

## Original Article

# Prevalence of sedentary behaviors in children with specific learning disorders: The role of child-parent relationship and parenting style

Saeed Ariapooran<sup>1\*</sup>, Farzaneh Rostami<sup>2</sup>, Yadollah Ghasemipour<sup>3</sup>

1. Associate Professor, Department of Psychology, Faculty of Humanities, Malayer University, Malayer, Iran.
2. M.A. in Psychology, Department of Psychology, Faculty of Humanities, Malayer University, Malayer, Iran.
3. Assistant Professor, Department of Psychology, Faculty of Humanities, Malayer University, Malayer, Iran.

### Abstract

We studied the prevalence of sedentary behaviors (SB) in children with specific learning disorders (SLD) having an eye on the role of child-parent (C-P) relationships and parenting style (PS). In this descriptive-correlational study, a total of 116 children with SLDs in Malayer city, Iran, whose mothers and fathers participated in the study were selected using the census method. The data were collected using the Child Weekly Screen Time Scale, PS, and C-P Relationship Scales. The data were analyzed using the Pearson correlation coefficient and stepwise regression analysis. The results showed that the hours mean of dealing with SB during the week, weekend, and the whole week in children with SLDs were 22.10, 8.59, and 30.75, respectively. The highest average hours of SB included watching TV, playing with handheld devices (iPhones, iPads, tablets), and playing mobile/no internet, respectively. The results, also, demonstrated a significant correlation between mother and father age, child-mother [C-M] dependency, child-father [C-F], closeness relationship, mother's permissive PS, father's permissive PS ( $r=.20$ ) with SB. Father age, father's permissive PS, C-F callousness, and C-M dependency have been able to predict SB, respectively.

### Keywords

C-P interaction, parenting styles, SB, SLD.

Received: 2021/07/12

Accepted: 2021/09/12

Available Online: 2022/03/03

## Introduction

Specific Learning Disorder (SLD) is a neurodevelopmental disorder with the biological origin and is the basis for abnormalities at the cognitive level that are associated with the behavioral symptoms of this disorder. It is diagnosed when a person has certain deficiencies in the ability to understand or process. The disorder first manifests itself during the years of formal education and is characterized by persistent and disruptive problems in learning basic academic skills in reading, writing, and math (American Psychiatric Association [APA], 2013). The prevalence of SLD in the terms of reading, writing, and math varies from 5% to 15% in primary school children in different languages and cultures (APA, 2013). Various studies have reported the prevalence of SLD between 3% and 26% (Ismail, Mohamed, & Soltan, 2019; Görker et al., 2017; Orim, & Ezekiel, 2017). In Iran, this rate has been reported between 3% and 5% (Bahari Gharagoz, & Hashemi,

2013; Eslami Shahrabaki et al., 2014; cited in Ariapooran and Narimani, 2020).

One of the problems that children with SLD may experience is Sedentary Behavior (SB). SB, such as watching TV, using a computer, or sitting in a car is usually behavior for which energy consumption is between one and 1/5 metabolic; in other words, SB is behaviors that are performed in a sitting position and involve low energy expenditure (Owen, Healy, Matthews, & Dunstan, 2010; Ariapooran, 2021).

In a study, 100 min per day was considered as cut-off point [700 min or 11 and 40 min per week] for SB (Fischer, Yildirim, Salmon, & Chinapaw, 2012). In a meta-analysis by Westrop, Melville, Muirhead, & McGarty (2019), There was no difference between females and males in SB. But boys were found to spend more leisure time for playing video games and watching TV than girls (Prince, Roberts, Melvin, Butler, & Thompson, 2020; Azabdaftari, Jafarpour, Asghari-Jafarabadi, Shokrvash, & Reyhani, 2020). Dunton, Do, & Wang (2020) reported 90-minute engaging in school-

related sitting behaviors in children and up to 8 h leisure-time behaviors. In another study, 81% of parents reported that the screen time of their children had increased (Guan et al., 2020).

SB was correlated with poor academic problems (Johnson, Cohen, Casson, & Brook, 2007). Watching TV is the most common SB (Patterson, et al., 2018). Research has found that people with a high rate of watching TV had poor health, and body dissatisfaction, dissatisfaction with friends and teachers (Silva et al., 2017; Biddle, & Asare, 2011).

According to the parents, the amount of physical activity of children with SLD was very low and the amount of SB was 530 minutes per day (Yuan et al., 2021). Students with SLD have low physical activity and high SB (Cook, Li, & Heinrich, 2015). Some studies have also shown that the rate of watching TV was high in children with SLD, and this behavior as a SB causes many problems such as poor homework, negative attitude toward school, poor grades, difficulty concentration, and academic failure (Johnson, Cohen et al., 2007).

