.

	Model 1a Psychological distress ^a <i>b</i> (<i>SE</i>)	Model 1b Psychological distress ^b <i>b</i> (<i>SE</i>)	Model 2a Wellbeing ^c <i>b</i> (<i>SE</i>)	Model 2b Wellbeing ^d <i>b</i> (<i>SE</i>)
Fixed effects (Level 1)				
Age		0.08 (0.11)		−0.33 (0.33)
Self-determined motivation	−0.08 (0.04)†	−0.07 (0.04)†	0.10 (0.14)	0.11 (0.15)
Social identity	−0.10 (0.08)	−0.12 (0.08)	1.16 (0.19)***	1.10 (0.20)***
SDM*SI	−0.03 (0.01)**	−0.03 (0.01)**	0.08 (0.04)†	0.07 (0.04)†
Fixed effects (Level 2)				
Sport type (1 = soccer; 0 = other)		0.24 (0.50)		0.73 (1.60)
Sport type (1 = basketball; 0 = other)		0.59 (0.98)		3.13 (1.57)*
Team self-determined motivation	−0.18 (0.08)**	−0.21 (0.07)**	0.74 (0.20)***	0.73 (0.03)***
Team social identity	−0.15 (0.17)	−0.12 (0.16)	0.81 (0.40)*	0.85 (0.03)***
Random effects				
Intercept	15.57 (2.52)	13.97 (2.75)	43.90 (5.88)	47.48 (4.90)
Level 1 (<i>r</i>)	9.71	9.91	97.94	96.01
Level 2 (<i>u</i> ₀)	0.58	0.45	0.46	0.00
Loglikelihood	−856.76	−829.99	−1199.43	−1147.35
Simple slopes analysis				
SDM at low levels of SI	0.00 (0.05)	0.01 (0.05)	−0.11 (0.19)	−0.10 (0.20)
SDM at mean levels of SI	−0.08 (0.04)†	−0.07 (0.04)†	0.10 (0.14)	0.11 (0.15)
SDM at high levels of SI	−0.16 (0.05)***	−0.14 (0.05)**	0.32 (0.19)†	0.32 (0.19)†

Note. *b*: unstandardized regression coefficient; *SE*: standard error; SDM: self-determined motivation; SDM*SI: product term of self-determined motivation and social identity. $N^a = 332$; $N^b = 321$; $N^c = 323$; $N^d = 310$. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Psychological distress

Although self-determined motivation was not associated with psychological distress at the individual-level, self-determined motivation was negatively associated with psychological distress at the group-level (partially supporting H1a). Social identity was not significantly associated with psychological distress at either the individual- or group-level. As predicted in H2b, however, self-determined motivation interacted with social identity at the individual-level in predicting psychological distress. Decomposing this interaction effect with simple slopes analysis revealed that self-determined motivation was unrelated to psychological distress at lower and mean levels of social identity. However, self-determined motivation was significantly negatively associated with psychological distress at higher levels of social identity. In sum, the strength of the negative relation between self-determined motivation and psychological distress increased as a function of social identity. The nature of the interactive effect is visually depicted in Figure 1A. The overall regression model explained a 4% variance at the within-group level and a 60% variance at the between-group level. The pattern of the results were similar when including the three outlier cases.

Wellbeing

Although self-determined motivation at the individual-level was unrelated to wellbeing, a positive relationship emerged with regard to self-determined motivation and wellbeing at the group-level (i.e. partially supporting H1b). In contrast, social identity at both the individual-level and group-level was positively related to wellbeing. Contrary to H2a, self-determined motivation did not significantly interact with social identity at the individual-level in predicting wellbeing ($p = .082$). The overall regression model explained 10.4% variance at the within-group level and 98.6% variance at the between-group level.

