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EMPIRICAL RESEARCH

Relationship with Adults in Organized Sports and Non-Sports Activities and Links with Psychological Adjustment in Adolescence: A 6-Year Longitudinal Study

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Abstract

Relationships with adults in organized activities play a crucial role in the positive outcomes associated with these experiences, yet little is known about how these relationships evolve throughout adolescence or how they are differentially associated with mental health. Important distinctions could also be made regarding activity types. The sample consisted of 292 participants (58% female; M age = 12.5; SD = 0.48), primarily White, middle-class, French-Canadian adolescents. Participants reported annually on their relationships with adults from ages 14 to 17. They also provided information on their levels of depressive symptoms and self-esteem at ages 13, 17, and 18. Results showed that parental involvement and support from the activity leader significantly decreased over time during adolescence. Additionally, parental involvement appears to be higher over time in team sports than in non-sport activities, but no differences were found regarding support from the activity leader. Finally, parental involvement and leader support were both linked to lower depressive symptoms and higher self-esteem. These findings highlight the critical yet diminishing role of adults in organized activities as adolescents age, underscoring the need for sustained adult engagement to promote positive mental health outcomes in this developmental period.

Keywords Organized Activity · Support from Leader · Parental Involvement · Depressive Symptoms · Self-Esteem

Introduction

Organized activities are recognized as valuable contexts for fostering positive social experiences that contribute to adolescents' psychological adjustment (White-Gosselin et al., 2024). Among these experiences, relationships with adults, such as parental involvement and support from activity leaders, have been shown to benefit adolescent development (Denault & Poulin, 2016; Oosterhoff et al., 2017). However, the evolution of these social processes over time, their specific links with mental health, and differences across activity types remain largely unexplored. This study addresses these gaps by examining how parental involvement and support from the activity leader change throughout adolescence and how these processes differ between sports and non-sport activities. While adolescents generally show a normative desire for closeness with peers during this developmental period, parents and non-parental adults are still important in adolescence, particularly in providing support (Mirković et al., 2024). However, all types of organized activities may not offer the same opportunities for parents to get involved and for the activity leaders to offer support. Additionally, relationships with significant adults in adolescence are known to be associated with psychosocial benefits (Mirković et al., 2024; Yap et al., 2014). By exploring these social relationships, this study aims to clarify their unique contribution to psychological outcomes such as depressive symptoms and self-esteem, offering insights into the role of adult support in different types of organized activities.

Organized Activities and Relationship with Adults

Organized activities are defined as activities in which youth participate in a structured setting, usually with peers, on a

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regular basis and with the supervision of at least one adult in charge of the activity (Mahoney et al., 2005). These activities can be considered, for example, as team sports (e.g., soccer), individual sports (e.g., swimming), artistic activities (e.g., painting) or youth clubs (e.g., scouts). Several studies document the benefits of organized activities for children and adolescents (see Boelens et al., 2022). However, some distinctions can be made between types of activities regarding these benefits. For example, sports activities appear to have greater mental health benefits than non-sport activities (McHale et al., 2005), and team sports similarly show more positive outcomes compared to individual sports (e.g., White-Gosselin et al., 2023). As these activities are most of the time practiced in a group setting, several social processes are likely to take place from which adolescents can derive benefits (Denault & Poulin, 2016). In an initial study (White-Gosselin et al., 2024), we investigated the social process of social integration into the organized activity peer group and found that this process was linked longitudinally to fewer depressive symptoms in adolescents. The interest in social processes in organized activities was particularly driven by the Positive Youth Development model Lerner et al., 2005). Positive Youth Development is a theoretical framework that aims to promote the healthy development and well-being of youth by focusing on their skills, qualities, and resources. Rather than focusing solely on preventing risky behaviors, Positive Youth Development seeks to encourage youth to become active and positive actors in their own positive development. When the resources of the environment are aligned with youths' strengths, the Positive Youth Development model postulates that youth will develop five essential skills, namely competence, confidence, connection, character, and caring, or the 5 C's. These skills will, in turn, decrease their risks of presenting negative indicators of adjustment (e.g., depressive symptoms) and increase their chance of presenting positive indicators of adjustment (e.g., self-esteem).

The resources provided by the organized activity context, for instance parental involvement in the activity and support provided by the activity leaders, could be two of those factors influencing adolescents' experience in organized activity. In the Positive Youth Development model, organized activities are crucial resources that allows youth to develop their 5C's. First, parental involvement in organized activities is defined as the parents' interest in the activity, as evidenced by their help and encouragement in developing skills related to the activity or by their social involvement in the activity (Denault & Poulin, 2008). By getting involved, parents can provide encouragement, modeling, reinforcement, and instruction (Whitaker, 2019), which could, in turn, be beneficial for adolescents' development. Studies show that adolescents whose parents are positively involved in organized activities have a better ability self-concept and place more value on the activity (Camacho-Thompson & Simpkins, 2022).

Second, the activity leader is likely to be an additional non-parental source of support. In this study, support from activity leaders was defined as the extent to which adolescents perceive a close, trusting relationship with their leader, characterized by approachability in times of need, trust, and a sense of being valued and cared for. Studies have shown that adolescents who take part in organized activities are more likely to obtain support from adults (Metzger et al., 2009). This support has been associated with fewer negative outcomes in adolescents (Denault & Poulin, 2008). These non-parental adults can also play several roles likely to contribute to the psychosocial adjustment of adolescents, such as providing companionship based on the youth's interests, or caring for the adolescent facing life challenges (Arbeit et al., 2021). Participants in a qualitative study also revealed that they had a special relationship with their coach that sometimes went beyond the context of the activity (Fraser-Thomas & Côté, 2009). In sum, if parental involvement in the activity and support from the activity leader are likely to be beneficial for adolescents, are these positive social experiences sustained through the period of adolescence?

Changes in Parental Involvement in the Activity and Support from the Activity Leader Over Time During Adolescence

Several hypotheses suggest that parental involvement in the activity and support from the activity leader may decrease over time. For parental involvement, on one hand, less controlling parents (i.e., those who offer their children freedom while providing support) seem to favor participation in organized activities during adolescence (Goshin et al., 2021). On the other hand, adolescents generally become more autonomous as they get older (Daddis, 2011). For example, adolescents may have more freedom in choosing their activities and may not feel it is necessary to have their parents present while participating. It appears that parental support for physical activities decreases with age in adolescence (Kirby et al., 2011). Moreover, poor (e.g., pressure) or too much parental involvement as adolescents get older may simply not be good for adolescents and may even affect the quality of the relationship (Lisinskiene et al., 2018).