Child-Parent (C-P) relationship is the first representation of the child communication world; it is an important and vital relationship for creating security and love, which consists of a combination of behaviors, feelings and expectations that are unique to a particular parent and a particular child (Carnes-Holt, 2012). The quality of Child-Mother (C-M) relationships was found to be correlated with an appropriate adjustment in kindergarten and preschool (Pianta, Nimetz, & Bennett, 1997), early social behaviors in children (Demo, & Cox, 2000; Hamre, & Pianta, 2001), and low levels of psychological distress in adulthood (Stafforda, Kuha, Galeb, Mishrad, & Richard, 2016; Mallers, Charles, Neupert, & Almeida, 2010). Intimate C-M relationship was found to be correlated with social skills (Li et al., 2015; Iruka, Burchinal, & Cai, 2010), and C-M conflict was found to be associated with behavioral problems (Li et al., 2015; Li et al., 2014).

Parenting Styles (PS) was another dependent variable in this study that its relationship with the C-P interaction has been confirmed (Nelson, Padilla-Walker, Christensen, Evans, & Carroll, 2011; Sorkhabi & Middaugh, 2014). PS is a set of attitudes and behaviors of parents toward children and creating an emotional environment (Darling & Steinberg, 1991). Baumrind (1991) presented three styles of PS: authoritarian [high parental demand and low responsiveness], authoritative [combination of restraint and high emotional support, appropriate levels of independence, and reciprocal communication between child and parent], and permissive [low parental demand and high responsiveness] (Baumrind, 1991).

Until the time this study was conducted, no studies reported the relationship between C-P relationship and PS with SB among children with SLD; but, in other sample C-M interaction was found to be correlated with SB and physical activity (Garriguet et al., 2017). Also, a meta-analysis showed that PS based on verbal

encouragement, encouraging the child to engage in physical activity, and reward for children's physical activity was found to be associated with low SB (Lindsay et al., 2018). In another study, authoritative PS was found to be associated with a low time of SB in boys, while permissive PS associated with a long time of SB in boys and girls (Van der Geest, Mérelle, Rodenburg, Van de Mheen, & Renders, 2017).

In previous studies, only one study has reported SB in students with SLD, which indicated high rates of SB and low levels of physical activity in these children (Cook et al., 2015). However, the C-P relationship and PS were found to be correlated with SB in children without SLD (Garriguet et al., 2017; Lindsay et al., 2018; Van der Geest et al., 2017). In addition, the relationship between C-P interaction and PS with SB in children with SLD has not been studied and there is a research gap in this field. Given the novelty of the study, research on SB in students with SLD can help psychologists and school counselors by highlighting the role of C-P interaction and PS to provide appropriate strategies for reducing SB in children with SLD. Also, research in this field can help the educational organization and institutions to use educational workshops for parents of SLD children with SB. Therefore, the main research questions were:

1. What is the prevalence of SB in children with SLD?
2. Is there a difference between girls and boys in sedentary behaviors?
3. Is there an association between C-P interaction and PS with SB in children with SLD?

## Method

### *Participants*

This study was a descriptive-correlational study that investigated the prevalence of SB in children with SLD and the relationship between C-P interaction and PS. C-P interaction and PS were taken as independent variables and SB was dependent the variable.

The population included students who received a diagnosis of SLD in the Malayer (Hamadan provenance, Iran) Learning Disabilities Centers [Neshat and Bahar centers] (N=140). All of them were trained by learning centers. Therefore, those who had a diagnosis and did not go to the center were not examined. The statistical sample of this study included all students with SLD who were selected by the census method. Since the questionnaires had to be completed by the parents, all parents (mothers and fathers) were invited to learning disabilities centers (132 parents) and the questionnaires were distributed among them. After completing the questionnaires, 3 questionnaires (2 fathers and 1 mother) were returned as incomplete and 5 fathers were low literate or illiterate. Finally, they and their wives were excluded from the study. Finally, the final sample consisted of 116 fathers and 116 mothers.

Inclusion criteria were: having a child with SLD, high school literacy and above, visit the center to receive special training, no severe psychological and physical problems, no history of hospitalization in the last six months. Exclusion criteria were: dissatisfaction with participating in the study and not completing the questionnaires.

## Instrument

### *Child Weekly Screen Time Scale*

This Scale was developed by Sanders, Parent, Forehand, and Brysland (2016). This scale includes 8 sedentary behaviors that are based on looking at the screen. These behaviors were: watching TV, watching DVD or video, computer games, online computer games, video games (PlayStation, Xbox, etc.), playing with handheld devices (tablet, iPad), playing with mobile and play with mobile online. The method of responding to each sedentary behavior was the number of minutes allocated to each sedentary behavior in the first 5 days of the week and two weekends was determined by the mothers. Scores ranging from 0 to 84 hours and high scores indicate high SB. In the research of Saunders et al. (2016), this scale has been evaluated as appropriate and acceptable for evaluating SB; in addition, they showed that adaptive parenting had a significant relationship with screen time; there was also a negative relationship between SB and physical activity. (Gingold et al.'s 2014; cited in Ariapooran, Hajimoradi, and Mousavi, 2020) study also showed that there is a negative relationship between SB and physical activity. This scale has been used in Iran by (Rostami 2019; cited in Ariapooran et al, 2020) among students with SLD and its Cronbach's alpha coefficient was equal to 0.86; Also, there was a positive relationship between sedentary behavior during the week days [first 5 days of the week] ( $r = 0.96$ ) and weekends [two weekend days] ( $r = 0.77$ ) with the total SB. In Ariapooran et al., (2020) study, Cronbach's alpha coefficient of this scale was equal to 0.79. In the current study, the Cronbach's alpha coefficient of this scale was 0.86.

