



# The interplay between parental behaviors and adolescents' sports-related values in understanding adolescents' dropout of organized sports activities

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## ABSTRACT

Using short-term longitudinal data, the primary goal of the present study was to examine the interplay between adolescents' sports-related intrapersonal (e.g., sports values) and interpersonal factors (e.g., perceived parental involvement) in relation to sports dropout. A secondary goal was to explore the direction of effects in the association between intra- and interpersonal factors. A total of 420 adolescents (39% girls,  $M_{age} = 14.06$ ;  $SD_{age} = 0.33$ ) responded to a set of survey questions over two consecutive years. Results from structural equation modeling suggested that parental involvement predicted adolescents' dropout one year later, via sports values. Further, the results suggested that the direction of influence is mainly from parents to adolescents. Overall, the findings indicate that adolescents whose parents attend their practices and games perceive sports activities as fun, important and useful; as a result, adolescents are less likely to dropout. The findings offer an improved understanding of how parents' behaviors may influence adolescents' dropout of organized sports.

Organized sports activities have been identified as developmental contexts that can promote positive youth development (Lerner, Lerner, & Benson, 2011; Mahoney, Larson, & Eccles, 2005). Generally, researchers have reported positive associations between involvement in organized sports and positive youth development across the academic, behavioral, and psychological domains (Holt, 2007). Nevertheless, reports across several countries have consistently documented a substantial decrease in youth's sports participation rates, especially during the transition between childhood and adolescence (Crane & Temple, 2015; Møllerlækken, Lorås, & Pedersen, 2015; Rullestad, Meland, & Mildestvedt, 2021). The decline in sports involvement raises challenges for parents, practitioners, and researchers who are interested in giving youth opportunities for successful adjustment. Hence, an understanding of factors that could reduce sports dropout is important for promoting youth's continued participation in a developmental setting that is linked to youth's positive development (Lerner et al., 2011).

Researchers have consistently identified youth's sports-related intrapersonal constraints (e.g., lack of enjoyment and not perceiving sports as important/useful) and interpersonal constraints (e.g.,

perceived parental pressure and involvement in their children's games and practices) as important correlates of youth sports dropout (Back, Johnson, Svedberg, McCall, & Ivarsson, 2022; Bentzen, Hordvik, Sten-ersen, & Solstad, 2021; Crane & Temple, 2015). However, there are limitations in the literature and questions that need further attention. First and foremost, the key correlates of sports dropout have mostly been examined as separate predictors; and, despite their close-inter-relationships (Bremer, 2012; Holt & Knight, 2014a), separate lines of research have focused on youth's intrapersonal and interpersonal constraints on sports dropout. Further, the current understanding of sports dropout is mostly based on cross-sectional and qualitative studies (Back, Johnson, et al., 2022; Crane & Temple, 2015; Møllerlækken et al., 2015), and longitudinal studies are needed to identify and distinguish short-term and long-term influences on youth's sports dropout. In an attempt to reduce this gap of knowledge, in the present study, we draw on the Expectancy-Value Model (Fredricks & Eccles, 2004), to examine the interactive roles of intrapersonal and interpersonal constraints on adolescents' sports dropout using short-term longitudinal data extending over two years.

**Abbreviations:** EVM, The Expectancy-Value Model; YeS, Youth and Sports project; T1& T2, Time 1 and Time 2; SES, Socioeconomic status; SEM, Structural equation modeling; CFA, Confirmatory factor analysis.

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## 1. The expectancy-value model

The Expectancy-Value Model (EVM) is a comprehensive model that offers a theoretical understanding of individual differences in youth's choices of activity involvement across the academic and extracurricular domains (Fredricks, Simpkins, & Eccles, 2006; Wigfield & Eccles, 2000). The model is often used to examine questions such as *what* drives an individual to engage in a given activity, or *why* an individual pursues a particular activity (e.g., sports) rather than another (e.g., music). According to the EVM (Eccles, 1983; Wigfield & Eccles, 1992), parents' socialization behaviors and youth's subjective task values represent two of the most important and direct determinants of youth's choice of activity involvement. Overall, it is demonstrated that, through a variety of behaviors, parents can influence their children's subjective task values, which in turn predict the child's choice of activity involvement (Jaf, Özdemir, & Skoog, 2021; Simpkins, Fredricks, & Eccles, 2015b). However, arguments from the EVM and related empirical research have mainly focused on parents' sports-related behaviors in the family context, such as parents' own engagement in sports or playing sports with the child, in relation to the youth's sports values and sports participation (Jaf et al., 2021; Simpkins, Fredricks, & Eccles, 2012). Nevertheless, to our knowledge and with the exception of some scholars relying on cross-sectional data (Boiché & Sarrazin, 2009), there is a limited understanding of whether the existing findings supporting the EVM also hold across other contexts, such as the athletic domain and specifically related to sports dropout. The EVM offers a great opportunity to examine the combined role of intrapersonal and interpersonal factors in relation to adolescents' sports dropout, which may offer a more comprehensive understanding of the role of parents' behaviors in their children's sports dropout. Hence, in the present study, we rely on and extend arguments from the EVM to investigate the role of parental behaviors in adolescents' athletic contexts, such as parental involvement (e.g., attending practices and games) and encouragement (e.g., persuading youth to engage in sports), in relation to adolescents' sports-related values and dropout.

### 1.1. Parents' sports-related socialization behaviors

By being involved in their children's sports activities, either by attending practices and games or through encouragement (Simpkins et al., 2015b), parents are investing "psychological resources", like time and interest (Connell & Wellborn, 1991). Through these behaviors, it is argued that parents can continue to influence their children's sports-related experiences (e.g., enjoyment) and their continued participation or dropout when they enter adolescence (Côté & Vierimaa, 2014; Espedalen & Seippel, 2022; Fraser-Thomas, Côté, & Deakin, 2008). For example, it has been shown that parents' involvement and encouragement are positively linked to youth's sports-related values (Bremer, 2012; Camacho-Thompson & Simpkins, 2020; Welk, Wood, & Morss, 2003). Similarly, parents' autonomy-supportive behaviors within the athletic context have been shown to be positively associated with adolescents' enjoyment of and perceived importance of sports activities (O'Neil & Amorose, 2021). Taken together, parents play an important role in youth's sports-related motivational beliefs, the latter being one of the most important correlates of sports dropout. However, except for the findings of some qualitative studies (Fraser-Thomas, Côté, & Deakin, 2008; Stuart, 2003), little is known about the link between parents' behaviors in the athletic context and youth's sports dropout, that is youth's choice to pursue or dropout of sports activities. In the present study, using data collected over two-time points we aim to understand whether and how parents' involvement and encouragement are linked to adolescents' sports dropout.