The support from the activity leader seems to decrease in importance in adolescents' lives as they get older (Denault & Poulin, 2009). Late adolescents must often combine their activities with other things, such as romantic relationships (Matić Tandarić, 2019). As a result, this could create other social settings in which adolescents can become involved, in contrast to childhood when school and organized activities are often the only social settings for bonding outside the family unit (Mahoney et al., 2005). Since support from the activity leader is defined in this study as the extent to which adolescents perceive a close and trusting relationship with the leader, it is possible that the diversification of social contexts likely to create meaningful relationships could result in adolescents feeling less need to connect with the activity leader (Armstrong & Kammrath, 2015). Most late adolescents who have an adult to turn to for support typically identify a family member or distant family member as this source of support (Mirković et al., 2024). Nevertheless, no longitudinal study has examined the evolution of these social processes, and even less so specifically regarding organized activities. Such an examination appears essential to draw an overall portrait of the social experiences in organized activities throughout adolescence.

Relationship with Adults in Different Types of Organized Activities

Given the unique nature of each type of organized activity, the social processes involved are likely to vary widely. Regarding parents more specifically, they do seem to be involved differently depending on the type of organized activities their child participates in (Goshin et al., 2021). First and foremost, sports activities seem to be particularly conducive to parental involvement compared to non-sport activities, notably because of the athlete-spectators component in the activity setting, which is often not present in non-sport activities. For example, in many artistic activities (e.g., music, theater, painting), parents often primarily attend the final product of the activity (e.g., a performance, exhibition, or appreciation of the final work). Although some activities, such as marching band or debate club, may provide regular opportunities for family to attend, in other cases, parents may only have limited chances to be active witnesses of their child's practice.

Furthermore, team sports seem even more conducive to parental involvement compared to individual sports. Among organized activities, team sports are associated with the most positive social experiences (Denault & Poulin, 2016). However, social experiences were examined simultaneously in that study. Just like the adolescents themselves, parents might be more involved due to the intrinsically social nature of team sports, where parents can socialize with each other because of the community spirit that can develop within the team. Considering the rituals present in team sports that are not present in individual sports (e.g., rallying cries, team jerseys; White-Gosselin et al., 2023), this type of organized activity could lead to a high perception of group belonging (Boone & Leadbeater, 2006). Moreover, team sports coaches might also influence parental involvement. They are generally responsible for ensuring a positive social climate within the team (Cronin & Allen, 2015), and this could indirectly promote positive parental involvement, especially in the stands.

Regarding the support from the activity leader, some elements suggest that individual sports may be particularly conducive to such a positive experience. Likely due to the dyadic nature of the participant-coach relationship, participants in individual sports report having a special connection with their coaches and often see them as role models (Fraser-Thomas & Côté, 2009). Compared to participants in team sports, those in individual sports report feeling closer and more committed to their coaches (Rhind et al., 2012). Consequently, this close relationship might also translate into a greater perception of support. Furthermore, in individual sports, participants have reported that their coach generally notices immediately when something is wrong and intervenes to address the situation (Fraser-Thomas & Côté, 2009).

Relationship with Adults, Depressive Symptoms, and Self-Esteem

Some studies have documented positive associations between social experiences in organized activities and adolescents' psychosocial adjustment (e.g., Viau et al., 2015). According to the Positive Youth Development model (Lerner et al., 2005), relationships with adults (i.e., parents and activity leaders) are an integral part of the social experience in organized activities during adolescence and could be associated with negative (i.e., depressive symptoms) and positive (i.e., self-esteem) indicators of adolescents' adjustment. Social connections with adults can provide critical emotional and social support, thereby reducing the risk of presenting depressive symptoms (Sterrett et al., 2011). Non-parental adults can also help adolescents recognize their potential by supporting them in achieving their goals (Scales & Roehlkepartain, 2018). Furthermore, it has been shown that warm parental involvement could reduce the risk of presenting depressive symptoms (Ren et al., 2024). By being involved, parents can foster positive experiences likely to enhance the quality of the relationship (Lisinskiene et al., 2018). However, this association could be more complex. Indeed, it is possible that excessive involvement is no better than insufficient involvement (Goshin et al., 2021), particularly as adolescents grow older. Longitudinal data would enable the exploration of this phenomenon from a developmental perspective.

The same hypotheses can be made regarding increased self-esteem. Support from the activity leader could positively impact self-esteem by providing a different source of support to adolescents, notably by offering appraisal support (e.g., affirming their value and competence; Sterrett et al., 2011).

Adult support, when defined as the number of adults with whom adolescents feel comfortable discussing personal problems and the number of adults perceived as caring and willing to help when needed, has been identified as a mediator in the link between participation in organized activities and higher self-esteem (Oosterhoff et al., 2017). Additionally, parental involvement in activities provides opportunities for verbal encouragement and activity connections, which are likely to have a positive impact on self-esteem (Camacho-Thompson & Simpkins, 2022). In summary, examining relationships with adults specifically in the context of organized activities seems critical to providing a comprehensive picture of the benefits of social experiences in organized activities during adolescence.

The Current Study

Although relationships with adults in organized activities are known to support adolescent development, little is understood about how these relationships evolve over time and their links to mental health outcomes. To address these gaps, three objectives were formulated. The first objective was to examine how parental involvement in the activity and support from the activity leader evolve throughout adolescence. Based on prior research, it was expected that these social processes would be high at the beginning of adolescence but decrease over time. The second objective was to compare team sports, individual sports, and non-sport organized activities in terms of these relationships with adults. Based on previous studies, it was expected that parental involvement would be higher in team sports compared to individual sports and non-sports activities, whereas that support from the activity leader would be higher in individual sports compared to team sports and non-sports activities. The third objective was to examine whether these social processes, measured longitudinally, were related to depressive symptoms and self-esteem at the end of adolescence. Based on theory and prior research, it was expected that initial levels of parental involvement and support from activity leaders would be associated with lower depressive symptoms and higher self-esteem, whereas expected decreases in these two social experiences would be associated with higher depressive symptoms and lower self-esteem at the end of adolescence.