### *C-P Relationship Scale*

This 33-item scale was developed by Pianta (1992). It is suitable for children 3 to 12 years old (Pianta, 1992). The range of scores for each item varies from 1 to 5 points (1= definitely not true, 2 = not really, 3 = not sure, 4 = somewhat true, and 5 = true). This scale has 3 subscales: closeness [9 items], conflict [18 items], and dependency [6 items]. The range of scores in the first dimension is 9 to 45, the second dimension is 18 to 90 and the third dimension is 6 to 30. A high score in the closeness, conflict, and dependency shows a high level

of C-P closeness, C-P conflict, and C-P dependency, respectively. Cronbach's alpha of the three subscales of closeness, conflict, and dependency obtained .72, 0.83, and, 0.50 (Pianta, 1992). In a study by Pourmohamadreza-Tajrishi et al. (2015), Cronbach's alpha coefficients of closeness, conflict, and dependence were reported as 0.77, 0.82, and 0.73, respectively and its validity as 0.72. This study found the Cronbach's alpha of the closeness, conflict, and dependence as 0.71, 0.77, and 0.69, respectively.

### *Parental Authority Questionnaire*

This 30-item questionnaire was developed by Buri (1991) for measuring Baumrind's (1971) parental authority prototypes. This scale has 3 dimensions: authoritative (10 Items), authoritarian (10 items), and permissive (10 items). The range of scores for each item varies from 1 to 5 points [1="strongly disagree" and 5="strongly agree"]. The range of scores in each dimension is between 10 and 50 and high scores indicate the high value of the dimension. In a study by Buri (1991), the Cronbach's alpha coefficients of authoritative, authoritarian, and permissive were reported as 0.82, 0.92, and 0.81, respectively. The mother's authoritarian is inversely related to permissive ( $-0.38$ ) and authoritative ( $-0.48$ ), and the father's authoritarian inversely related to permissive ( $-0.50$ ) and authoritative ( $-0.52$ ). In a study conducted in Iran, the Cronbach's alpha coefficients of authoritative, authoritarian, and permissive were reported as 0.71, 0.66, and 0.66, respectively (Dabiri, Delavar, Sarami, & Falsafi Nejad, 2012). In this study, Cronbach's alpha coefficients of these dimensions were 0.76, 0.78, and 0.70, respectively.

## Procedure

Researchers explained the aim of the study to the parents. Parents and school managers signed the written consent forms. Participants were assured that whether or not they participate in the study, would have no impact on school services. They were also assured that their data would be confidential. If the parents were interested in the results or interpretation of the results, the researchers visited the centers ten days after collecting the data and presented the results, interpretation, and possible solutions. Parents invited to the centers answered the questionnaires for 20 to 30 minutes. Finally, Data were analyzed by SPSS-24 using the Pearson correlation and stepwise regression

## Results

Among children with SLD, 53 (45.69%) were females and 63 (54.31%) were males. In terms of educational level, 34 children (29.31%) studied in the first grade, 30 (25.86%) in the second grade, 8 (6.90%) in the third grade, 25 (21.55%) in the fourth grade, 11 (9.48%) in the fifth grade, and 8 (6.90%) in the sixth grade. Among these children, 40 (34.48%) had difficulty in reading, 34 (29.31%) difficulty in writing, 30 (25.86%) math problems, and 12 (10.35%) compound problems. Among mothers, 108 (93.10%) were housewives and 8 (6.90%) were employed. Among fathers, 22 (18.96%) were employed, 4 (3.45%) were retired, and 90 (77.59%) were self-employed. Among mothers, 54

(46.55%) had less than a high school diploma, 42 (36.21%) had a high school diploma, 4 (3.45%) had an associate degree, 14 (12.07%) had a bachelor's degree, and 2 (1.72%) had a master's degree. Among fathers, 42 (36.21%) had less than a high school diploma, 48 (41.38%) had a high school diploma, 6 (5.17%) had an associate degree, 16 (13.79%) had a bachelor's degree, and 4 (3.45%) had a master's degree. The mean age of mothers, fathers, and students was  $37.07 \pm 5.85$ ,  $39.80 \pm 5.20$ , and  $8.85 \pm 2.11$ , respectively. Table 1 shows the mean and standard deviation, and the results of the independent t-test to compare sedentary behaviors in girls and boys with SLD.

