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Adolescent Mental Health Following Exposure to Positive and Harsh Parenting in Childhood

Santé mentale des adolescents suivant une exposition à une parentalité positive et sévère dans l'enfance

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Abstract

Objectives: The purpose of the present study was to assess longitudinal associations between positive and harsh parenting in childhood and adolescent mental and behavioral difficulties.

Methods: Data were drawn from Canada's population-based National Longitudinal Survey of Children and Youth (data collected from 1994 to 2009, analyzed 2018). The sample included 9,882 adolescents aged 12/13 years old. Parents self-reported positive and harsh parenting when children were 6/7, 8/9, and 10/11 years old. Symptoms of depression/anxiety, hyperactivity, physical aggression, social aggression, and suicidal ideation were self-reported by adolescents at age 12/13. Linear regression was used to examine the associations between parenting behaviors at each age and adolescent psychiatric symptoms, adjusted for children's baseline symptoms.

Results: Harsh parenting at 10/11 was associated with elevated symptoms of early-adolescent physical aggression, social aggression, and suicidal ideation for boys only, and for all children at earlier ages. Beginning at age 8/9, harsh discipline was associated with elevated symptoms of depression/anxiety for boys only. Overall, positive parenting at age 6/7 was protective against depression/anxiety, physical aggression, and social aggression. Significant sex differences emerged beginning at age 8/9, with positive parenting associated with higher symptoms of depression/anxiety for boys only. Positive parenting at age 10/11 was associated with increased depression/anxiety, physical aggression, social aggression, and suicidal ideation among boys, but decreased symptoms of physical aggression, social aggression, and suicidal ideation among girls.

Conclusions: Results suggest that the impact of positive and harsh parenting may depend on age and sex, with harsh parenting being more detrimental to boys as they approach adolescence.

Abrégé

Objectifs : La présente étude avait pour objet d'évaluer les associations longitudinales entre parentalité positive et sévère dans l'enfance, et les difficultés mentales et comportementales des adolescents.

Méthodes : Les données ont été tirées de l'Enquête longitudinale nationale sur les enfants et les jeunes (ELNEJ) menée dans la population au Canada (données recueillies de 1994 à 2009, analysées en 2018). L'échantillon comprenait 9 882 adolescents de

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12/13 ans. Les parents auto-déclaraient leur parentalité positive et sévère au moment où les enfants avaient 6/7, 8/9, et 10/11 ans. Les symptômes de dépression/anxiété, d'hyperactivité, d'agression physique, d'agression sociale, et d'idéation suicidaire ont été auto-déclarés par les adolescents à l'âge de 12/13 ans. La régression linéaire a servi à examiner les associations entre les comportements parentaux à chaque âge et les symptômes psychiatriques des adolescents, ajustées en fonction des symptômes de départ des enfants.

Résultats : La parentalité sévère à 10/11 ans était associée à des symptômes élevés d'agression physique précoce à l'adolescence, d'agression sociale, et d'idéation suicidaire pour les garçons seulement, et pour tous les enfants en plus bas âge. Commençant à 8/9 ans, la discipline sévère était associée à des symptômes élevés de dépression/anxiété pour les garçons seulement. En général, la parentalité positive au début de l'enfance (6/7 ans) était protectrice contre la dépression/anxiété, l'agression physique, et l'agression sociale. Des différences significatives entre les sexes commençaient à se manifester à 8/9 ans, la parentalité positive étant associée à des symptômes plus élevés de dépression/anxiété pour les garçons seulement. La parentalité positive à 10/11 ans était associée à des symptômes accrus de dépression/anxiété, d'agression physique, d'agression sociale et d'idéation suicidaire chez les garçons, mais à des symptômes réduits d'agression physique, d'agression sociale et d'idéation suicidaire chez les filles.

Conclusions : Les résultats suggèrent que l'effet de la parentalité positive et sévère peut dépendre de l'âge et du sexe, la parentalité sévère étant plus préjudiciable aux garçons à l'approche de l'adolescence.