Methods

Participants

The data for this study were taken from a larger longitudinal study of adolescent social development, with annual data collection from ages 13 to 18 (i.e., one year after high school graduation). A total of 390 participants (58% female) were initially recruited at age 12 (Grade 6) from eight elementary schools in a region near Montreal, Quebec, Canada. Most adolescents were Caucasian (90%), spoke French, and lived with both biological parents (68%) at the time of first data collection. The average household income was $50,000 per year before taxes, which could be considered average at the time of data collection (i.e., in the early 2000s). Participation rates in the original sample ranged from 72% to 78% at each time point. To be included in the analyses of this study, participants had to have reported participating in at least one organized activity throughout the study and responded on at least one occasion on their social experiences in their organized activity ($n = 292$). Around 14% of the initial sample participated in at least one data collection included in this study but reported no organized activity participation. Chi-square test comparing participants in the excluded sample ($n = 98$) with participants in the retained sample revealed that there were proportionally more males in the excluded sample, $\chi^2(1) = 6.28$, $p < 0.01$, and that they were more likely to come from a family structure other than two biological parents, $\chi^2(1) = 13.90$, $p < 0.001$.

Design and Procedures

Participants completed questionnaires at the end of each school year between Grade 8 and Grade 11 (i.e., ages 14 to 17). In May of each year, they were asked to complete a brief structured telephone interview and a classroom questionnaire reporting data on organized activities and outcomes. An initial data collection (i.e., in Grade 7; age 13) was also conducted using a classroom questionnaire to measure baseline levels of depressive symptoms and self-esteem. In addition, a subsequent data collection (i.e., at age 18, one year after high school in the school system in which the data were collected) was conducted to obtain additional indicators of depressive symptoms and self-esteem. The interest in having measures at ages 17 and 18 was to see if the associations persisted over time or if they were concurrent with participation. At age 18, participants were met in person, at school or at home, while those who lived too far away received the questionnaire by mail (less than 5%). Parental consent was obtained at each year of data collection and, at the age of 18, the adolescent has also provided written consent. The study was approved by the internal human research ethics committee of Université du Québec à Montréal.

Instruments

Organized Activity Participation

Each year between the ages of 14 and 17, during the phone interviews, youth were asked to report all organized activities in which they had participated during the previous school year. This step was designed to ensure that the reported activities were indeed organized activities and not unorganized activities. To be considered an organized activity, participants had to 1) participate regularly, 2) have an adult in charge of the activity, 3) have rules governing the activity, and 4) practice in the presence of peers. Then, participants had to select their main activity, i.e., the one they spent the most time in or, if tied, their favorite activity. For participants who reported only one activity, that activity was considered their main activity by default. Activities were categorized as team sports (most popular were ice hockey, soccer, and basketball), individual sports (most popular were combat sports, racket sports, and skiing), or non-sport activities (most popular were dance, music, and scouting). Participants' main activity could change from year to year. For instance, approximately 27% of participants switched their main activity at least once between the ages of 14 and 17. At each wave, around 32.2% of youth reported a main activity in team sports, 21,0% in individual sports, and 46.8% in non-sport activities. Three dichotomous variables were created to determine whether the main activity practiced was a team sport (yes or no), and the same procedure was used for individual sports and non-sport activities.

Parental Involvement in Organized Activity

In the classroom questionnaires, the main activity identified during the phone interview was indicated on the form. They were asked a series of questions about their social experiences and told to keep their main activity in mind when answering. To measure parental involvement in the activity, based on the work of Hoover-Dempsey et al. (2001), participants responded to four items: "My parents helped me practice skills related to this activity," "My parents talked to the person in charge of this activity," "My parents encouraged me to practice skills related to this activity," and "My parents talked to me about this activity." Items were rated on a 5-point scale with response options ranging from 1 (not at all) to 5 (very much). Mean scśores were used in the analyses and Cronbach's alpha were 0.75, 0.78, 0.79 and 0.74 between ages 14 to 17.

Support from the Activity Leader

A 4-item scale inspired by Mahoney et al. (2002) was completed by participants who had identified a main activity. The items were: "I know my activity leader well," "If I had a problem, I would not hesitate to go talk with my activity leader," "I trust my activity leader," and "The activity leader cares about me and considers me an important person." Items were also rated on a 5-point scale with responses ranging from 1 (not at all) to 5 (very much). Mean scores were also used in the analyses and Cronbach's alpha were 0.87, 0.87, 0.87 and 0.91 between ages 14 to 17.

Depressive Symptoms at Ages 13, 17 and 18

At the end of the school year at ages 13 and 17, participants completed the *Children's Depression Inventory* (CDI; Kovacs, 1981). This 27-item validated questionnaire assesses various depressive symptoms, such as irritability, sadness, and sleep difficulties. For each item, participants respond on a 3-point scale indicating the severity of symptoms over the past two weeks (e.g., 0 = "I am sometimes sad," 1 = "I am often sad," and 2 = "I am always sad"). The suicidal ideation item was removed for this project. The sum of all items was calculated to produce a total score ranging from 0 to 52. Cronbach's alpha was 0.82 at age 13 and 0.84 at age 17. For the subsequent measurement at age 18, participants completed the *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977). This 20-item validated instrument requires respondents to report how often they experienced certain behaviors, thoughts, or feelings in the past week (e.g., "I was bothered by things that don't usually bother me," "I had trouble keeping my mind on my work," and "I felt hopeless about the future"). Participants responded using a four-point scale ranging from 0 (rarely or none of the time) to 3 (most of the time or all of the time). The total score represents the sum of these items and Cronbach's alpha was 0.91.

Self-Esteem at Ages 13, 17 and 18

Self-esteem was assessed using the General Self-esteem subscale, which consists of five items from the French-Canadian version of the *Self-Perception Profile for Adolescents* (Harter, 1988; see Bouffard et al., 2002 for French translation). Participants were presented with two statements and asked to select the one that best described them (e.g., "I'm proud of the person I am" or "There are several things I'd like to change about myself"). They were then asked to rate how true the statement was to them on a 4-point scale (1 = lowest perceived self-esteem, 4 = highest perceived self-esteem). The total score is the average of the participant's scores on the five statements. Higher scores reflect higher self-esteem. Cronbach's alphas at ages 13, 17, and 18 were 83, 0.90 and 0.87, respectively.