**Table 1.** The Mean (M) and Standard Deviation (SD) of the SB hours in SLD students and independent t-test for gender

SB		SB Hours During the Week		SB Hours in Weekend		Total SB	Statistic
		M±SD	t (p)	M±SD	t (p)	M±SD	t (p)
Watching TV	Males	12.24±7.99	.30(.77)	5.18±7.79	.039(.70)	17.47±12.91	.42(.68)
	Females	11.81±7.55		4.75±3.00		16.57±9.65	
	All	12.05±7.76		4.98±5.93		17.06±11.49	
Watching DVD/video	Males	0.97±2.21	-.96(.34)	.21±.66	-1.91(.06)	1.19±2.66	-1.25(.21)
	Females	1.50±3.65		.55±1.22		2.05±4.62	
	All	1.21±2.59		.36±.97		1.58±2.75	
Using computer/internet	Males	0.0±0.0	0.0 (.100)	.032±.18	-.17(.76)	.032±0.18	-.17(.76)
	Females	0.0±0.0		.038±.19		.038±.19	
	All	0.0±0.0		.18±5.17		.18±5.17	
Using computer/no internet	Males	1.05±2.76	2.13 (.035)	.28±.76	.62(.54)	1.34±3.51	1.78 (.08)
	Females	.215±.80		.20±.63		.415±1.32	
	All	.67±2.14		.24±.70		.93±2.75	
Playing videogames (PlayStation, Xbox, Nintendo Wii)	Males	.63±2.45	-.61(.54)	.26±.89	.13(.90)	.89±3.32	-.44(.66)
	Females	.94±2.95		.24±.77		1.18±3.71	
	All	.77±2.68		.25±.84		1.02±3.49	
Play with handheld devices (iPhones, iPads, tablets)	Males	4.12±5.26	1.52(.13)	1.51±1.97	1.99(.049)	5.66±7.10	1.70(.09)
	Females	2.71±4.68		.84±1.53		3.59±5.80	
	All	3.48±5.03		1.20±1.81		4.72±6.59	
Playing mobile/no internet	Males	3.46±4.28	.54(.59)	1.19±1.62	.35(.84)	4.67±5.78	.33(.74)
	Females	3.07±3.39		1.25±1.59		4.34±4.74	
	All	3.28±3.89		1.22±1.60		4.52±5.31	
Playing mobile/internet	Males	.65±2.29	.59(.55)	.22±.79	.05(.96)	.87±3.04	.33(.67)
	Females	.43±1.59		.21±.80		.64±2.38	
	All	.55±1.99		.22±.79		.77±2.75	
Total SB	Males	23.23±16.60	.87 (.39)	8.93±8.40	.57(.57)	32.21±22.32	.86(.39)
	Females	20.75±13.56		8.19±4.60		29.01±16.74	
	All	22.10±15.27		8.59±6.91		30.75±19.94	

According to Table 1, the mean hours of SB in children with SLD was 30.75 (22.10 during the week, 8.59 in weekend). The highest mean hours of SB were related to watching TV, play with handheld devices (iPhones, iPads, tablets), and playing mobile/no internet, respectively. Results of independent t-test showed that boys engaged in more using computer/no internet

during the week and play with handheld devices (iPhones, iPads, tablets) in weekend than girls. But there was no meaningful difference between boys and girls in other SB and total SB during the week, weekend, and in total. The Mean (M) and Standard Deviation (SD) and summary of Pearson correlation results of predictive and criterion variables are reported in Table 2.

**Table 2.** Mean (M) and Standard Deviation (SD) and summary of Pearson correlation results to investigate the relationship between C-P interaction, PS, and SB in children with SLD

Predictive Variables	M	SD	Criterion Variables		
			SB Hours During the Week	SB Hours in Weekend	Total SB
Mother Age	37.07	5.85	r=.26**	r=.02	r=.21*
Father Age	39.80	5.20	r=.35**	r=.07	r=.29**
Child Age	8.85	2.11	r=.134	r=.089	r=.13
C-M closeness	39.08	4.29	r=-.07	r=-.04	r=-.07
C-M Dependency	23.03	4.58	r=.23*	r=.05	r=.19*
C-M Conflict	55.32	10.49	r=.09	r=.01	r=.07
C-F closeness	36.21	4.54	r=-.29**	r=-.16	r=-.28**
C-F Dependency	22.21	3.82	r=.05	r=-.05	r=.02
C-F Conflict	55.57	8.83	r=.04	r=-.03	r=.02
Mother's Permissive PS	15.37	5.54	r=.31**	r=.14	r=.29**
Mother's Authoritarian PS	16.58	6.39	r=.13	r=.01	r=.10
Mother's Authoritative PS	29.61	6.43	r=-.09	r=-.14	r=-.02
Father's Permissive PS	16.56	4.99	r=.21*	r=.125	r=.20*
Father's authoritarian PS	18.39	5.30	r=.09	r=.06	r=.09
Father's Authoritative PS	28.18	5.62	r=-.18*	r=-.11	r=-.10

\*\*&lt;0.01; \* &lt;0.05

According to the Table 2, there was a significant positive relationship between mother and father age with SB during the week and total SB. There was a significant positive correlation between C-M dependency ( $p < 0.05$ ) and a significant negative correlation between C-F closeness and SB during the week and total SB. However, there was no significant relationship between child age, C-M closeness, C-M conflict, C-F dependency, and C-F conflict with SB.