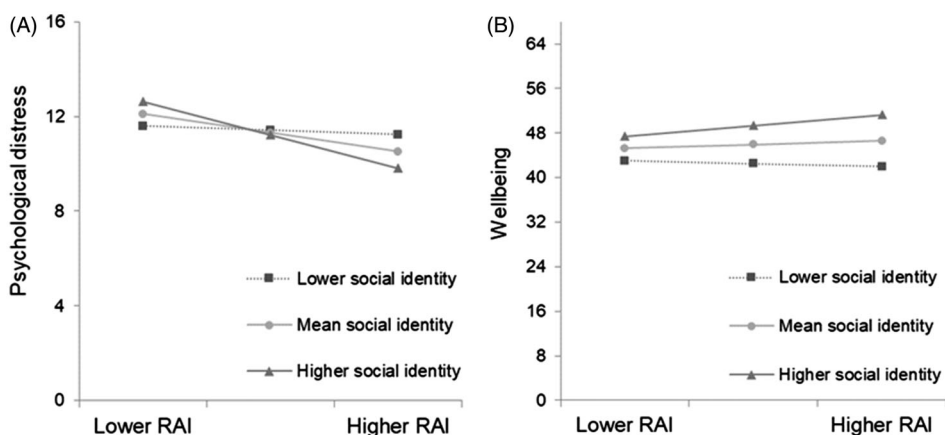


Figure 1. The relation of self-determined motivation (RAI) with psychological distress (Panel A) and wellbeing (Panel B) as a function of social identity strength.

It should be noted that when including the outlier cases in the regression model, the interaction effect is statistically significant ($p=.014$), wherein the association between self-determined motivation and wellbeing increased as a function of social identity. However, this conditional relation appears to be primarily driven by the outlying cases.

Discussion

The aim of this study was to investigate whether social identification with one's sports team moderated the relation between self-determined motivation and two distinct indicators of mental health. Results indicate that higher rates of self-determined motivation were associated with lower psychological distress and higher wellbeing at the team level but not the individual level. The group-level findings suggest that promoting a team environment in which athletes collectively feel they are self-determined may be particularly important for athletes' mental health. Hypotheses regarding the moderating influence of social identification were partly confirmed at the individual level. At lower and mean levels of social identification, there was no relationship between self-determined motivation and psychological distress. However, at higher levels of social identification, self-determined forms of motivation were negatively related to psychological distress. Although social identity did not significantly interact with self-determined motivation in predicting wellbeing, there was a strong positive association between social identity and wellbeing at the individual level. These results shed light on the potential conditions whereby sports programs that facilitate self-determined forms of motivation among many athletes within a team may be associated with mental health benefits.

Results provide some support for an association between self-determined motivation and indicators of general mental health and are consistent with similar findings among similar samples of athletes (Sheehan, Herring, & Campbell, 2018; Stenling, Ivarsson, Hassmen, & Lindwall, 2017; Stenling, Lindwall, & Hassmen, 2015). The significant group-level effects indicate that high-quality sports programs that facilitate a team environment that is geared toward self-determination are likely to be associated with mental health benefits. However, the association between self-determined motivation and

mental health were not significant at the individual level. Similar findings were reported by Stenling et al. (2017) whereby controlled motivational regulations at the group level only, predicted depression and anxiety symptoms later in the season among a sample of young elite skiers that were nested within sports high schools. That is, it is possible that sports programs that promote basic need satisfaction and self-determined forms of motivation at the group level through autonomy supportive behaviors of coaches and parents (Holt, Tamminen, Black, Mandigo, & Fox, 2009; Kipp & Weiss, 2013; Mageau & Vallerand, 2003) and autonomy-supportive social environments (Quested & Duda, 2010), are associated with mental health benefits. While this assertion goes beyond the data used in the current study, it is consistent with the underpinning SDT (Deci & Ryan, 2012) and the motivational sequence whereby autonomy supportive behaviors predict psychological need satisfaction, which in turn predicts self-determined motivation, which then predicts one's psychological wellbeing (Stenling et al., 2015). However, the associations reported in this study do not indicate any causal influence, and should be understood in the context of the results of moderation analyses.