Keywords
parenting, child and adolescent psychiatry, longitudinal study, behavior problems

Introduction

Mental disorder is the leading cause of disability among adolescents worldwide[1] and is associated with multiple negative outcomes in both the short and the long term. For example, adolescent symptoms of depression and anxiety are associated with alcohol and substance use,[2] poor academic achievement,[3] difficulty in maintaining healthy social relationships,[2,3] and suicide.[4] Symptoms of behavioral disorders in adolescence are similarly associated with low achievement,[5] substance use,[6,7] and social difficulties, as well as health risk behaviors[6] and criminality.[7] Symptoms of adolescent mental disorder persist into adulthood[8] and are associated with numerous sequelae including substance use problems,[7] limitations to occupational functioning, and difficulty maintaining healthy interpersonal relationships.[9]

Caregivers' parenting practices have been consistently correlated with mental and behavioral problems in adolescence including depression,[10] suicidality,[11] aggression,[12] conduct disorder,[13] and hyperactivity.[14] Parents are tasked with promoting desirable behaviors as well as preventing undesirable ones.[15] Although discipline and limit-setting are essential tasks of parenthood, the form such discipline takes varies widely from parent to parent. Harsh discipline, consisting of behaviors such as screaming, cursing, threatening, and physical punishment, is particularly detrimental to children's socioemotional development.[16] On the other hand, positive parenting encompasses parental warmth, nurturance, and involvement and includes praise, expressed affection, time commitment, and shared positive affect.[17-19] Positive parenting is associated with positive outcomes for offspring.[17,20]

Positive parenting and harsh discipline independently predict adolescent mental health problems along both the internalizing (e.g., depression, anxiety) and the externalizing (e.g., conduct disorder, hyperactivity, aggression) dimensions.[16] However, less research has examined the longitudinal impact of parenting practices prior to adolescence on adolescent mental health. Among studies that have investigated longitudinal effects, results have been mixed. For example, some studies have reported that positive parenting in early childhood is protective against internalizing[21] and externalizing problems in adolescence,[22] whereas other studies have found no evidence for an association between positive parenting and adolescent internalizing[23,24] and externalizing problems,[23,25] or that the association was attenuated once other explanatory factors were taken into account.[26] With respect to harsh discipline, results have been more consistent, with several studies showing an association between harsh discipline in childhood and externalizing symptoms in adolescence.[22,25,27-29] The effect of harsh discipline in childhood on adolescent internalizing symptoms is less well-studied, with two studies reporting that harsh discipline in early childhood is associated with elevated internalizing symptoms in adolescence[27,28] and a handful of others finding no direct association.[21,24,30]

Prior studies differ in the assessments used to measure parenting—for example, several longitudinal studies have employed composite measures of parenting encompassing indicators of both positive and harsh parenting.[12,31] Methods also vary with respect to the ages at which parenting and offspring's mental health are measured, and the covariates adjusted for, if any—rendering it all the more difficult to draw definitive conclusions. Further, few studies have examined the influences of both positive parenting and harsh disciplinary practices[22,26] nor explored sex differences in these associations.[27] Evidence suggests that boys and girls may be parented differently,[16] and sex differences in both internalizing and externalizing symptoms increase from childhood to

adolescence.[27] It is possible that girls and boys may respond differently to parenting practices, a hypothesis that remains underexplored.

The purpose of the present study was to assess the associations of positive parenting and harsh discipline at several points throughout childhood with adolescent internalizing and externalizing problems including suicidal ideation and to assess the sex differences in these associations. We focus on psychiatric symptoms at age 12 to 13—an age roughly coinciding with the onset of puberty[32] and the cultural transition to adolescence.[33] We hypothesized that positive parenting would be associated with favorable outcomes, (i.e., negatively associated with symptoms of internalizing and externalizing problems), whereas harsh discipline would be positively associated with these outcomes. Analyses regarding sex were exploratory in nature, as literature on sex differences in associations between parenting and mental health is lacking.