There was, also, a significant positive relationship between mother's and father's permissive PS with SB during the week and total SB ( $p < 0.05$ ). Also, there was a significant positive relationship between father's authoritative PS and SB during the week, ( $p < 0.05$ ). However, there was no significant correlation between mother's and father's authoritarian PS and mother's authoritative PS with SB. The summary of stepwise regression result is reported in Table 3.

**Table 3.** Summary of Stepwise Regression analysis results to predict SB through C-P interaction and PS scores

Model	R <sup>2</sup>	Adj.R <sup>2</sup>	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
			B	Std. Error				Beta	Tolerance
Father Age	.290	.08	1.104	.344	.29	3.21	.002	1.00	1.0
Father's Permissive PS	.290	.08	.872	.351	.22	2.48	.015	0.99	1.003
C-F callousness	.392	.13	-.859	.393	-.20	-2.19	.031	.931	1.07
C-M Dependency	.446	.17	.993	.380	.23	2.61	.01	.923	1.08

According to Table 3, approximately 45% of the variance of sedentary behavior in children with SLD is explained by predictor variables ( $f=17.05$ ,  $p < .001$ ). The results of stepwise regression showed that the father age, father's permissive PS, C-F callousness, and C-M dependency have been able to predict SB, respectively ( $p < .05$ ). Note that the variance inflation factor (VIF) value in regression studies, should be less than 3, and the tolerance value close to 1 (less than 1). In other words, if the VIF and tolerance values are appropriate, it indicates that the predictor variables are linearly related to the criterion variable. However, there is no high correlation between predictor variables. In addition, the Durbin-Watson value was 1.81, which is a value between 1.5 and 2.5, indicating that there is no autocorrelation between the data.

## Discussion

This study investigated the prevalence of SB in children with SLD and the relationship between C-P interaction

and PS with SB. In our study, children with SLD devoted an average of 30.75 h per week to SB, such as watching TV, playing with handheld devices (iPhones, iPads, tablets), and playing mobile/no internet. This prevalence is much higher than the cut-off point of 11 h and 40 min of SB (Fisher et al., 2012). Previous research has confirmed the high rate of SB (Yuan et al., 2021; Cook et al., 2015) and the high rate of watching TV (Johnson et al., 2007) in children with SLD.

The attractiveness of screen devices (TV, mobile, tablets) is one of the factors that causes children with SLD to use the screen (Hidding, Altenburg, Van Ekris, & Chinapaw, 2017). Because these behaviors are fun (Hidding et al., 2017) and easy access to the TV, mobiles, tablets, and other electronic devices causes more involvement in SB. Lack of alternative entertainment and a playmate is also one of the reasons for such behaviors in children with SLD. This reason has been mentioned in previous research (Hidding et al., 2017).

Results showed that there was no meaningful

difference between boys and girls in SB; but the boys were found to spend more leisure time using computer/no internet during the week and play with handheld devices (iPhones, iPads, tablets) in weekend than girls. This result is consistent with the findings of Westrop, et al (2019); they showed that there was no difference between females and males in SB. This result is inconsistent with the results of Prince et al (2020) and Azabdaftari et al (2020); because they reported more leisure time playing video games and watching TV in boys than girls. It may be argued that the attractiveness of SB for girls and boys in the virtual world may have made up for this result. Because recent research has shown that girls and boys do not differ in SB. Given that video games have been more in boys, it can be argued that these differences could potentially be related to gender differences in leisure activity preferences, as previous research has shown that preferential activities for girls were listening to music or texting or talking on the phone, while boys spend more time playing video games (Taverno Ross et al., 2013).

In our results, mother's and father's age were positively correlated to SB during the week and total SB and the father's age positively predicted SB in children with SLD. Previous research has shown that younger caregivers prefer physical activity for children more than older caregivers (Wiseman, Harris, & Downes, 2019). It can be argued that older parents of children with SLD prefer their children to engage SB behaviors. In other words, they may allow children to use screen time. Younger parents, however, may become more involved with their children in interactive activities (Wiseman et al., 2019), and this may have led to a reduction in SB among their children.

There was a positive correlation between C-M dependency and a significant negative correlation between C-F closeness and SB and the C-M dependency negatively predicted SB in children with SLD. This result is consistent with the findings of Garriguet et al. (2017). Perhaps one reason for this is that dependent children cannot engage in activities without the presence of their mothers; Thus, this trait may cause mothers to allow them to engage in SB, such as watching TV, playing computer, and video games.