### 1.2. Youth's subjective values

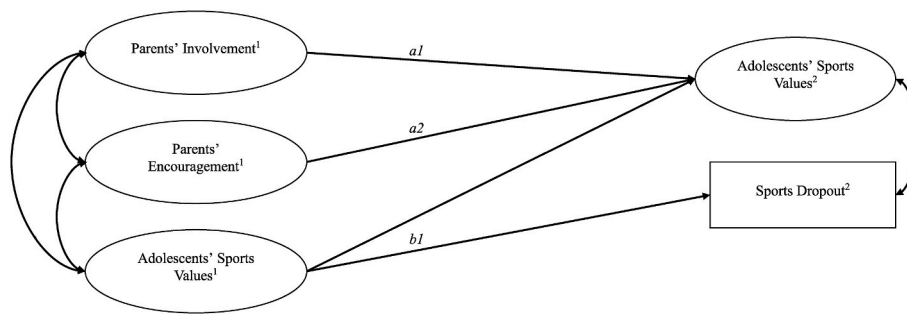
In line with the EVM (Jacobs & Eccles, 2000), empirical research has

consistently demonstrated that youth who have higher attainment value (i.e., the importance of doing well in an activity that is considered to strengthen the individual's self-perception), intrinsic value (i.e., the subjective interest or enjoyment experienced when participating in an activity) and utility value (i.e., the importance of the task for current and future goals) related to sports will be more likely to participate in sports activities (Fredricks & Eccles, 2004; Jaf et al., 2021; Simpkins et al., 2012; Simpkins et al., 2015b). It has also been reported that the values that youth attach to sports activities are not limited to guiding their choice of activity enrolment but are also important for their commitment once they have enrolled. For example, perceiving sports as important, fun, and useful has been found to be negatively associated with youth sports dropout (Back, Johnson, et al., 2022; Boiché & Sarrazin, 2009; Guillet, Sarrazin, Fontayne, & Brustad, 2006; Salguero, Gonzalez-Boto, Tuero, & Marquez, 2003). Taken together the values that youth attach to sports are important in understanding sports dropout. As highlighted above proponents of the EVM argue that as one of the primary socializers' parents play a key role in the development of adolescents' sports-related values (Fredricks & Eccles, 2004; Horn & Horn, 2012). From a developmental perspective, initially, the parents' role involves introducing and exposing their children to various activities which scholars have consistently shown to influence the child's activity-related values and enrollment (Simpkins et al., 2012; Simpkins et al., 2015b). On the other hand, according to the EVM and others interested in parents' behaviors in the athletic context (Fraser-Thomas, Côté, & Deakin, 2008), during adolescence, parents generally have a supportive role in youth sports, for instance, attending to the child's games and practices, or offering encouragement, which has been shown to be linked with youth's concurrent sports-related motivational beliefs (Dorsch et al., 2021). However, to our knowledge, during this developmental stage, less is known about the interplay between parents' behaviors in the athletic context and youth's sports-related values in relation to sports dropout. In this study, extending previous knowledge (Holt & Knight, 2014a; O'Neil & Amorose, 2021), and relying on the EVM (Fredricks & Eccles, 2004), sports-related values are identified as a potential mechanism that may explain the association between parents' behaviors and adolescents' sports dropout.

### 1.3. The present study

The sophistication of the EVM (Fredricks & Eccles, 2004) in its delineation of the mechanisms via which parents can influence their children's motivational behaviors (e.g., choice of activity involvement) enables the model to offer valuable insight into adolescents' choices to pursue or dropout from sports. Hence, to better understand the interplay between intrapersonal and interpersonal factors on adolescents' sports dropout, we considered key arguments of the EVM. More specifically, the primary goal of the present study is to examine the indirect role of parents' behaviors (e.g., attending games and practices, and encouragement of sports participation) in adolescents' sports dropout, through adolescents' sports-related values. We hypothesize that by investing time and showing interest in their sports activities (via involvement and encouragement) parents' behaviors will be positively linked to their adolescents' perceiving sports as important, fun, and useful, which in turn, will have a negative influence on dropout (see Figure 1).

In line with the EVM (Fredricks & Eccles, 2004; Jacobs & Eccles, 2000) and considering the lack of empirical research (Back, Johnson, et al., 2022; Holt, Tamminen, Black, Mandigo, & Fox, 2009; Knight, 2019), we also examined the reciprocal associations between adolescents' perceptions of parents' behaviors (i.e., involvement and encouragement) and their perceived sports-related values. According to the EVM (Fredricks, Simpkins, & Eccles, 2005; Jacobs & Eccles, 2000), the path between parents' behaviors and youth's motivational beliefs may not necessarily be unidirectional, where parents influence youth's values. Rather, parents may also adjust their behaviors according to their children's beliefs and behaviors (Fredricks & Eccles, 2004). In fact,



**Figure 1.** The Hypothesized Half-Mediation Model Examining the Indirect Effect of Parents' Behaviors on Adolescents' Sports Dropout through Adolescents' Sports Values

*Note.* <sup>1</sup> = Time 1 and <sup>2</sup> = Time 2. Ovals represent latent constructs. The latent factors and the outcome variable (i.e., sports dropout) were all regressed on the covariates (age, gender, immigrant background, and family SES).

in qualitative studies, parents have reported that their beliefs and attitudes towards sports, and their behaviors in youth sports, have changed alongside their youth's enrolment (for an overview, see Knight, 2019). For example, some parents reported that they developed an interest in the same sport as their children, which resulted in them being more involved as spectators (e.g., attending practices and games), and even starting in the same sport themselves (Côté, 1999). Similar findings have been reported by others (Weiss & Hayashi, 1995). To explore the hypothetical bidirectional effects, in the present study we considered the direction of influence in the association between parents' behaviors and adolescents' sports-related values.