Methods

Data Source

Data for the present study were drawn from Cycles 1 to 7 of the of the National Longitudinal Survey of Children and Youth (NLSCY).[34] The NLSCY is a population-based Canadian longitudinal study of child and adolescent health and development maintained by Statistics Canada. Youth were followed prospectively, with data collected from multiple informants every 2 years from May 1994 to September 2008. During the initial interview, participants were asked to identify the "person most knowledgeable" about the child ($\sim$90% were biological mothers), hereafter referred to as the *primary caregiver*, who reported on demographics, parenting behaviors, and child behavior. Youth reported their own symptoms of mental and behavioral disorder.

The present sample was based on children who reported on symptoms of internalizing and externalizing problems at age 12 to 13 and whose primary caregivers had reported on parenting and child behaviors when the children were aged 6 to 7 ($n = 6{,}446$), 8 to 9 ($n = 8{,}182$), or 10 to 11 ($n = 9{,}882$). Data analysis was conducted in 2018 to 2019.

Ethics

The Health Science Network University of Ottawa Research Ethics Board has confirmed that projects using Statistics Canada data through their Research Data Centre program meets criteria in Article 2.2 of the Tri-Council Policy Statement (TCPS 2): Ethical Conduct for Research Involving Humans, and consequently individual projects do not require specific REB approval.

Measures

Internalizing and externalizing symptoms at ages 12 to 13. Adolescent psychiatric and behavioral symptoms were self-reported by early adolescents at age 12 to 13 using the behavior scales. Items on these scales were drawn from the Montreal Longitudinal Survey[35] and the Ontario Child Health Study[36] and designed to identify children who would be most likely to meet Diagnostic and Statistical Manual of Mental Disorders, Third Edition-Revised (DSM-III-R) criteria for a psychiatric diagnosis.[37] For the present study, the following subscales were considered: symptoms of *depression/anxiety* (7 items, e.g., "I am not as happy as other people my age"; "I am nervous, high strung, or tense"; $\alpha = 0.74$), *hyperactivity/inattention* (7 items, e.g., "I am easily distracted"; "I am impulsive, I act without thinking"; $\alpha = 0.82$), *physical aggression/conduct disorder* (6 items, e.g., "I get into many fights"; $\alpha = 0.77$), and *social aggression* (5 items, e.g., "when I am mad at someone, I try to get others to dislike him/her"; $\alpha = 0.77$). Adolescents responded to each item on a 3-point scale from *never or not true* (0) to *often or very true* (2). Subscale scores prorated for item-level missingness were provided by Statistics Canada.

Additionally, adolescents were asked whether they had seriously considered suicide in the past 12 months. A "yes" answer to this question was used as an indicator of *suicidal ideation.*

Parenting. At ages 6 to 7, 8 to 9, and 10 to 11, the primary caregiver reported on parenting practices using two scales developed for the NLSCY. *Harsh parenting* was measured using 4 items assessing the frequency with which caregivers (1) raise their voice, scold, or yell; (2) use physical punishment; (3) calmly discuss the problem (reverse coded); and (4) describe alternate ways of behaving (reverse coded) in response to a child misbehavior. Items were rated on a 5-point scale from *never* (0) to *always* (4), and items were summed to create a total score from 0 to 16 ($\alpha = 0.55$). *Positive parenting* was assessed using 5 items assessing the frequency that caregivers (1) praise the child, (2) focus positive attention on the child, (3) laugh with the child, (4) do something special that the child enjoys, and (5) engage in hobbies sports or games with the child. Items were summed to create a total score from 0 to 20 ($\alpha = 0.78$).