There was a negative relationship between C-F closeness with SB and the C-F closeness negatively predicted SB in children with SLD. Although until the time this study was conducted, the relationship between C-F interaction and SB in children with SLD has not been reported, it can be argued that fathers, unlike mothers, usually have less interaction with their children (Sorakin, Altınay, & Cerkez, 2019). One of the reasons can be doing work outside the home. However, if fathers have intimate relationships with their children with SLD and suitable interaction with each other in child-related activities, children are not more likely to

engage in SB. But, if fathers do not interact closely with their children, children may resort to SB to compensate for this lack of interaction.

There was a significant positive correlation between mother's and father's permissive PS with SB, and negative correlation between father's authoritative PS with SB during the week. Also, the father's permissive PS positively predicted SB in children with SLD. This result is consistent with the previous findings (Van der Geest et al., 2017; Lindsay et al., 2018). They showed that there was a negative correlation between rational support PS and parental supervision with SB. It can be argued that in the permissive PS, parents have low expectations of their children due to excessive attention (Baumrind, 1991).

## Conclusion

Therefore, children with SLD who's their parent use this PS have more freedom of action and may be more inclined to engage in SB. The authoritative PS provides appropriate levels of independence and reciprocal communication between child and parent (Baumrind, 1991). Therefore, the existence of this PS among fathers of children with SLD causes them to behave logically and reciprocal communication with their children is more likely to cause their children to engage in less SB during the week; because, their fathers may be reasonable to them from engaging in SB, or provide a suitable alternative to SB based on a reciprocal relationship between them.

One of the limitations of this study is the implementation of the scale of SB in children with SLD by parents, which may lead to bias in parental reports about SB; therefore, in future research, students' views on SB would be used. Not using children with other neurodevelopmental problems, as well as normal children, was another limitation. We suggest further research to examine SB in children with other neurodevelopmental disorders as well as people without the disorder. According to the research findings, it is suggested that the necessary workshops be held in the field of C-P interaction, especially C-P closeness interaction and its role in SB for parents of children with SLD. It is also recommended to teach positive PS to parents of children with SLD, which can be effective in reducing SB in them.