The most notable finding of this study is that when adolescent sport participants have higher levels of social identification with their sports team, higher levels of self-determined motivation were associated with lower psychological distress – an important aspect of mental health. However, the results of the moderation analyses differed between measures of well- and ill-being (i.e. wellbeing and psychological distress) whereby social identity moderated the relationship between self-determination and psychological distress, but not wellbeing. That is, lower levels of self-determination among a team were associated with greater psychological distress only among those where a meaningful part of their self-concept is derived from membership of their sports team together with high levels of value and emotional significance attached to that membership (Tajfel, 1981). As such, the negative mental health outcomes of participation in organized sports may be magnified in instances where adolescents have higher levels of social identity, with good quality programs (that facilitate high levels of self-determination) being associated with fewer psychological difficulties. Indeed, other work has found that social identification predicted athletes' conformity to risky health behaviors (e.g. binge drinking) when they were believed to be normative within the group (Graupensperger, Benson, & Evans, 2018). Taken together, it is clear that the consequences of social identification are complex. Cultivating a strong social identity has the potential to amplify the influence of both positive and negative social environments.

At lower and mean levels of social identification there was no association between self-determined motivation and indices of mental health. In instances of lower social identification at the individual-level (i.e. sports team involvement is less meaningful to one's identity relative to their teammates), athletes may place less personal importance on their sport team experiences, which may minimize the impact of such experiences on one's overall mental health. These results suggest that attending to social identification processes may have important consequences for the study of mental health through sport, particularly during adolescence.

Applied implications

The implication of the results is that greater levels of social identification may magnify the effects of sports programs based on the extent to which participants feel self-determined. As such, coaches and practitioners should attend to social identification processes as well as processes of self-determination to maximize the associated mental health outcomes. For example, interventions to strengthen one's social identity are effective in improving wellbeing and reducing levels of depression, anxiety and stress (Haslam, Cruwys, Haslam, Dingle, & Chang, 2016). Specifically, Haslam et al. (2016) Groups 4 Health (G4H) intervention with young adults revealed that improvements in mental health outcomes, loneliness, and overall life satisfaction were driven by increased identification with the intervention group. Such interventions include a wide range of modules and have been designed for those with low levels of social identity. However, the processes involved may also be relevant and applicable to facilitating a strong social identity in sport. Relevant processes include schooling, designed to raise awareness of the importance of social groups in health and wellbeing and to educate people about the importance of accessing all social resources available to them; sourcing, which focuses on identifying and strengthening existing valued social identities; and, scaffolding, whereby people are encouraged to explore strategies to develop social connections. Such processes could be used to target the three components of social identity in sport: cognitive centrality; ingroup ties; and, ingroup affect. For example, coaches may design an interactive team building activity at practice or outside of the sport setting to foster ingroup ties amongst teammates, work with the team to develop a distinct team cheer or item of team clothing to foster cognitive centrality, or select a unique celebratory team song to promote ingroup affect. In turn, such activities may also strengthen self-determined motivation, for example, through increases in satisfaction of one's need for relatedness. For example, coach education initiatives based on self-determination theory and aimed at facilitating increases in adolescent athlete wellbeing include explicit components on building athlete togetherness, and strong coach-athlete relationships (Vella et al., 2018). This is especially important as the findings suggest that coaches and practitioners should focus on building both social identity and self-determined motivation in sport in order to maximize the adaptive mental health outcomes of participation. Temporarily, practitioners might first consider targeting self-determined motivation because low levels can be detrimental for participants. Subsequently, social identity could be considered in circumstances where self-determination is already high in order to magnify the benefits of high levels of self-determination.