Analytical Strategy

Analyses were performed using Mplus 7.4 software (Muthén & Muthén, 1998–2015). Missing data were handled using the Full Information Maximum Likelihood (FIML) method, which is known as an efficient method that leverages all available data points, including incomplete cases, to estimate model parameters by directly incorporating the observed data into the likelihood function (Tang & Tong, 2024). This approach assumes that data are missing at random (MAR). Across all variables included in the analysis, the proportion of missing data ranged from 9.7% to 59.2%, with the highest percentage of missingness observed for parental implication and support from the activity leader at age 17. This procedure allows all participants who responded to at least one measurement time ($n = 292$) on organized activity participation to be included in the structural equation model. Most participants (80%) provided data at two or more measurement points, ensuring robust estimation. A robust estimator (i.e., Maximum Likelihood Ratio) was also used to account for the non-normality of depressive symptoms at age 17 (skewness = 1.33, kurtosis = 2.56).

To address the objectives of the study, a conditional latent growth model with time-varying covariates and distal outcome was conducted stepwise to create a nested model. First, a Latent Growth Model (LGM) was conducted to address the first objective of the study, which was to examine changes in parental involvement in organized activity and support from the activity leader between ages 14 and 17. To determine the fit of the model, several indices were examined: the chi-square test assesses whether the estimated model fits the data better than a more restrictive baseline model, with a non-significant chi-square value indicating a good fit. Additionally, the root means square error of approximation (RMSEA) and the standardized root mean square residual (SRMR) were considered; values below 0.08 are indicative of a good fit (Marsh et al., 2004). Finally, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) with values above 0.95 are indicative of an excellent fit (Hu & Bentler, 1999).

To address the second objective of the study, ANOVAs were performed to compare the different types of activity at each measurement time regarding parental involvement in organized activity and support from the activity leader. This step enabled a prior comparison between the types of activity before including the dichotomous variables in the LGM model as time-varying covariates. Thus, the dichotomous variables of the type of main activity practiced (e.g., is the main activity a team sport? 0 = no, 1 = yes) were included in the model and were regressed at each measurement time on the variables of parental involvement in organized activity and support from the activity leader, which constituted the growth curves.

Finally, to meet the third objective of the study, which was to see whether parental involvement in the organized activity and support from the activity leader predicted depressive symptoms and self-esteem at ages 17 and 18, these variables were added to the model along with baseline levels of symptoms at age 13 (pre-curve). The intercept and slope of the LGM models, as well as baseline symptom levels, were regressed on depressive symptoms and self-esteem at ages 17 and 18. Gender was also initially included as a covariate, but since it was not related to any of the endogenous variables in the study (β ranging from 0.01 and 0.08, p-value ranging from 0.200 and 0.892), this variable was removed from the model for parsimony.

Results

Descriptive Statistics

Table 1 presents the descriptive statistics and the correlations between study variables. According to the results of the Pearson correlations, although parental involvement in the activity and support from the activity leader at each of the measurement times are not always significantly related to depressive symptoms and self-esteem at ages 17 and 18, each of the correlations is in the expected direction (i.e., high level of involvement and support is related to a lower level of depressive symptoms [r ranging from −0.06 and −0.24] and a higher level of self-esteem [r ranging from 0.02 and 0.29]). In addition, the results show that parental involvement in the activity and support from the activity leader are not necessarily stable over time, the correlations between measurement times for the same concept varying between 0.25 and 0.57. Also, as expected, depressive symptoms and self-esteem at ages 17 and 18 were significantly and negatively correlated (around −0.60).

Step 1: Unconditional Latent Growth Model

To examine how parental involvement in the activity and support from the activity leader change over time between the ages of 14 and 17, two latent growth models (LGM) with each of these variables were conducted. For parental involvement in the activity, the LGM results show a good fit of the data to the model [$\chi^2(5) = 13.73$, $p = 0.02$, CFI = 0.93, TLI = 0.92, RSMEA = 0.08, SRMR = 0.07] and show that parental involvement in the organized activity decreases significantly between the ages of 14 and 17 (intercept = 3.73, slope = −1.78, both $p < 0.001$). The quadratic and cubic terms were also tested but did not improve the model, nor were they significant, so the trajectory was identified as linear and decreasing. For support from the activity leader, the LGM results show an excellent fit of the data to the model [$\chi^2(5) = 7.70$, $p = 0.17$, CFI = 0.97, TLI = 0.96, RSMEA = 0.04, SRMR = 0.05] and show that support from the activity leader also decreases significantly between the ages of 14 and 17 (intercept = 3.73, slope = −0.73, both $p < 0.04$). The quadratic and

Table 1 Descriptive statistics and correlations between study variables

	M (SD)	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Parental inv. (age 14)	3.68 (1.43)	0.54**	0.42**	0.33**	0.30**	0.24**	0.22**	0.31**	−0.23**	−0.14	−0.11	0.26**	0.12	0.11
2. Parental inv. (age 15)	3.68 (1.41)		0.42**	0.48**	0.31**	0.33**	0.20*	0.25**	−0.10	−0.12	−0.07	0.18**	0.09	0.20**
3. Parental inv. (age 16)	3.70 (1.48)			0.51**	0.28**	0.28**	0.36**	0.21*	−0.10	−0.11	−0.12	0.16*	0.02	0.17*
4. Parental inv. (age 17)	3.11 (1.36)				0.21*	0.18	0.19*	0.42**	−0.13	−0.23**	−0.24**	0.15	0.16*	0.29**
5. Support from leader (age 14)	3.74 (1.10)					0.57**	0.37**	0.28**	−0.13	−0.24**	−0.06	0.15*	0.19**	0.14
6. Support from leader (age 15)	3.71 (1.13)						0.43**	0.25**	−0.11	−0.14	−0.09	0.21**	0.19**	0.22**
7. Support from leader (age 16)	3.75 (1.08)							0.43**	−0.22**	−0.14	−0.09	0.24**	0.08	0.13
8. Support from leader (age 17)	3.51 (1.22)								−0.23**	−0.17*	−0.23**	0.19*	0.14	0.25**
9. Dep. symptoms (age 13)	8.59 (5.86)									0.41**	0.30**	−0.64**	−0.23**	−0.27**
10. Dep. symptoms (age 17)	9.09 (5.96)										0.45**	−0.36**	−0.60**	−0.48**
11. Dep. symptoms (age 18)	31.45 (9.93)											−0.23**	−0.29**	−0.57**
12. Self-esteem (age 13)	2.98 (0.41)												0.26**	0.30**
13. Self-esteem (age 17)	2.95 (0.42)													0.52**
14. Self-esteem (age 18)	3.00 (0.37)													

Depressive symptoms at ages 13 and 17 were measured with the CDI, and depressive symptoms at age 18 was measured with the CESD

$*p < 0.05$, $**p < 0.01$

cubic terms were also tested but did not improve the model, nor were they significant, so the trajectory was identified as linear and decreasing.