## Disclosure Statement

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

## ORCID

Saeed Ariapooran: <https://orcid.org/0000-0003-3761-4068>

## References

- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*. Arlington: American Psychiatric Association.
- Ariapooran, S. (2021). Advance psychology, cognition, emotion, behavior. Tehran: Arjmand, 1<sup>th</sup>.
- Ariapooran, S., & Narimani, M. (2020). Prevalence of Depression in Children with Specific Learning Disorders: The Role of Child-Parent and Child-Teacher Relationships. *Journal of Learning Disabilities* 10 (3), 7-32. doi: 10.22098/jld.2021.7096.1758
- Ariapooran, S., Hajimoradi, R., & Mousavi, S. V. (2020). The Effectiveness of Filial Therapy on Sedentary Behaviors in Children with Specific Learning Disorder. *Journal of Research in Cognitive and Behavioral Sciences*, 10(1), 75-92. doi: 10.22108.CBS.2021.127893.1513
- Azabdaftari, F., Jafarpour, P., Asghari-Jafarabadi, M., Shokrvash, B., & Reyhani, P. (2020). Unrestricted prevalence of sedentary behaviors from early childhood. *BMC public health*, 20, 1-11. doi: 10.1186/s12889-020-8346-0
- Baumrind D. (1991). The influence of parenting style on adolescent competence and substance use. *The Journal of Early Adolescence*, 11(1), 56–95. doi: 10.1177.272431691111004
- Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British Journal of Sports Medicine*. 45(11), 886–895. doi: 10.1136/bjsports-2011-090185
- Buri, J. (1991). Parental authority questionnaire. *Journal of Personality Assessment*, 57(1), 110–119. doi: 10.1207.s15327752jpa5701\_13
- Carnes-Holt K. (2012). Child–Parent Relationship Therapy for Adoptive Families. *The Family Journal*, 20(4), 419–26. doi: 10.1177/1066480712451242
- Cook, B. G., Li, D., & Heinrich, K. M. (2015). Obesity, Physical Activity, and Sedentary Behavior of Youth with Learning Disabilities and ADHD. *Journal of Learning Disabilities*. 48(6), 563-576. doi: 10.1177.0022219413518582
- Dabiri, S., Delavar, A., Sarami, G., & Falsafi Nejad, M. (2012). Formulating Relationships Model of Parenting Styles, Personality, Self-Esteem and Happiness: Path Analysis Model. *Journal of Family Research*, 8, 141-159. [In Persian]
- Darling N., & Steinberg L. (1993). Parenting style as context: an integrative model. *Psychological Bulletin*, 113(3), 487–496. doi: 10.1037.0033-2909.113.3.487
- Demo, D. H., & Cox, M. J. (2000). Families with young children: A review of research in the 1990s. *Journal of Marriage and Family*, 62(4), 876–895. doi: 10.1111.j.1741-3737.2000.00876.x
- Dunton, G.F., Do, B. & Wang, S.D. (2020). Early effects of the COVID-19 pandemic on physical activity and sedentary behavior in children living in the U.S. *BMC Public Health*, 20, 1351. doi: 10.1186.s12889-020-09429-3
- Fischer, C., Yildirim, M., Salmon, J., & Chinapaw, M. J. M. (2012). Comparing different accelerometer cut-points for sedentary time in children. *Pediatric Exercise Science*, 24(2), 220-228. doi: 10.1123.pes.24.2.220
- Garriguet, D., Colley, R., & Bushnik, T. (2017). Parent-Child association in physical activity and sedentary behavior. *Health Reports*, 28(6), 3-11. PMID: 28636068
- Görker, I., Bozatlı, L., Korkmazlar, Ü, Yücel Karadağ, M., Ceylan, C., Söğüt, C. ... Turan, N. (2017). The Probable Prevalence and Sociodemographic Characteristics of Specific Learning Disorder in Primary School Children in Edirne. *Noropsikiyatri Arşivi*, 54(4), 343–349. doi: 10.5152/npa.2016.18054
- Guan, H., Okely, A. D., Aguilar-Farias, N., del Pozo Cruz, B., Draper, C. E., El Hamdouchi, A., ... & Löf, M. (2020). Promoting healthy movement behaviours among children during the COVID-19 pandemic. *The Lancet Child & Adolescent Health*, 4(6), 416-418. doi: 10.1016.S2352-4642(20)30131-0
- Hamre, B. K., & Pianta, R. C. (2001). Early teacher–child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72(2), 625–638. doi.org/10.1111.1467-8624.00301
- Hidding, L. M., Altenburg, T. M., Van Ekris, E., & Chinapaw, M. J. (2017). Why do children engage in sedentary behavior? Child-and parent-perceived determinants. *International journal of environmental research and public health*, 14(7), 671. doi: 10.3390/ijerph14070671
- Iruka, I. U., Burchinal, M., & CAI, K. (2010). Long-term effect of early relationships for African American children's academic and social development: An examination from kindergarten to fifth grade. *Journal of Black Psychology*, 36(2), 144–171. doi: 10.1177/0095798409353760
- Ismail, R. M., Mohamed, H. T., & Soltan, B. G. (2019). Prevalence of learning disabilities among a sample of primary school students. *The Scientific Journal of Al-Azhar Medical Faculty*, 3(1), 125-130. doi:10.4103/sjamf.sjamf\_65\_18
- Johnson, J. G., Cohen, P., Kasen, S., & Brook, J. S. (2007). Extensive Television Viewing and the Development of Attention and Learning Difficulties during Adolescence. *Archives of Pediatrics and Adolescent Medicine*, 161(5), 480-486. doi: 10.1001/archpedi.161.5.480
- Li, Y. F., Xu, L. Y., Lv, Y., Liu, L. J., & Wang, Y. (2014). The associations between mother–child relationship, teacher–child relationship and social adaptive behaviors for preschool migrant children. *Psychological Development and Education*, 30(6), 624–634.