The gender of the child could play an important role in the EVM (Eccles & Wigfield, 2020). It is argued that parents who hold gender-stereotypic beliefs about their children will also act on such beliefs in their socialization behaviors. For example, it has been found that parents are more likely to buy sports-related equipment for their sons than for their daughters (Simpkins et al., 2012; Simpkins et al., 2015b). Relatedly, according to the model (Eccles & Wigfield, 2020; Fredricks & Eccles, 2004), cultural beliefs could also influence parents' general and for instance sports-related socialization behaviors. In line with these arguments, research has shown mean-level differences between immigrant and native parents' behaviors on a daily basis, such as parental monitoring (Delforterie et al., 2016; Fernandez, Loukas, & Pasch, 2018; Jaf, Özdemir, & BayramÖzdemir, 2020), and levels of parents' own engagement in physical and sports activities (Jaf et al., 2020). Nevertheless, these differences have been mostly observed on a mean level and have not entailed differences in developmental processes (Jaf et al., 2020; Jaf et al., 2021; Simpkins et al., 2015b). Taken together, based on arguments from the EVM (Eccles & Wigfield, 2020) and related empirical findings, gender and immigration background were treated as covariates.

## 2. Method

### 2.1. Participants

Data were obtained from the Youth and Sports (YeS) project, which has several aims, including an understanding of how intrapersonal and interpersonal factors might explain youth's dropout and sports involvement over time. We used data across two-time points, time 1 (T1) and time 2 (T2), which were collected annually from public-sector schools in a medium-sized city in central Sweden. To match the socio-demographic characteristics of the city the schools were selected from different neighborhoods. The city was very close to the national average in terms of annual income (303 300 Swedish kronor/person compared to the national average of 300 000 Swedish kronor/person) and in terms of the unemployment rate (7%) which was equal to the national average (7%) (Statistics Sweden, 2017).

Out of the target sample (812 students in grade 7), 678 (83%, 46% girls,  $M_{\text{age}} = 14.09$  and  $SD_{\text{age}} = 0.39$ ) were present during T1 and 83% responded to the survey again at T2 ( $N = 563$ , 44% girls,  $M_{\text{age}} = 15.09$  and  $SD_{\text{age}} = 0.38$ ). At T1, 4% of parents declined their children's

participation in the study, and 6% at T2. A small proportion of the youth did not take part in the survey due to sickness at T1 ( $n = 6$ ) and T2 ( $n = 7$ ), and due to truancy or for other (unknown) reasons at T1 (6%) and T2 (7%). Most of the participating youth were from intact families (63%), with employed parents (77% for mothers, and 89% for fathers), and 83% perceived their financial situation to be just as good or better than their classmates. About one-third (29%) of the adolescents and their parents were born outside a Nordic country (Sweden, Denmark, Finland, or Norway); most of them spoke Swedish at home (70%), while about a third (30%) spoke a foreign language or a combination of a foreign language and Swedish. The analytic sample for the present study comprised 420 adolescents involved in after-school sports activities (39% girls,  $M_{\text{age}} = 14.06$  and  $SD_{\text{age}} = 0.33$ ).

### 2.2. Procedure

Parents received an information letter by regular post with a description of the YeS project and were asked to return a pre-paid envelope if they did not want their child to participate in the study. The data collection was administered by 2–3 trained research assistants. Before the survey questions, research assistants presented a thorough description of the project, a statement about the voluntary nature of participation and confidentiality of information, and an assurance that participants could quit the study whenever they wanted. The study was approved by the Regional Ethics Review Board in Uppsala (Dnr: 2015/330).

## 3. Measures

### 3.1. Adolescents' perceptions of parents' behaviors

The items for adolescents' perceptions of their parents' behaviors were developed as part of the YeS project. They are in line with the EVM (Fredricks & Eccles, 2004), and the practice of researchers interested in parents' behaviors in the athletic context (Boiché & Sarrazin, 2009; Lee & MacLean, 1997).

**Parents' involvement in adolescents' sports activity.** This construct was measured using the same three items at T1 and T2: "How often do your parents come and watch you practicing?", "How often do your parents come and watch your matches/games?", and "How often do your parents talk to your coach about your performance?". The items were rated on a 5-point scale ranging from 1 (*Never*) to 5 (*Always*). Similar items have been used to assess youth's perceptions of their parents' involvement and have been shown to have acceptable internal consistency and predictive validity (Boiché & Sarrazin, 2009; Bremer, 2012).

**Parents' encouragement of adolescents' participation in sports.** This construct was measured using the same 3 items at T1 and T2: "My parents want me to play sports.", "My parents want me to become a professional athlete.", and "My parents get happy when I play sports.", rated on a 4-point scale ranging from 1 (*Not correct at all*) to 4 (*Very true*). Similar items have been used to assess youth's perceptions of their

parents' encouragement of sports activities, and have been shown to have acceptable internal consistency and predictive validity (Brown, 1985; Fredricks & Eccles, 2005).

### 3.2. Adolescents' sports-related values

Adolescents' sports values were measured using the same items at T1 and T2. Different items were used to tap into the multidimensional construct of sports-related values (Fredricks & Eccles, 2004). For example, one item was used to assess adolescents' intrinsic values: "I do sport because it's fun", rated on a 4-point scale ranging from 1 (*Not correct at all*) to 4 (*Very true*). Two items were used to assess adolescents' utility values: "I do sport because it makes me physically stronger", "I do sport because I can make new friends", rated on a 4-point scale ranging from 1 (*Not correct at all*) to 4 (*Very true*). One item was used to assess adolescents' attainment values: "I spend more time thinking about the sport than anything else", rated on a 5-point scale ranging from 1 (*Disagree*) to 5 (*Agree*). Similar items have been used across a range of studies and have been shown to have high internal consistency and predictive validity (Fredricks & Eccles, 2005; Simpkins et al., 2012).