Limitations and conclusion

This study is limited by the cross-sectional design through which causal influences cannot be ascertained. This is a general limitation of the field (Eime et al., 2013), and solution-focussed experimental work (Robinson & Sirard, 2005) is needed whereby solutions to maximizing the mental health benefits of organized sports participation can be sought in ways that are transferable to policy and practice in youth sports. Nonetheless, evaluating complex associations between constructs (i.e. testing a moderation pattern) reduces the likelihood that our pattern of results are due to common method bias. A

second limitation of the study is the male sample. It is unclear whether the findings would generalize to females. In this regard, replication is warranted. Furthermore, the current sample included adolescent male, non-elite, team sport participants, and therefore generalizing the findings to other sports contexts should be taken with precaution. Finally, we used abbreviated measures of social identity and self-determined motivation in this study. Although the specific items chosen are justified on pragmatic (e.g. survey length) and statistical grounds (e.g. item loading scores), caution should still be exercised from a reliability and validity perspective (Diamantopoulos, Sarstedt, Fuchs, Wilczynski, & Kaiser, 2012; Postmes, Haslam, & Jans, 2013). For instance, carry-over effects (i.e. where a response to one item carries into the next due to respondents' state dependence) may impact the predictive validity of a scale. In cases where a scale has multiple items, it is more likely that this bias is compensated (see also De Jong, Lehmann, & Netzer, 2012). A single item may be more susceptible to this effect. The strengths of the study include the use of distinct indicators of mental health problems and wellbeing.

In conclusion, social identity in sport is associated with higher levels of wellbeing. Further, self-determined forms of motivation are associated with lower levels of psychological distress. However, this is only true of those individuals with higher levels of social identification with their sports team. Interventions to increase perceived need satisfaction, and thereby increase self-determined forms of motivation, as well as interventions to increase social identification should be tested in order that causal evidence is generated. The goal of such solution-focussed research should be to maximize the mental health benefits of participation in organized sports by influencing its practice and associated policy.

Note

1. Social identity differs from the psychological need for relatedness as it refers explicitly to the part of one's self-concept, which is derived from group membership, as opposed to the satisfaction with, or quality of, the relationships that one has within a group.

References

- Aguinis, H., Gottfredson, R.K., & Joo, H. (2013). Best-practice recommendations for defining, identifying, and handling outliers. *Organizational Research Methods*, 16, 270–301.
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: testing and interpreting interactions*. Newbury Park, CA: Sage.
- Bean, C., Harlow, M., Mosher, A., Fraser-Thomas, J., & Forneris, T. (2018). Assessing differences in athlete-reported outcomes between high and low-quality youth sport programs. *Journal of Applied Sport Psychology*, 30(4), 456–472. doi:10.1080/10413200.2017.1413019
- 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
- Britton, P. C., VanOrden, K. A., Hirsch, J. K., Niemiec, C. P., & Williams, G. C. (2014). Basic psychological needs, suicidal ideation, and risk for suicidal behavior in young adults. *Suicide and Life-Threatening Behavior*, 44(4), 362–371. doi:10.1111/sltb.12074
- Bruner, M. W., Balish, S. M., Forrest, C., Brown, S., Webber, K., Gray, E., ... Shields, C. A. (2017). Ties that bond: Youth sport as a vehicle for social identity and positive youth