For sensitivity analyses purposes, the same trajectory models were re-run, including control variables, to examine whether the trajectory patterns were replicated. The first control variable represented the consistency of activities (i.e., whether the main organized activity identified by the participant remained the same as the previous year). Consequently, consistency variables were only created for ages 15, 16, and 17, as the data on participants' main activities at age 13 were not available. Consistency was regressed on parental involvement and support from the activity leader at each time point between ages 15 and 17. Results showed that the trajectory patterns remained largely unchanged when including this control variable in the trajectory analyses (i.e., intercept = 3.96, slope = −2.26, both $p < 0.01$ for parental involvement; and intercept = 3.93, $p < 0.001$, slope = −1.01, $p = 0.12$, for activity leader support). Only consistency at age 16 was significantly associated with parental involvement at age 16 ($\beta = 0.12$, $p = 0.04$). Model fit indices remained good. A second set of sensitivity analyses was conducted using a control variable representing the depth of participation (i.e., the total number of activities practiced at each time point). Again, results showed that the trajectory patterns remained largely unchanged when including this control variable in the trajectory analyses (i.e., intercept = 3.78, slope = −3.11, both $p < 0.001$ for parental involvement; and intercept = 3.66, slope = −1.53, both $p < 0.05$ for activity leader support). However, it is noteworthy that the slope of parental involvement became steeper. The total number of activities practiced was significantly associated with parental involvement at ages 16 ($\beta = 0.21$, $p < 0.001$) and 17 ($\beta = 0.14$, $p = 0.03$) and with support from the activity leader at ages 15, 16, and 17 (all $\beta > 0.10$, $p < 0.05$). Model fit indices remained excellent.

Step 2: Comparisons between Organized Activity Types

Tables 2 and 3 present the results of the ANOVAs comparing team sports, individual sports, and non-sport activities according to parental involvement in the activity and support from the activity leader. The results show that there is a significant difference between the types of activity in terms of parental involvement in the activity at each of the measurement times between the ages of 14 and 17. Tukey's post-hoc comparisons show that there is a significant difference between team sports and non-sport activities at each measurement time, but that there is no significant difference between team sports and individual sports. In addition, for the support from the activity leader, no significant difference between the types of activity was observed at each

Table 2 ANOVAs to compare types of activity on parental involvement in the activity

	Type of activity	*M* (*SD*)	F	*p*-value	Comparison
Age 14	Team sports ($n = 74$)	3.90 (1.39)	3.26*	0.041	Team > other
	Individual sports ($n = 53$)	3.87 (1.33)			
	Non-sport activities ($n = 83$)	3.37 (1.51)			
Age 15	Team sports ($n = 71$)	3.98 (1.46)	3.84*	0.023	Team > other
	Individual sports ($n = 38$)	3.80 (1.24			
	Non-sport activities ($n = 92$)	3.39 (1.41)			
Age 16	Team sports ($n = 55$)	4.30 (1.50)	7.91**	0.001	Team > other
	Individual sports ($n = 40$)	3.83 (1.50)			
	Non-sport activities ($n = 94$)	3.34 (1.35)			
Age 17	Team sports ($n = 44$)	3.59 (1.48)	5.31**	0.006	Team > other
	Individual sports ($n = 28$)	3.36 (1.41)			
	Non-sport activities ($n = 79$)	2.81 (1.21)			

Comparisons are based on post-hoc Tukey test

*$p < 0.05$, **$p < 0.01$

Table 3 ANOVAs to compare types of activity on support from the activity leader

	Type of activity	*M* (*SD*)	F	*p*-value	Comparison
Age 14	Team sports ($n = 74$)	3.97 (0.86)	2.86	0.059	Team > other (Tukey $p = 0.087$)
	Individual sports ($n = 53$)	3.58 (1.30)			
	Non-sport activities ($n = 83$)	3.59 (1.13)			
Age 15	Team sports ($n = 71$)	3.79 (1.18)	2.12	0.123	–
	Individual sports ($n = 38$)	3.93 (1.02)			
	Non-sport activities ($n = 92$)	3.53 (1.12)			
Age 16	Team sports ($n = 55$)	4.02 (0.90)	2.50	0.085	Team > other (Tukey $p = 0.071$)
	Individual sports ($n = 40$)	3.71 (1.12)			
	Non-sport activities ($n = 94$)	3.62 (1.13)			
Age 17	Team sports ($n = 44$)	3.67 (1.09)	0.91	0.403	–
	Individual sports ($n = 28$)	3.28 (1.33)			
	Non-sport activities ($n = 79$)	3.53 (1.22)			

Comparisons are based on post-hoc Tukey test

measurement time. Support from the activity leader is marginally higher in team sports than in non-sport activities at ages 14 and 16 according to post-hoc tests. However, it is important to note that the group sizes are relatively small for detecting a significant effect, which could explain the lack of significant differences, particularly in parental involvement between team and individual sports, where the effect size is small.

Next, the addition of dichotomous variables to the LGM model was tested by including activity types as predictors of parental involvement in the activity and support from the activity leader. First, concerning parental involvement, the dichotomous variable of team sports (i.e., is the main activity a team sport or not?) did not significantly predict parental involvement in the activity, except at age 16 ($\beta = 0.22$, $p = 0.000$). This is probably because there were no significant differences between team sports and individual sports on this variable. Consequently, the dichotomous variable of sports versus non-sport activities was included in the model to move on to the next steps of the study analyses. The results show that parents are more involved in sports in general (i.e., team and individual) than in non-sport activities. Figure 1 shows the tested model that was retained for subsequent steps of analysis for parental involvement in the activity, as well as the beta coefficients. Regarding support from the activity leader, as expected from Step 2, none of the dichotomous variables representing the type of main activity identified by youth predicted support from the activity leader. When comparing individual sports to all non-sport activities, the betas were all between 0.10 and -0.04 (all $p > 0.10$), when comparing team sports to non-sport activities, the betas were all between 0.02 and 0.08 (all $p > 0.15$) and when comparing organized sports to non-sport activities, the betas were all between 0.03 and 0.06 (all $p > 0.31$). Consequently, no time-varying covariates were included in the subsequent steps of the analyses for this variable.