### 3.3. Sports Dropout

Consistent with the literature we measured sports withdrawal as domain-general dropout, that is adolescents who dropped out and did not reenter the same or other sports activities (Carlman, Wagnsson, & Patriksson, 2013; Gould & Petlichkoff, 1988; Jaf et al., 2020). Initially (i.e., at T1), we measured adolescents' involvement in organized sports activities using one dichotomous item: "Are you involved in after-school sports activities, for example, soccer, ice-hockey, horse riding, and athletics?". About one year later (i.e., at T2), we asked the same question. Based on the responses, we identified adolescents who were involved in sports activities during T1 ( $n = 420$ ) but no longer involved during T2 ( $n = 52$ ). Adolescents who persisted in sports activities over time were coded as 0, and those who were involved in sports activities at T1 but were no longer involved at T2 (i.e., who had dropped out of sports) were coded as 1.

### 3.4. Socio-demographic characteristics and covariates

Participants reported their age and gender, and parental employment status was used as a proxy of socioeconomic status (SES). Following the practice of earlier researchers (Peguero, 2011; Singh, Stella, Siahpush, & Kogan, 2008), adolescents with both parents born outside a Nordic country (Sweden, Norway, Finland, or Denmark) were regarded as immigrants. Participants with both of their parents born in a Nordic country were regarded as Nordic. A small group of adolescents (7%) had only one parent born outside the Nordic countries. This group was more like the Nordic adolescents than immigrants on all study variables, thus, were regarded as Nordic. Immigrant adolescents were coded as 1, and Nordic adolescents as 0. In the present study, we controlled for the effects of the following covariates: age, gender, immigrant background, and SES.

### 3.5. Attrition and missing data analysis

Of the analytic sample at T1 ( $n = 420$ ), 87% were also present at T2 ( $n = 365$ ). Thus, 13% of the adolescents who were in the study during T1 did not participate in T2. We performed binomial logistic regression to examine whether the study variables (i.e., age, gender, SES, immigration background, parents' involvement and encouragement, and adolescents' sports-related values) were systematically related to longitudinal attrition. We regressed all study variables on the attrition variable which identified those who remained in the study on both occasions (0 = stayed) and those who were missing at the second data collection (1 = attrition). None of the study variables significantly predicted

longitudinal attrition (Nagelkerke  $R^2 = 0.03$ ). The  $p$ -values for the unstandardized regression coefficients ranged between  $-.67$  and  $.09$ .

### 3.6. Plan of analysis

Structural equation modeling (SEM) in Mplus version 8.4 was used to test the primary and secondary aims of this investigation. To assess model fit, we followed the conventional cutoff points in the literature (Wang & Wang, 2020), which comprise: (1) model chi-square statistics, (2) the comparative fit index (CFI  $> 0.95$ ), (3) the Tucker-Lewis index (TLI  $> 0.95$ ), (4) the root mean square error of approximation (RMSEA  $< 0.10$ ), and standardized root means residuals (SRMR  $< 0.10$ ). The constructs used in the present study are measured through observed indicators that are ordinal or dichotomous. Hence, following recommendations on this topic, weighted least squares with means and variances adjusted (WLSMV) robust estimators were used throughout the analyses (Brown, 2015; Flora & Curran, 2004; Rhemtulla, Brosseau-Liard, & Savalei, 2012).

#### 3.6.1. Measurement model

Confirmatory factor analysis (CFA) was used to evaluate the factorial structure of the measurement model and to evaluate measurement invariance across groups and time. The measurement model comprised 3 distinct latent factors across two-time points, resulting in a total of six latent factors, with one latent factor measuring adolescents' sports values, and two distinct latent factors measuring parents' behaviors. The latent factors were identified by setting the first factor loadings at 1. Measuring the same items repeatedly over time tends to result in correlated measurement errors (Little, 2013a), more specifically, indicator-specific effects including indicator-specific residuals are expected to remain over time (Geiser, 2021; Hermida, 2015); hence, we correlated the error terms of the same items that were measured repeatedly across T1 and T2.

The latent factors were created based on arguments from the EVM (Fredricks & Eccles, 2004) and related empirical findings (Simpkins et al., 2015b) emphasizing the importance of adolescents' activity-related values (e.g., intrinsic, utility, and attainment values) and parents' behaviors (e.g., parental involvement and encouragement) on youth's involvement in extracurricular activities. Even though activity-related values consist of theoretically distinct components, they are highly correlated (Eccles & Wigfield, 1995) and often used as an overarching single scale of values (Fredricks & Eccles, 2005; Simpkins, Fredricks, & Eccles, 2015a). Thus, relying on previous research (Simpkins et al., 2012; Østerlie, Løhre, & Haugan, 2019), and to obtain a parsimonious model, we measured adolescents' sports-related values as a unidimensional latent factor comprising one item regarding intrinsic value, two items regarding utility value, and one item regarding attainment value. For adolescents' perceptions of their parents' behaviors, two distinct latent factors were created to measure parental involvement (3 items) and parental encouragement (3 items). We did not merge parents' behaviors into one single latent factor since, unlike parental involvement, indicators of parental encouragement represent parents' desire for their children to be involved in sports and to become professional athletes. Hence, in parental encouragement, the focus is rather on what parents want from their children (Fredricks & Eccles, 2004). Such behaviors can be perceived by youth as pressuring and have a negative influence on their sports-related experiences (Dorsch et al., 2021).

#### 3.6.2. Measurement invariance

Once the factorial structure of the measurement model was assessed, we evaluated measurement invariance across groups and time. Research has consistently identified youth's sports-related values (e.g., engaging in sports for fun) as one of the most important factors correlated with youth's participation and continuation in organized sports activities (Crane & Temple, 2015; Fredricks & Eccles, 2005). Similarly, in the



present study, most adolescents across T1 and T2 scored high on the indicators measuring their perceived sports-related values. Consequently, assessment of measurement invariance through multi-group factor analysis resulted in indicators with several categories that had low observations or empty response options (i.e., zero cells), which in turn produced incorrect correlation estimates. Solutions such as collapsing items (Rutkowski, Svetina, & Liaw, 2019) or adding a value (e.g., .5) to the zero frequency cells (Savalei, 2011) have been shown to result in biased standard errors, scale reliability estimates, and model fit. Therefore, no adjustment is recommended for indicators that consist of more than two response options (Savalei, 2011). Hence, we conducted measurement invariance only for the latent factors measuring parent's involvement and encouragement across time and groups (i.e., gender and immigration background).