- development. *Research Quarterly for Exercise and Sport*, 88(2), 209–214. doi:[10.1080/02701367.2017.1296100](https://doi.org/10.1080/02701367.2017.1296100)
- Bruner, M. W., & Benson, A. (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](https://doi.org/10.1016/j.psychsport.2017.12.006)
- Bruner, M. W., Boardley, I. D., Benson, A. J., Wilson, K. S., Root, Z., Turnnidge, J., ... Côté, J. (2018). Disentangling the relations between social identity and prosocial and antisocial behavior in competitive youth sport. *Journal of Youth and Adolescence*, 47(5), 1113–1127. doi:[10.1007/s10964-017-0769-2](https://doi.org/10.1007/s10964-017-0769-2)
- Bureau, J., Mageau, G. A., Vallerand, R. J., Boudrais, J. S., Desrumeaux, P., Brunet, L., & Morin, E. M. (2012). Self-determination: A buffer against suicide ideation. *Suicide and Life-Threatening Behavior*, 42(4), 377–393. doi:[10.1111/j.1943-278X.2012.00097.x](https://doi.org/10.1111/j.1943-278X.2012.00097.x)
- Cook, R. D., & Weisberg, S. (1982). *Residuals and influence in regression*. New York: Chapman and Hall.
- De Jong, M. G., Lehmann, D. R., & Netzer, O. (2012). State-dependent effects in surveys. *Marketing Science*, 31(5), 838–854. doi:[10.1287/mksc.1120.0722](https://doi.org/10.1287/mksc.1120.0722)
- Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 85–107). New York, NY: Oxford University Press.
- Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. *Journal of the Academy of Marketing Science*, 40(3), 434–449. doi:[10.1007/s11747-011-0300-3](https://doi.org/10.1007/s11747-011-0300-3)
- 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(1), 98–118. doi:[10.1186/1479-5868-10-98](https://doi.org/10.1186/1479-5868-10-98)
- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, 12(2), 121–138. doi:[10.1037/1082-989X.12.2.121](https://doi.org/10.1037/1082-989X.12.2.121)
- Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education and Sport Pedagogy*, 10, 19–40. doi:[10.1080/1740898042000334890](https://doi.org/10.1080/1740898042000334890)
- Gillet, N., Fouquereau, E., Lafrenière, M. A. K., & Huyghebaert, T. (2016). Examining the roles of work autonomous and controlled motivations on satisfaction and anxiety as a function of role ambiguity. *The Journal of Psychology*, 150(5), 644–655. doi:[10.1080/00223980.2016.1154811](https://doi.org/10.1080/00223980.2016.1154811)
- Graupensperger, S. A., Benson, A. J., & Evans, M. B. (2018). Everyone else is doing it: The association between social identity and susceptibility to peer influence in NCAA athletes. *Journal of Sport and Exercise Psychology*, 40(3), 117–127.
- Guay, F., Mageau, G. A., & Vallerand, R. J. (2003). On the hierarchical structure of self-determined motivation: A test of top-down, bottom-up, reciprocal, and horizontal effects. *Personality and Social Psychology Bulletin*, 29(8), 992–1004. doi:[10.1177/0146167203253297](https://doi.org/10.1177/0146167203253297)
- Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders*, 194, 188–195. doi:[10.1016/j.jad.2016.01.010](https://doi.org/10.1016/j.jad.2016.01.010)
- Haslam, C., Jetten, J., Cruwys, T., Dingle, G., & Haslam, S. A. (2018). *The new psychology of health: Unlocking the social cure*. London, UK: Routledge.
- Healy, L. C., Ntoumanis, N., van Zanten, J. J. V., & Paine, N. (2014). Goal striving and well-being in sport: The role of contextual and personal motivation. *Journal of Sport and Exercise Psychology*, 36(5), 446–459. doi:[10.1123/jsep.2013-0261](https://doi.org/10.1123/jsep.2013-0261)