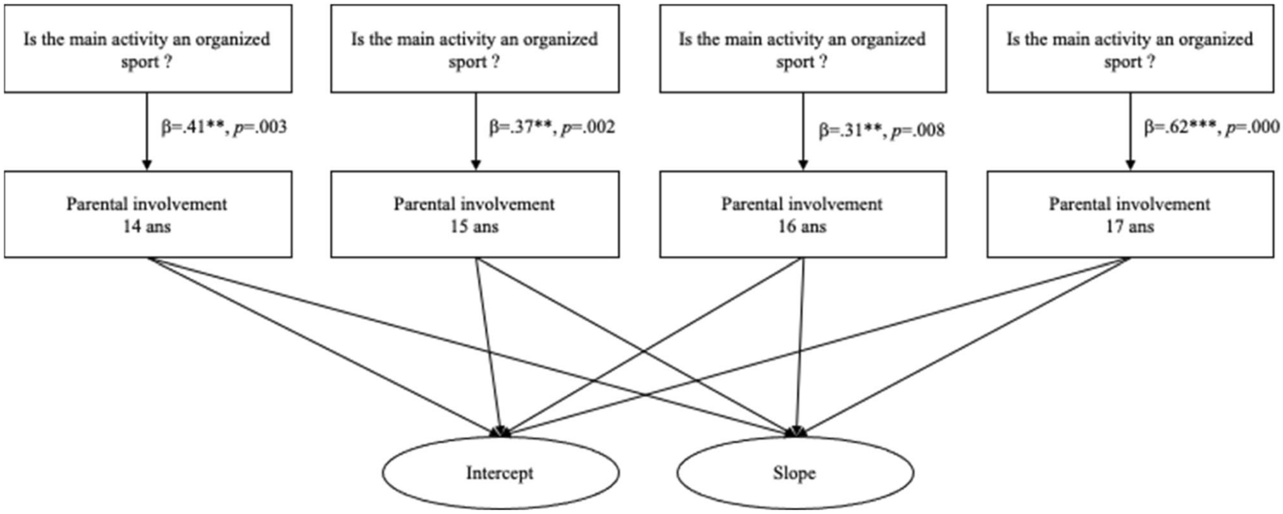

Fig. 1 Step 2 of the analyses: Conditional latent growth model with dichotomous time-varying covariates representing organized sports versus non-sport activities for parental involvement in activity *Note*. For time-varying covariates, organized sports are coded as 1, and non-sport activities as 0. ** = p < 0.01, *** = p < 0.001

Table 4 Step 3 of the analyses: Growth curve of parental involvement in the activity as predictor of outcomes at ages 17 and 18

	β	SE	*p*-value	95% CI
Depressive symptoms (Age 17)				
Parental involvement intercept	−0.20’	0.11	0.053	−0.41, 0.00
Parental involvement slope	−0.30*	0.13	0.020	−0.55, −0.05
Depressive symptoms at age 13	0.31***	0.06	0.000	0.19, 0.42
Depressive symptoms (Age 18)				
Parental involvement intercept	−0.21*	0.10	0.035	−0.41, −0.01
Parental involvement slope	−0.26*	0.13	0.037	−0.51, −0.02
Depressive symptoms at age 13	0.24***	0.06	0.000	0.12, 0.36
Self-Esteem (Age 17)				
Parental involvement intercept	0.19*	0.10	0.049	0.02, 0.45
Parental involvement slope	0.22’	0.12	0.067	−0.01, 0.46
Self-esteem at age 13	0.15*	0.07	0.032	0.02, 0.30
Self-Esteem (Age 18)				
Parental involvement intercept	0.23*	0.11	0.032	0.02, 0.45
Parental involvement slope	0.33**	0.13	0.009	0.08, 0.58
Self-Esteem at age 13	0.20***	0.06	0.000	0.10, 0.32

These results include the dichotomous variable of whether the main activity is an organized sport or not as a time-varying covariate predicting parental involvement in the activity, as depicted in Fig. 1

*$p < 0.05$, **$p < 0.01$

Step 3: Adding Distal Outcomes to the LGM

To examine whether parental involvement in the activity and support from the activity leader between the ages of 14 and 17 predicted depressive symptoms and self-esteem, the levels of depressive symptoms and self-esteem at ages 17 and 18 were added to the structural equation model. The intercept and slope of the variables constituting the LGM were thus included as predictors of depressive symptoms and self-esteem. The levels of depressive symptoms and self-esteem at age 13 (pre-curve) were also added as covariates to account for initial individual differences. Tables 4 and 5 show the results of the conditional LGM with distal outcomes analyses. Results show that the intercept of both parental involvement and support from the activity leader significantly predict depressive symptoms at ages 17 and 18, and self-esteem at ages 17 and 18, except for the link between support from the activity leader intercept and depressive symptoms at age 18. This suggests that the higher the initial mean level of parental involvement and support from the activity leader, the lower the depressive symptoms and the higher the self-esteem. Furthermore,

Table 5 Step 3 of the analyses: Growth curve of support from the activity leader as predictor of outcomes at ages 17 and 18

	β	SE	*p*-value	95% CI
Depressive symptoms (Age 17)				
Leader support intercept	−0.28**	0.10	0.003	−0.47, −0.10
Leader support slope	−0.04	0.12	0.747	−0.28, 0.20
Depressive symptoms at age 13	0.30**	0.06	0.000	0.23, 0.45
Depressive symptoms (Age 18)				
Leader support intercept	−0.16	0.10	0.115	−0.37, 0.04
Leader support slope	−0.20	0.15	0.189	−0.50, 0.10
Depressive symptoms at age 13	0.23**	0.06	0.001	0.11, 0.35
Self-Esteem (Age 17)				
Leader support intercept	0.26*	0.10	0.011	0.06, 0.45
Leader support slope	0.07	0.13	0.657	−0.19, 0.31
Self-Esteem at age 13	0.15*	0.06	0.034	0.05, 0.29
Self-Esteem (Age 18)				
Leader support intercept	0.28**	0.10	0.007	0.08, 0.48
Leader support slope	0.23	0.14	0.110	−0.05, 0.50
Self-Esteem at age 13	0.20**	0.05	0.001	0.11, 0.31