### 3.6.3. Structural model

To address the main goal of this investigation, which draws on arguments from the EVM (Fredricks & Eccles, 2004), we examined whether adolescents' sports values at T1 mediated the association between parents' behaviors at T1 and adolescents' dropout from sports activities at T2. Figure 1 shows that two separate mediation effects were estimated within the same model: (1) concerning the link of parental involvement via adolescents' sports values to sports dropout, and (2) concerning the link of parental encouragement via adolescents' sports values to sports dropout. Following recommendations for mediation analysis with two measurement occasions, we applied a half-mediation model (Little, 2013a). More specifically, we controlled for the previous levels of the mediator variable, in this case, adolescents' sports values (see, Figure 1), and given that we focused on adolescents that were already engaged in sports activities at time 1, per default, we also controlled for the previous levels of the outcome variable (i.e., sports participation/dropout). Further, throughout the analysis, all latent factors at T1 and the outcome variable at T2 were regressed on the covariates (age, gender, immigrant background, SES). However, to avoid statistical overcontrolling (Little, 2013a), the covariates that did not have marginal associations ( $p < .10$ ) with the model variables were removed from the models. Specifically, in line with the recommendation of the American Statistical Association (Nuzzo, 2014; Wasserstein & Lazar, 2016), we omitted covariates that did not have marginal effects from the final model if their respective 90% confidence intervals, corresponding to marginal effects, included the value of zero. The recommendations from the American Statistical Association were also used as the primary source of guidance to interpret results from the present study.

The mediation coefficients examined in the present study are each the product of two regression coefficients (i.e.,  $product\ 1 = a1*b1$ , and  $product\ 2 = a2*b1$ ). Hence, the assumption of normal distribution of a computed product term could be violated (Geiser, 2012). Given recommendations for testing the significance of indirect effects, we included 95% bias-corrected bootstrap (BC) confidence intervals based on 1000 bootstrap draws (MacKinnon, 2008; MacKinnon, Lockwood, & Williams, 2004). The second part of the analysis involved the examination of the reciprocal relationships between (1) parents' involvement and adolescents' sports values, and (2) parents' encouragement and adolescents' sports values, using latent autoregressive cross-lagged modeling (Geiser, 2012; Selig & Little, 2012). For instance, using data across two-time points, we examined reciprocal relationships and the stability and change of parents' behaviors and adolescents' sports values (i.e., the auto-regressive and cross-lagged effects of the respective constructs).

## 4. Results

### 4.1. CFA and measurement invariance

Results from the CFA concerning the overall measurement model

indicated an acceptable model fit:  $\chi^2(145) = 236.187$ ,  $p < .001$ ; CFI = 0.98 and TLI = 0.97; RMSEA = 0.039 (90% CI: 0.029, 0.047,  $p = .986$ ); and SRMR = 0.06. All of the standardized factor loadings for the latent variables were statistically significant (see Table 1) and above the recommended cut-off value of 0.40 (Wang & Wang, 2020). Following the recommendations of (Liu et al., 2017; Svetina, Rutkowski, & Rutkowski, 2020) and the findings of (Chen, 2007; Cheung & Rensvold, 2002), we decided upon a change in  $\Delta\chi^2$  statistics and change in CFI and RMSEA as the criteria for determination of measurement invariance. A decrease in CFI  $\geq 0.01$  and an increase in RMSEA  $\geq 0.015$  is considered an indication of non-invariance. The findings indicated scalar invariance across immigration background  $\Delta\chi^2(26) = 58.96$ ,  $p > .001$ ;  $\Delta CFI = -0.008$ ,  $\Delta RMSEA = 0.006$ , gender  $\Delta\chi^2(26) = 31.70$ ,  $p = .203$ ;  $\Delta CFI = -0.002$ ,  $\Delta RMSEA = 0.00$ , and over time  $\Delta\chi^2(13) = 21.22$ ,  $p = .069$ ;  $\Delta CFI = -0.001$ ,  $\Delta RMSEA = 0.00$ .

### 4.2. The indirect effects of parents' Behaviors on Adolescents' sports dropout via adolescents' sports-related values

We examined whether adolescents' sports values at T1 mediated the association between parental involvement and encouragement at T1 and adolescents' sports dropout at T2. The indices indicated an acceptable model fit between the specified SEM model and the observed data:  $\chi^2(117) = 194.774$ ,  $p < .001$ ; CFI = 0.97 and TLI = 0.96; RMSEA = 0.042 (90% CI: 0.032, 0.053,  $p = .884$ ); and SRMR = 0.10. The direct effects revealed that adolescents' sports-related values were stable over time and parents' involvement in sports activities at T1 positively predicted adolescents' sports-related values one year later (see Table 2). By contrast, parental encouragement at T1 had no significant direct effect on adolescents' sports-related values one year later. As for the main findings, results from the half-mediation model suggested that parental involvement in their sports activities positively predicted adolescents'

**Table 1**  
Standardized coefficients from the confirmatory factor analysis.

Observed variable	Latent factor	Time 1 $\beta$ (SE)	Time 2 $\beta$ (SE)
<b>Parents' Involvement</b>			
How often do your parents come and watch you practicing?		.76 (.03) ***	.76 (.04) ***
How often do your parents come and watch your matches/games?		.86 (.03) ***	.84 (.04) ***
How often do your parents talk to your coach about your performance?		.76 (.03) ***	.78 (.04) ***
Scale reliability		.84	.83
<b>Parents' Encouragement</b>			
My parents want me to play sports		.77 (.04) ***	.86 (.04) ***
My parents want me to become a professional athlete		.76 (.04) ***	.82 (.04) ***
My parents get happy when I play sports		.78 (.04) ***	.76 (.04) ***
Scale reliability		.81	.86
<b>Adolescents' Sports values</b>			
I do sport because it is fun		.76 (.06) ***	.67 (.07) ***
I do sport because it makes me physically stronger		.60 (.05) ***	.66 (.07) ***
I do sports because I can make new friends		.64 (.05) ***	.64 (.06) ***
I spend more time thinking about sport than anything else		.63 (.05) ***	.61 (.07) ***
Scale reliability		.75	.74

Note.  $\beta$  = standardized beta coefficients, and SE = standard error. Measurement scale of each latent variable was established by setting the first indicator at 1. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 2**  
Path estimates predicting adolescents' sports values and dropout.