- <http://www.devpsy.com.cn/EN/abstract/abstract2054.shtml>
- Li, Y., Liu, L., Lv, Y., Xu, L., Wang, Y., & Huntsinger, C. S. (2015). Mother-child and teacher-child relationships and their influences on Chinese only and non-only children's early social behaviors: The moderator role of urban-rural status. *Children and Youth Services Review*, 51, 108-116. doi:10.1016/j.childyouth.2015.01.023
- Lindsay, A. C., Wasserman, M., Muñoz, M. A., Wallington, S. F., & Greaney, M. L. (2018). Examining Influences of Parenting Styles and Practices on Physical Activity and Sedentary Behaviors in Latino Children in the United States: Integrative Review. *JMIR Public Health & Surveillance*, 4, e14. doi: 10.2196/publichealth.8159
- Mallers, M. H., Charles, S. T., Neupert, S. D., & Almeida, D. M. (2010). Perceptions of Childhood Relationship with Mother and Father: Daily Emotional and Stressor Experiences in Adulthood. *Developmental Psychology*, 46(6), 1651-1661. doi: 10.1037/a0021020
- Nelson L. J., Padilla-Walker L. M., Christensen K. J., Evans C. A., Carroll J. S. (2011). Parenting in emerging adulthood: an examination of parenting clusters and correlates. *Journal of Youth and Adolescent*, 40(6), 730-743. Epub 2010 Aug 31 doi: 10.1007/s10964-010-9584-8
- Orim, O. S., & Ezekiel, U. F. U. (2017). Prevalence of specific learning disabilities and its management among pupils in Calabar educational zone, Cross River State. *International E-Journal of Advances in Education*, 3, 587-596. doi: 10.18768/IJAEDU.370427
- Owen, N., Healy, G. N., Matthews, C. E., & Dunstan, D. W. (2010). Too much sitting: the population health science of sedentary behavior. *Exercise and Sport Sciences Reviews*, 38(4), 105-113. doi: 10.1097/JES.0b013e3181e373a2
- Patterson, F., Lozano, A., Huang, L., Perkett, M., Beeson, J., & Hanlon, A. (2018). Towards a demographic risk profile for sedentary behaviours in middle-aged British adults: a cross-sectional population study. *BMJ Open*, 8, e019639. doi: 10.1136/bmjopen-2017-019639
- Pianta, R. C., Nimetz, S. L., & Bennett, E. (1997). Mother-child relationships, teacher-child relationships, and school outcomes in preschool and kindergarten. *Early Childhood Research Quarterly*, 12(3), 263-280. doi: 10.1016/S0885-2006(97)90003-X
- Pianta, R. C. (1992). *Beyond the parent: The role of other adults in children's lives*. Jossey-Bass.
- Pourmohamadreza-Tajrishi, M., Ashouri, M., Afrooz, G. A., Arjmandnia, A. A., & Ghobari-Bonab, B. (2015). The Effectiveness of Positive Parenting Program (Triple-P) Training on Interaction of Mother-Child with Intellectual Disability. *Rehabilitation*, 16(2), 128-137. <http://rehabilitationj.uswr.ac.ir/article-1-1624-en.html>
- Prince, S. A., Roberts, K. C., Melvin, A., Butler, G. P., & Thompson, W. (2020). Gender and education differences in sedentary behaviour in Canada: an analysis of national cross-sectional surveys. *BMC Public Health*, 20, 1-17. doi: 10.1186/s12889-020-09234-y
- Sanders, W., Parent, J., Forehand, R., & Breslend, N. L. (2016). The roles of general and technology-related parenting in managing youth screen time. *Journal of Family Psychology*, 30(5), 641-646. doi: 10.1037/fam0000175
- Silva, D. R., Werneck, A. O., Tomeleri, C. M., Fernandes, R. A., Ronque, E. R. V., & Cyrino, E. S. (2017). Screen-based sedentary behaviors, mental health, and social relationships among adolescents. *Motriz Revista de Educação Física*, 23, 1-8. doi: 10.1590/s1980-6574201700si0086
- Sorakin, Y., Altınay, Z., & Cerkez, Y. (2019). Father psycho-education program for developing interaction with children: Disability program development. *International Journal of Disability, Development and Education*, 66(5), 528-540. doi:10.1080/1034912X.2019.1642457
- Sorkhabi N., Middaugh E. (2014). How variations in parents' use of confrontive and coercive control relate to variations in parent-adolescent conflict, adolescent disclosure, and parental knowledge: adolescents' perspective. *Journal of Child and Family Studies*, 23(7), 1227-1241. doi.org/10.1007/s10826-013-9783-5
- Stafforda, M., Kuha, D. L., Galeb, C. R., Mishrad, G., & Richard, M. (2016). Parent-child relationships and offspring's positive mental wellbeing from adolescence to early older age. *The Journal of Positive Psychology*, 11(3), 326-337. doi: 10.1080/17439760.2015.1081971
- Taverno Ross, S. E., Byun, W., Dowda, M., McIver, K. L., Saunders, R. P., & Pate, R. R. (2013). Sedentary behaviors in fifth-grade boys and girls: where, with whom, and why. *Childhood Obesity*, 9(6), 532-539. doi:10.1089/chi.2013.0021
- Van der Geest, K. E., Mérelle, S. Y. M., Rodenburg, G., Van de Mheen, D., & Renders, C. M. (2017). Cross-sectional associations between maternal parenting styles, physical activity and screen sedentary time in children. *BMC Public Health*, 17(1):753. doi: 10.1186/s12889-017-4784-8
- Westrop, S. C., Melville, C. A., Muirhead, F., & McGarty, A. M. (2019). Gender differences in physical activity and sedentary behaviour in adults with intellectual disabilities: A systematic review and meta-analysis. *Journal of Applied Research in Intellectual Disabilities*, 32(6):1359-1374. doi: 10.1111/jar.12648
- Wiseman, N., Harris, N., & Downes, M. (2019). Preschool children's preferences for sedentary activity relates to parent's restrictive rules around active outdoor play. *BMC public health*, 19(1):946. doi: 10.1186/s12889-019-7235-x
- Yuan, Y. Q., Ding, J. N., Bi, N., Wang, M. J., Zhou, S. C., Wang, X. L., ... & Roswal, G. (2021). Physical activity and sedentary behaviour among children and adolescents with intellectual disabilities during the COVID-19 lockdown in China. *Journal of Intellectual Disability Research*. Online 2021. doi:10.1111/jir.1289