No dichotomous variable of whether the main activity is an organized sport or not was added as time-varying covariate in this model, in contrast to Table 4

$^{*}p < 0.05$, $^{**}p < 0.01$

regarding the slopes, results suggest that the slope of parental involvement significantly predicts lower depressive symptoms at ages 17 and 18, and higher self-esteem at ages 17 and 18. The results were however marginally significant for self-esteem at age 17. This suggests that the less parental involvement decreases over time, the lower the depressive symptoms and the higher the self-esteem. In contrast, the slope of the support from the activity leader trajectory did not predict the endogenous variables, which suggests that it is not necessarily the evolution of the support from the activity leader that is related to psychological adjustment in adolescence, but rather only the initial level at the beginning of adolescence.

Discussion

Adolescence is a developmental period marked by shifts in social relationships, yet little is known about how relationships with adults in organized activities evolve during this time and how these changes might influence psychological adjustment. Addressing these gaps, the present study used a longitudinal design to examine parental involvement in organized activities and support from activity leaders. Three key findings emerged. First, parental involvement in the activity and support from the activity leader significantly decrease over time during adolescence. Second, sports activities, especially team sports, promote greater parental involvement in organized activities. No significant difference emerged between team sports, individual sports, and non-sports activities for support from the activity leader. Third, higher initial levels of both parental involvement and support from the activity leader were linked to lower depressive symptoms and higher self-esteem, whereas only changes in parental involvement were linked to depressive symptoms and self-esteem in the expected way. These results are discussed below.

Parental Involvement and Support from the Activity Leader Decrease Over Time

As expected, the results suggest that parental involvement in the activity and support from the activity leader decrease significantly over time between the ages of 14 and 17. Although few studies have examined parental involvement specifically in organized activities, research on parental involvement in education offers some insights. Studies indicate that parental involvement often declines over time, particularly as adolescents seek greater independence (Xu et al., 2020). As adolescents strive for autonomy (Daddis, 2011), parents may consciously or unconsciously step back to allow them greater independence in these settings. This shift may help adolescents develop their own sense of agency, while research suggests that less controlling parental approaches can positively influence adolescents' sustained participation in organized activities (Goshin et al., 2021). Finally, given that participation in organized activities seems to decline with age, it is possible that this reflects a broader trend in which less competitive adolescents are progressively filtered out of increasingly competitive activities. As a result, the sample over time may increasingly consist of more competitive youth, which could partially explain the observed decrease in parental involvement. For example, parents might no longer be able to provide certain types of support assessed in our survey, such as helping their child practice skills related to the activity.

For support from the activity leader, this decrease may be related to the fact that adolescents place less importance on organized activities as they age (Denault & Poulin, 2009), and that they may therefore seek fewer social relationships based on trust within the activity in favor of social relationships in other spheres of their lives. Indeed, it seems that free-time preferences change considerably with age, while older adolescents place more importance on time spent with their romantic partner than younger adolescents and spend less time on sporting activities in their free time than younger ones (Matić Tandarić, 2019). As a result, adolescents may be turning more to their best friend or romantic partner for a safe haven (Markiewicz et al., 2006). Moreover, with age, the activity leaders could change role. They may be more associated with activity enjoyment in younger adolescents and with the development of activity-related skills in older ones (Chan et al., 2012). In other words, the role of the activity leader could be more focused on facilitation and emotional support in early adolescence, whereas more focused on optimizing performance as they age, putting the support aspect more on the side. Finally, for both parental involvement and support from the activity leader, there appears to be a decline at age 17 compared to other time points (an age corresponding to the final year of high school in the Quebec school system). This raises the question of whether the decline represents a developmental phenomenon or merely an isolated change during the last year of high school. Data collected after high school would have allowed to explore this question further.

Team Sports are Associated with Greater Parental Involvement

The results of bivariate analyses comparing the types of organized activities suggest that parents are more involved in team sports than in non-sport activities. In line with the hypotheses, it seems that team sports provide more positive social experiences (Denault & Poulin, 2016). On the one hand, this social dynamic of social integration and sense of community could have an impact that extends to the stands, and could encourage parents to get involved in their child's sport. Moreover, adolescents who participate in team sports may expect their parents to help them prepare physically and provide feedback on their performance (Knight et al., 2011). As these expectations are very closely linked to the definition of parental involvement used in this study, parents seem to respond positively to these expectations. On the other hand, when compared to non-sport activities, the context less often allows for continuous feedback on performance, as spectators are less common in most of these activities on a daily basis. Indeed, athletic adolescents tend to have relationships with their parents based more on communication and trust and less on parental alienation, compared to non-athletic adolescents (Lisinskiene et al., 2018).

Furthermore, no difference was found between parental involvement in team versus individual sports. Two hypotheses could explain this lack of results. First, based on descriptive statistics, parents are more involved in team sports than in individual sports, but the difference is smaller than between team sports and non-sport activities. Since a small effect size requires a large sample to detect a significant effect, a larger sample size could perhaps have revealed a significant difference. Second, it is possible that parents are actually not more involved in team sports than in individual sports. If this is the case, it could be explained by the fact that sport activities in general are widely recognized as having benefits for adolescents (Panza et al., 2020). Thus, whatever the sport may be, parents may pay genuine attention to it because they are aware of the reputation of these activities, compared to non-sport activities.

With respect to support from the activity leader, there was no difference between activity types. This finding is surprising, as the relationship dynamics between activity leaders are likely to differ depending on the organized activity. For example, study show that participants in individual sports tend to feel closer and more committed to their coach than participants in team sports (Rhind et al., 2012). In addition, qualitative studies of participants in individual sports report that participants have a special, intimate relationship with their coach (Fraser-Thomas & Côté, 2009), whereas coaches in team sports may be more focused on maintaining a positive group climate (Cronin & Allen, 2015). In any case, the lack of difference between activities could be explained by the fact that even if the activities are different, activity leaders are likely to have similar roles and expectations: establishing an environment of trust and respect (Griffith & Larson, 2016), supporting youth and ensuring their well-being (Aguinaga San José et al., 2023). These leadership functions often transcend the specifics of the activity itself.