- Hofer, J., & Busch, H. (2011). Satisfying one's needs for competence and relatedness: Consequent domain-specific well-being depends on strength of implicit motives. *Personality and Social Psychology Bulletin*, 37(9), 1147–1158. doi:[10.1177/0146167211408329](https://doi.org/10.1177/0146167211408329)
- Holt, N. L., Tamminen, K. A., Black, D. E., Mandigo, J. L., & Fox, K. R. (2009). Youth sport parenting styles and practices. *Journal of Sport and Exercise Psychology*, 31, 37–59. doi:[10.1123/jsep.31.1.37](https://doi.org/10.1123/jsep.31.1.37)
- Holt, N. L., Tamminen, K. A., Tink, L. N., & Black, D. E. (2009). An interpretive analysis of life skills associated with sport participation. *Qualitative Research in Sport and Exercise*, 1(2), 160–175. doi:[10.1080/19398440902909017](https://doi.org/10.1080/19398440902909017)
- Hornsey, M. J. (2008). Social identity theory and self-categorisation theory: A historical review. *Social and Personality Psychology Compass*, 2, 204–222. doi:[10.1111/j.1751-9004.2007.00066.x](https://doi.org/10.1111/j.1751-9004.2007.00066.x)
- Hortop, E. G., Wrosch, C., & Gagné, M. (2013). The how and why of goal pursuits: Effects of global perceived control and autonomous motivation on subjective well-being. *Motivation and Emotion*, 37(4), 675–687. doi:[10.1007/s11031-013-9349-2](https://doi.org/10.1007/s11031-013-9349-2)
- Keyes, C. L. (2002). The mental health continuum: From languishing to flourishing. *Journal of Health and Social Behavior*, 43, 207–222. doi:[10.2307/3090197](https://doi.org/10.2307/3090197)
- Kipp, L. E., & Weiss, M. R. (2013). Social influences, psychological need satisfaction, and well-being among female adolescent gymnasts. *Sport, Exercise, and Performance Psychology*, 2(1), 62–75. doi:[10.1037/a0030236](https://doi.org/10.1037/a0030236)
- Lamers, S. M. A., Westerhof, G. J., Bohlmeijer, E. T., ten Klooster, P. M., & Keyes, C. L. M. (2011). Evaluating the psychometric properties of the Mental Health Continuum-Short Form (MHC-SF). *Journal of Clinical Psychology*, 67(1), 99–110. doi:[10.1002/jclp.20741](https://doi.org/10.1002/jclp.20741)
- Liddle, S. K., Deane, F. P., Batterham, M., Vella, S. A. (In press). A brief sports-based mental health literacy program for adolescent males: A cluster-randomized controlled trial. *Journal of Applied Sport Psychology*, Advance online publication. doi:[10.1080/10413200.2019.1653404](https://doi.org/10.1080/10413200.2019.1653404)
- Lonsdale, C., Hodge, K., & Rose, E. A. (2008). The Behavioral Regulation in Sport Questionnaire (BRSQ): Instrument development and instrument validity evidence. *Journal of Sport and Exercise Psychology*, 30, 323–355. doi:[10.1123/jsep.30.3.323](https://doi.org/10.1123/jsep.30.3.323)
- Mageau, G. A., & Vallerand, R. J. (2003). The coach-athlete relationship: A motivational model. *Journal of Sports Sciences*, 21(11), 883–904. doi:[10.1080/0264041031000140374](https://doi.org/10.1080/0264041031000140374)
- Martin, L. J., Balderson, D., Hawkins, M., Wilson, K. S., & Bruner, M. W. (2018). The influence of social identity on self-worth, commitment, and effort in school-based youth sport. *Journal of Sports Sciences*, 36(3), 326–332. doi:[10.1080/02640414.2017.1306091](https://doi.org/10.1080/02640414.2017.1306091)
- McFadden, T., Bean, C., Fortier, M., & Post, C. (2016). Investigating the influence of youth hockey specialization on psychological needs (dis)satisfaction, mental health, and mental illness. *Cogent Psychology*, 3(1), 7–16. doi:[10.1080/23311908.2016.1157975](https://doi.org/10.1080/23311908.2016.1157975)
- Mewton, L., Kessler, R. C., Slade, T., Hobbs, M. J., Brownhill, L., Birrell, L., ... Andrews, G. (2016). The psychometric properties of the Kessler Psychological Distress Scale (K6) in a general population sample of adolescents. *Psychological Assessment*, 28(10), 1232–1242. doi:[10.1037/pas0000239](https://doi.org/10.1037/pas0000239)
- Muthén, L. K., & Muthén, B. (2015). *Mplus users guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British Journal of Social Psychology*, 52(4), 597–617. doi:[10.1111/bjso.12006](https://doi.org/10.1111/bjso.12006)
- Preacher, K. J., Zhang, Z., & Zyphur, M. J. (2016). Multilevel structural equation models for assessing moderation within and across levels of analysis. *Psychological Methods*, 21(2), 189–205. doi:[10.1037/met0000052](https://doi.org/10.1037/met0000052)
- Quested, E., & Duda, J. L. (2010). Exploring the social-environmental determinants of well- and ill-being in dancers: A test of basic needs theory. *Journal of Sport and Exercise Psychology*, 32, 39–60. doi:[10.1123/jsep.32.1.39](https://doi.org/10.1123/jsep.32.1.39)
- Robinson, T. N., & Sirard, J. R. (2005). Preventing childhood obesity: A solution-oriented research paradigm. *American Journal of Preventive Medicine*, 28(2), 194–201. doi:[10.1016/j.amepre.2004.10.030](https://doi.org/10.1016/j.amepre.2004.10.030)

- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. doi:[10.1037/0003-066X.55.1.68](https://doi.org/10.1037/0003-066X.55.1.68)
- Sheehan, R.B., Herring, M.P., & Campbell, M.J. (2018). Associations between motivation and mental health in sport: A test of the hierarchical model of intrinsic and extrinsic motivation. *Frontiers in Psychology*, 9, 707. doi:[10.3389/fpsyg.2018.00707](https://doi.org/10.3389/fpsyg.2018.00707)
- Silva, M. N., Vieira, P. N., Coutinho, S. R., Minderico, C. S., Matos, M. G., Sardinha, L. B., & Teixeira, P. J. (2010). Using self-determination theory to promote physical activity and weight control: A randomized controlled trial in women. *Journal of Behavioral Medicine*, 33(2), 110–122. doi:[10.1007/s10865-009-9239-y](https://doi.org/10.1007/s10865-009-9239-y).
- Stenling, A., Ivarsson, A., Hassmen, P., & Lindwall, M. (2017). Longitudinal associations between athletes' controlled motivation, ill-being, and perceptions of controlling behaviors: A bayesian latent growth curve approach. *Psychology of Sport and Exercise*, 30, 205–214.
- Stenling, A., Lindwall, M., & Hassmen, P. (2015). Changes in perceived autonomy support, need satisfaction, motivation, and well-being in young elite athletes. *Sport, Exercise, and Performance Psychology*, 4(1), 50–61. doi:[10.1037/spy0000027](https://doi.org/10.1037/spy0000027)
- Tajfel, H. (1981). *Human groups and social categories: Studies in social psychology*. Cambridge, England: Cambridge University Press.
- Vella, S. A., Cliff, D. P., Magee, C. A., & Okely, A. D. (2015). Associations between sports participation and psychological difficulties during childhood: A two-year follow up. *Journal of Science and Medicine in Sport*, 18(3), 304–309. doi:[10.1016/j.jsams.2014.05.006](https://doi.org/10.1016/j.jsams.2014.05.006)
- Vella, S. A., Swann, C., Batterham, M., Boydell, K. M., Eckermann, S., Fogarty, A., ... Deane, F. P. (2018). Ahead of the game protocol: A multi-component, community sport-based program targeting prevention, promotion and early intervention for mental health among adolescent males. *BMC Public Health*, 18(1), 390. doi:[10.1186/s12889-018-5319-7](https://doi.org/10.1186/s12889-018-5319-7)
- Vella, S. A., Swann, C., Boydell, K. M., Eckermann, S., Fogarty, A., Hurley, D., ... Deane, F. P. (2019). Sports-based mental health promotion in Australia: Formative evaluation. *Psychology of Sport and Exercise*, 45, 101560. doi:[10.1016/j.psychsport.2019.101560](https://doi.org/10.1016/j.psychsport.2019.101560)
- Viladrich, C., Appleton, P., Quested, E., Duda, J. L., Alcaraz, S., Heuze, J., ... Ntoumanis, N. (2013). Measurement invariance of the Behavioural Regulation in Sport Questionnaire when completed by young athletes across five European countries. *International Journal of Sport and Exercise Psychology*, 11(4), 384–394. doi:[10.1080/1612197X.2013.830434](https://doi.org/10.1080/1612197X.2013.830434)
- Wallhead, T. L., Hagger, M., & Smith, D. T. (2010). Sport education and extracurricular sport participation: An examination using the trans-contextual model of motivation. *Research Quarterly for Exercise and Sport*, 81, 442–455. doi:[10.5641/027013610X13088600029256](https://doi.org/10.5641/027013610X13088600029256)