Path	$\beta$ (SE)	95% CI	
		LL	UL
<i>Covariates</i>			
Immigrant background $\rightarrow$ Parents' involvement <sup>1</sup>	-.29 (.07) ***	-.402	-.127
Immigrant background $\rightarrow$ Dropout <sup>2</sup>	.37 (.07)***	.244	.500
Gender $\rightarrow$ Parents' encouragement <sup>1</sup>	.28 (.06)***	.173	.385
Gender $\rightarrow$ Sports values <sup>1</sup>	.21 (.07)***	.068	.310
SES $\rightarrow$ Parents' encouragement <sup>1</sup>	-.16 (.07)*	-.306	-.041
<i>Direct effects</i>			
Sports values <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	.77 (.10)***	.60	1.03
Parents' involvement <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	.18 (.08)*	.02	.33
Parents' encouragement <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	-.04 (.11)	-.36	.13
Sports values <sup>1</sup> $\rightarrow$ Dropout <sup>2</sup>	-.39 (.10) ***	-.57	-.22
	B (SE)	LL	UL
<i>Indirect effect</i>			
Parents' involvement <sup>1</sup> $\rightarrow$ Sports values <sup>1</sup> $\rightarrow$ Dropout <sup>2</sup>	-.08 (.05)*	-.20	-.01
Parents' encouragement <sup>1</sup> $\rightarrow$ Sports values <sup>1</sup> $\rightarrow$ Dropout <sup>2</sup>	.02 (.05)	-.06	.17

Note. <sup>1</sup> = Time 1 and <sup>2</sup> = Time 2.  $\beta$  = standardized beta coefficients, B = unstandardized beta coefficients, and SE = standard error. CI = confidence interval; LL = lower limit; UL upper limit. 95% BC bootstrap CI reported for all estimates. Confidence intervals that do not contain zero are statistically significant. \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

sports values, which, in turn, were negatively associated with sports dropout. Contrary to our expectations, there was no significant indirect effect of parental encouragement.

#### 4.3. Reciprocal relationships

The indices for the cross-lagged model of parents' involvement and adolescents' sports values indicated acceptable model fit between the specified model and the observed data:  $\chi^2(201) = 303.592$ ,  $p < .001$ ; CFI = 0.97 and TLI = 0.97; RMSEA = 0.037 (90% CI: 0.028, 0.045,  $p = .996$ ); and SRMR = 0.08. First, we found strong stability estimates for perceived parental involvement and encouragement, and for

**Table 3**  
Reciprocal associations between parents' behaviors and adolescents' sports values.

	$\beta$ (SE)	95% CI	
		LL	UL
<i>Covariates</i>			
Immigrant background $\rightarrow$ Parents' involvement <sup>1</sup>	-.27 (.07) ***	-.41	-.13
Gender $\rightarrow$ Parents' encouragement <sup>1</sup>	.27 (.06)***	.17	.38
SES $\rightarrow$ Parents' encouragement <sup>1</sup>	-.16 (.07)*	-.27	-.05
Gender $\rightarrow$ Parents' encouragement <sup>2</sup>	.12 (.07)†	.01	.24
SES $\rightarrow$ Parents' encouragement <sup>2</sup>	.15 (.09)†	.01	.29
Gender $\rightarrow$ Sports values <sup>1</sup>	.20 (.07)**	.07	.33
<i>Stability paths</i>			
Sports values <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	.77 (.08)***	.61	.94
Parents' involvement <sup>1</sup> $\rightarrow$ Parents' involvement <sup>2</sup>	.76 (.04)***	.67	.84
Parents' encouragement <sup>1</sup> $\rightarrow$ Parents' encouragement <sup>2</sup>	.59 (.08)***	.43	.75
<i>Cross-lagged paths</i>			
Sports values <sup>1</sup> $\rightarrow$ Parents' involvement <sup>2</sup>	.02 (.07)	-.12	.15
Parents' involvement <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	.19 (.08)**	.04	.34
Sports values <sup>1</sup> $\rightarrow$ Parents' encouragement <sup>2</sup>	-.10 (.09)	-.28	.08
Parents' encouragement <sup>1</sup> $\rightarrow$ Sports values <sup>2</sup>	-.04 (.09)	-.22	.13

Note. <sup>1</sup> = Time 1 and <sup>2</sup> = Time 2.  $\beta$  = standardized beta coefficients and SE = standard error. CI = confidence interval; LL = lower limit; UL upper limit. Confidence intervals that do not contain zero are statistically significant. † =  $p < .10$ ; \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

adolescents' sports values over time (see Table 3). Second, and most importantly, the cross-lagged estimation revealed that perceived parental involvement at T1 predicted adolescents' sports values at T2. Hence, above and beyond the stability of adolescents' sports values over time, perceived parental involvement predicted adolescents' sports values one year later. The findings also revealed that there was no reciprocal association between perceived parental encouragement and adolescents' values.

## 5. Discussion

The present study examines an important gap in the literature concerning the interplay between intrapersonal and interpersonal factors in adolescents' dropout of organized sports. Hence, the findings contribute to the literature by offering additional theoretical and empirical insights into processes involved in adolescent's sports dropout. Specifically, in the present study, we focused on the indirect role of parents' behaviors in the athletic context on adolescents' dropout from sports via adolescents' sports-related values. Further, we investigated reciprocal associations between parents' behaviors and adolescents' values to explore questions related to directionality.