Parental Involvement and Support from the Activity Leader Predict Depressive Symptoms and Self-Esteem

Results show that the intercept and slope of the parental involvement curve were related to depressive symptoms and self-esteem at ages 17 and 18. This means that a high trajectory of parental involvement that is not decreasing is linked to less depressive symptoms and more self-esteem in adolescence. Parents play an important role in the appreciation and continuation of activity by adolescents (Ullrich-French & Smith, 2006). They also have an important role to play in acquiring and maintaining the benefits adolescents derive from organized activities (Hodge et al., 2017). By showing interest in their adolescent's organized activity, parents potentially contribute to the quality of the parent-child relationship, based on communication and trust, and this has been shown to be protective for depressive symptoms (Branje et al., 2010). By being involved, they act like the adolescent is important and worthwhile in the eyes of their significant others, which can have a beneficial effect on self-esteem (Keizer et al., 2019). In sum, as shown with other spheres of adolescent life (Wang & Sheikh-Khalil, 2014), parental involvement is likely to have a positive impact on adolescents' psychological adjustment, and organized activities appear to be a favorable context for involvement.

In contrast, only the intercept (i.e., initial level) of activity leader support was found to be related to less depressive symptoms at age 17 and more self-esteem at ages 17 and 18. This means that the fact that the support from the activity leader is high at the beginning of adolescence, regardless of whether it decreases or increases over time, is linked to psychological benefits. The importance of non-parental adults in the lives of adolescents has been widely documented (Yu & Deutsch, 2021). The results of this study suggest that organized activities provide a favorable context for obtaining support from a non-parental adult. By being in regular contact with this adult and experiencing successes and failures alongside them, adolescents are likely to develop a special, trust-based relationship with this person, and this appears to have significant benefits (Futch Ehrlich et al., 2016). The study indeed shows that adolescents do not hesitate to talk to the activity leader (Fraser-Thomas & Côté, 2009). This diversification of support sources could have a positive impact on mental health (Mirković et al., 2024). Furthermore, adolescents who are part of a sports team report higher self-esteem, likely due to increased support from adults (Oosterhoff et al., 2017). This support could involve affirming adolescents' values and competencies, which could have a positive impact on self-esteem (Sterrett et al., 2011).

However, no significant associations between the slope of the support from the activity leader and adjustment indicators were observed. The transition from elementary to high school (in the Québec school system) is a period of significant change for adolescents (Engels et al., 2019). Since the first measure of activity leader support was collected at age 14, one year after the school transition, it is possible that adolescents benefit from high activity leader support at the beginning of adolescence because it may contribute to the acquisition of personal resources helping to maintain healthy psychological adjustment year after year. Therefore, the decrease or increase in support from the activity leader may be obsolete compared to the immediate and lasting effects of this support in early adolescence. This should nonetheless be replicated in future studies.

Strengths and Limitations

This study has several strengths. First, it is one of the few studies to examine social processes in organized activities. Several studies examine the effect of organized activities on adolescents' adjustment (e.g., Boelens et al., 2022), but very few focus on the specific factors likely to contribute to positive outcomes. Second, by using a longitudinal design, this study examined the evolution of these social processes over time. The baseline level of the outcomes was also considered to eliminate potential selection effects (e.g., those with depressive symptoms may be less likely to favor parental involvement and support from the activity leader). Finally, while the relationship between parental involvement and psychological adjustment has often been studied in the context of schooling (e.g., Wang & Sheikh-Khalil, 2014), this study adds to this knowledge and suggests that this involvement is just as beneficial in organized activities.

This study is not without limitations. First, it is important to note that the sample is socio-demographically homogeneous, which limits the potential for generalization. Indeed, most participants were white, middle-class French-Canadian youth. Second, parental involvement in the activity and support from the activity leader was measured only in terms of the main activity practiced. It is possible that these relational indicators have an additive effect on psychological adjustment, and that adolescents who participate in several activities benefit even more from these positive relationships. Measuring these indicators across all activities would help answer this question. Third, this study did not assess peer or teammate/group support, which could have provided a more comprehensive understanding of the relational experiences within organized activities. Including such measures would help capture the broader social influences that impact their psychological adjustment. Fourth, the possibility of a third variable influencing the association between parental involvement and both depression and self-esteem cannot be ruled out. It seems quite plausible that a general deterioration in some parent-adolescent relationships during this period could be associated with declines in both parental involvement in activities and adolescents' mental health, suggesting that parental involvement in activities could simply be a marker of underlying relational stress. Finally, the measures in this study were only self-reported. It would have been interesting to measure parental involvement by the parents themselves, as well as the support from the activity leader by the activity leader, to see if there was any discordance between the perceptions of the different actors in the relationships.

Conclusion

Adolescence is a period where organized activities play a critical role in supporting mental health, yet research has not adequately examined how adult relationships within these activities evolve and contribute to psychological adjustment. Addressing this gap, the present study provided longitudinal evidence on the distinct roles of parental involvement and support from activity leaders across adolescence. Findings revealed that these social processes decline over time, with parental involvement being higher in team sports compared to non-sport activities. Both parental involvement and activity leader support were associated with lower depressive symptoms and higher self-esteem, highlighting their protective influence on adolescent mental health. These findings underscore the importance of maintaining meaningful adult relationships in organized activities to maximize their developmental benefits.

Authors' Contributions C.W. conceived of the study conducted the statistical analyses, drafted the manuscript, and performed the literature review; F.P. led the data collection each year, revised the manuscript, and contributed to the study design; A.D. participated in revising the manuscript and the statistical analyses. All authors read and approved the final manuscript.

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Data Sharing and Declaration The datasets analyzed during the current study are not publicly available but are available from the corresponding author upon reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethical Approval The study was approved by the committee for ethics of research involving humans at the Université du Québec à Montréal. The study and the authors complied with the ethical standards of the journal.

Informed Consent Informed consent was obtained from all individual participants included in the study and/or parents.

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