### 5.1. The role of parents' behaviors in their adolescents' choices to pursue or dropout from sports

Building on arguments from the EVM (Fredricks & Eccles, 2004), the present study extends existing knowledge on parents' involvement in youth sports by demonstrating that parents' behaviors, in particular their perceived involvement, are important not only for their adolescents' sports-related values (Babkes & Weiss, 1999; Camacho-Thompson & Simpkins, 2020; Hoyle & Leff, 1997) but also for counteracting dropout from sports. These findings are in line with the idea that external support is necessary for adolescents to maintain their values and involvement in activities over time (Connell & Wellborn, 1991; Côté, 1999; Jacobs & Eccles, 2000). There are two important aspects. First, as they grow older, the amount of time adolescents spend with their parents decreases dramatically, while the positive qualities of parent-adolescent relationships, such as parental closeness and support, decrease (Smetana, Robinson, & Rote, 2015). At the same time, most adolescents spend more time with their peers, and the importance of relationships with peers increases as they become more intimate with them. Despite these changes during adolescence, the present study indicates that having parents who attend practices and games may play a crucial role in the extent to which adolescents value sports activities, and in their continued participation in sports. Second, although theoretical models of sports dropout, such as the developmental model of sports participation (Côté, Baker, & Abernethy, 2003), have highlighted the importance of parental behaviors in relation to youth sports dropout, less is known about potential underlying mechanisms. The studies that have addressed this issue are mostly qualitative (Fraser-Thomas, Cote, & Deakin, 2008; Stuart, 2003), but findings from the present study suggest that adolescents' sports-related values mediate the link between parents' behaviors and dropout, and therefore parents' behaviors seem to have an indirect influence on adolescents' dropout.

Contrary to our expectation, there was no direct or indirect effect of parental encouragement on adolescents' sports-related values and dropout from sports. To some extent, these findings are consistent with the literature, where no associations between parental encouragement and children's perceived sports-related competence and intrinsic motivation have been observed (Babkes & Weiss, 1999). It should be noted that this null finding could be related to how parental encouragement was measured in our and some of the prior studies. Guided by the EVM (Eccles, 2007), parental encouragement was conceptualized in the present study as adolescents' perceptions of being encouraged by their parents to play sports, and of expectations to excel in sports. However, adolescents could have perceived these parental behaviors and

expectations as a source of pressure rather than support. The behaviors, especially those involved in becoming a professional athlete, are to some extent overlapping with performance-focused parenting (Dorsch et al., 2021) and can be perceived by adolescents as involving excessive parental expectations. In fact, excessive parental behaviors (e.g., high expectations on performance) have been associated with a range of negative outcomes in youth sports including perceived pressure to play sports (Holt & Knight, 2014a; Dorsch et al., 2021; O'Neil & Amorose, 2021). Further, qualitative findings have revealed that youth whose parents set excessive expectations on sports-related achievements are more likely to focus on meeting their parents' expectations in future sports-related events (Sagar & Lavalley, 2010) rather than on their own preferences to remain active or dropout. Nevertheless, it is also important to acknowledge that the association between parental encouragement, whether performance-oriented or not, and youths' motivational beliefs (e.g., enjoyment or sports) depends on whether parents are autonomy-supportive or controlling during their interactions with the child (O'Neil & Amorose, 2021), and if they provide positive or negative evaluations related to youths' sports-related performances (Dorsch et al., 2021). Taken together, future research may benefit from identifying different dimensions of parental encouragement and accounting for parenting style (e.g., autonomy-supportive vs. controlling), to better understand when it is perceived as supportive and/or pressurizing, and how it influences adolescents' sports values and continued participation in sports.

## 5.2. Reciprocal associations between parents' behaviors and adolescents' sports-related values

In line with seminal papers on the dynamic nature of socialization (Bell, 1968; Sameroff, 1975a, 1975b), proponents of the EVM have argued that the link between parents' behaviors and youth's motivational beliefs is reciprocal (Fredricks & Eccles, 2004; Jacobs & Eccles, 2000). However, to our knowledge, reciprocal associations have not been examined in the literature on parental behaviors in youth's sporting contexts (for a review see Crane & Temple, 2015; Møllerlækken et al., 2015; Back, Stenling, et al., 2022). Consequently, we examined the data for potential bidirectional associations between parents' behaviors in the athletic setting and adolescents' sports-related values over time. Our findings provide additional support for the results obtained from the proposed mediation model (see Figure 1), where parents' behaviors, especially parental involvement, play an important role in adolescents' development of sports-related values. Contrary to our expectations, there were no significant effects of adolescents' sports-related values on parental behaviors (e.g., parental involvement and encouragement). Thus, findings from the present study suggest that the direction of influence is from parent to adolescent, not the other way around.

Overall, these findings can be explained by broader contextual factors, namely the prevailing sports culture in Nordic countries such as Sweden. Consistent with the ecological view of human development (Bronfenbrenner, 2005), proponents of the EVM argue that contextual factors, such as cultural norms and values, play a key role in parents' general and specific behaviors (Eccles, 2007; Eccles & Wigfield, 2020). In Sweden, sports and physical activities are an important part of contemporary culture, which is clearly shown in governmental policy statements, alongside the substantial financial resources (Bergsgård, Borodulin, Fahlen, Høyer-Kruse, & Iversen, 2019; Fahlén & Stenling, 2016) provided to support the Swedish Sports Confederation. Further, it is important to acknowledge that the sports activities investigated here took place outside Swedish school hours. Hence, the family (e.g., parents or other adult care-takers) was found to play a key role in facilitating youth's participation in organized sports. In fact, national reports have revealed that a large majority of parents engage in their children's organized sports activities, not only by offering transportation and attending games and practices but also by taking, mostly pro bono,

responsibilities in a sports association, e.g., as a coach, board member or sports official (Riksidrottsförbundet, 2019; Wagnsson & Patriksson, 2005). The uniqueness of the Swedish sports culture is even more evident when Sweden is compared with other countries across Europe (Eurobarometer, 2019). Sweden has the highest proportion of its population (19%) involved in sports-related voluntary work. Taken together, the evidence suggests that parents and other adult figures could be involved in youth sports as a result of the Swedish sports culture rather than being influenced by their children.

It is also important to highlight that despite a well-established sports culture, Sweden like other countries (Breuer, Feiler, & Wicker, 2015; Rullestad et al., 2021; Toselli & Belcastro, 2017) faces challenges related to gender stereotypic behaviors and inequality in sports participation rates between Swedish and immigrant families. For instance, our findings suggested that girls were less likely to be encouraged by their parents to participate in sports and reported lower sports-related values than boys. Further, our findings also indicated that immigrant parents were less likely to be involved in their adolescents' organized sports activities, and immigrant adolescents were more likely to dropout of sports activities than their Swedish counterparts. Taken together, future research could benefit from considering the implications of broader contextual factors (e.g., cultural norms and values) for a more comprehensive understanding of parental behaviors in youth sports contexts and adolescents' sports dropout. Especially, to promote equal opportunities to participate in organized sports activities regardless of gender and immigrant background of parents and their adolescents.

## 6. Strengths and limitations

The present study has some limitations that need to be addressed. First, even though we reveal that parents' behaviors, particularly parental involvement, predict change in adolescents' sports-related values over time, the items used to tap into parents' involvement provide limited information about the types of behaviors that parents engage in when they attend games and practices or talk with the coach. Parents might engage in a range of behaviors (e.g., cheering on their child vs. criticizing their child) that might determine whether their involvement is perceived as supportive or pressurizing (Holt & Knight, 2014b). Including both supportive and pressurizing behaviors within the same model may offer an additional understanding of the roles of different types of parental involvement in youth's sports-related values and their future commitment to sports. Several qualitative studies (for an overview, see Holt & Knight, 2014b) have provided a list of parental behaviors in sports contexts that youth regard as desirable (e.g., maintaining a positive tone and body language) or as undesirable (e.g., criticizing their child or the team). Future research could benefit from using this type of knowledge for a more detailed understanding of effective parental behaviors.

Second, we focused mainly on parents' behaviors as a potential source of influence on adolescents' sports-related values and dropout. We did not control for other important factors, such as peer and coach relations, that have been linked to youth's overall experiences, sports values, and sports dropout (Back, Stenling, et al., 2022; Crane & Temple, 2015; Møllerlækken et al., 2015). To develop a more comprehensive understanding of adolescents' sports dropout, research would benefit from examining the joint effect of the activities of the people in a sports context (e.g., parents, peers, and adult-leaders/coaches). Third, even though repeated data over two-time points was used to address the main goal of the study, a minimum of three waves of data is preferred (Little, 2013b) to properly examine mediation models and to distinguish within-person processes from between-person differences that may exist in the data (Hamaker, Kuiper, & Grasman, 2015). Hence, future research with extensive longitudinal data is required to rigorously support our findings concerning the mediation effects and to address questions related to stable trait-like individual attributes. Finally, even though not part of the aim of this study, we do not know if adolescents who did not



dropout of organized sports over time remained in the same type of sports activity.

Despite its limitations, the present study has some considerable strengths. To our knowledge, existing research has mainly studied youth's dropout from sports by focusing separately on interpersonal and intrapersonal factors. To develop a more comprehensive understanding, we applied theoretical arguments from the EVM (Fredricks & Eccles, 2004), alongside existing knowledge, to examine the joint effect of interpersonal factors (e.g., parents' involvement and encouragement) and intrapersonal factors (e.g., sport is fun, important, and useful) on adolescents' dropout from sports activities. Hence, one of the main strengths of the study is that it offers additional insights into the processes involved in adolescents' dropout. A second strength concerns the use of adolescents' perceptions of their parents' behaviors. Researchers have emphasized that effective socialization is influenced by how adolescents perceive their parents' intentions (Grusec & Goodnow, 1994; Smetana et al., 2015). It has been shown that children's perceptions of their parents' behaviors are a more important source of influence on children's sports-related experiences than what their parents report (Babkes & Weiss, 1999; Hoyle & Leff, 1997; Leff & Hoyle, 1995). The short-term prospective design of the present study is a third strength that needs to be highlighted, especially given that most studies on youth dropout have used cross-sectional designs (Back, Stenling, et al., 2022; Crane & Temple, 2015; Møllerlækken et al., 2015). Thus, our findings offer important insight into the long-term role of intrapersonal constraints (e.g., perceiving sport as important/useful) and interpersonal constraints (e.g., parental involvement in their children's games and practices) in youth sports dropout. A final strength of the present study concerns the examination of the direction of influence between perceived parental behaviors and adolescents' sports-related values.

## 7. Conclusions

Findings from the present study have important implications for both researchers and practitioners. Specifically, they contribute to the literature by offering an improved understanding of how parents' behaviors in the athletic context influence adolescents' sports dropout. The results indicate that adolescents whose parents attend their practices and games or talk with the coach of the team perceive sports activities as fun, important and useful. In turn, these adolescents are less likely to dropout of sports activities one year later. Further, the results of our reciprocal analysis add to the literature by demonstrating that the direction of influence may flow from parental involvement to changes in adolescents' perceived sports-related values over time, not the other way around. Given that dropout from sports increases during adolescence (Norberg, 2019; Rullestad et al., 2021), researchers and practitioners interested in prolonging adolescents' continued involvement in sports might adopt parent-focused strategies to influence parents' involvement in their children's sports activities. For example, professionals in the sports domain might inform parents that by attending games or practices, which is desired by young people (Holt & Knight, 2014b), they can play an important role in their children's sports-related values (e.g., sport is fun, important and useful), which have been identified as key correlates of sports dropout (Back, Johnson, et al., 2022; Crane & Temple, 2015; Møllerlækken et al., 2015). In sum, the present study demonstrates that the importance of parental behaviors is not limited to adolescents' sports-related values, but also applies to their continued participation in sports over time.

## Declaration of competing interest

This manuscript is not being considered for publication elsewhere. The study was conducted in accordance with the ethical standards of the American Psychological Association, and we do not have any interests that may influence the research.

## Data availability

The data that has been used is confidential.

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