Covariates

Child age and sex were reported by the primary caregiver at study entry. Family socioeconomic status was assessed using the ratio of household income to the corresponding low-income cutoff (LICO). LICO is conceptualized as the income below which a family would struggle to support itself and is based on family size and geographical area of residence.[38]

The primary caregiver's age, sex, and relationship to the child (biological parent vs. other) were reported at study entry. Caregivers' education (less than secondary; secondary; beyond high school; college or university degree), current employment status (currently working; not currently working but had at least one job; unemployed), current

depressive symptoms, current smoking status (daily smoker; occasional smoker; nonsmoker), excessive alcohol consumption in the past 12 months (number of occasions of binge drinking), and chronic physical conditions were assessed at each time point.

Children's internalizing and externalizing symptoms were assessed at ages 6 to 7, 8 to 9, and 10 to 11 using a caregiver-report version of the behavior scales. Symptoms were identical to those reported by adolescents at age 12 to 13, with slight changes in wording (e.g., "how often would you say that your child gets into many fights"). Caregivers responded to each item on a 3-point scale from 0 (*never*) to 2 (*often*).

Analysis

Multiple linear regression models were used to examine the association between parenting behaviors and psychiatric symptoms, with a separate model fitted for each combination of age at exposure and outcome variable. Both positive and harsh parenting were included in the same model. Logistic regression was used to examine associations with suicidal ideation. Models were adjusted for all covariates, measured at the age of exposure (i.e., at age 8/9 for models examining parenting at 8/9). Participants with missing data were excluded from the analyses. Scatter plots of residuals versus predicted values and Q-Q plots were used to check for homoscedasticity and test the normality assumption of linear regression. In each model, interactions between child sex and each parenting scale were tested. If interaction terms were statistically significant, the final models were presented stratified by sex. If no evidence for interaction was found, final models were presented with sex included as a covariate. Statistics Canada provides survey weights for the NLSCY; normalized weights calculated for each age group were used in all analyses. Significance level was set at $P < 0.05$ for all analyses.

Results

The vast majority of primary caregivers were female (92%), 76% were employed, and 43% held a college or university degree (Table 1). Positive parenting and harsh discipline were moderately negatively correlated (r ranging from -0.29 to -0.24). Reporting some degree of both harsh and positive parenting was common in the sample (M from 6.99 to 8.72 on a 16-point scale for harsh parenting and M from 11.74 to 13.05 on a 20-point scale for positive parenting).

Missing Data Analysis

Missing data analysis comparing those with complete data with those missing data on any covariates are presented in Supplemental Table S1. Results differed by age of exposure, but generally, those excluded due to missing data on any covariate reported more symptoms of physical aggression, and had parents who reported higher levels of both positive and harsh parenting. No other differences were detected.

Predicting Adolescent Mental Health

Positive parenting at age 6/7 was associated with fewer symptoms of depression/anxiety and physical aggression at age 12 to 13. By contrast, harsh discipline at this age predicted greater symptoms of physical aggression/ conduct disorder (Table 2). An interaction between parenting and child sex was found for the prediction of suicidal ideation ($B = -0.06$, $P < 0.05$); stratified models revealed that among boys, but not girls, harsh discipline at age 6/7 was associated with higher odds of suicidal ideation at age 12 to 13 (Table 2).

At age 8/9, positive parenting was associated with lower scores on physical aggression and social aggression. Harsh discipline at age 8/9 was associated with higher symptoms of physical aggression and social aggression and greater likelihood of suicidal ideation at age 12 to 13 (Table 2). A significant interaction with sex was found in the model for depression/anxiety ($B = -0.07$, $P < 0.05$); stratified models revealed that positive parenting was associated with elevated symptoms of depression/anxiety among boys only (Table 2).

At age 10/11, harsh discipline was associated with increased hyperactivity symptoms in the full sample (Table 2). All other models showed significant interactions between sex and parenting. Among girls, positive parenting was associated with fewer symptoms of physical aggression/conduct disorder and social aggression and decreased odds of suicidal ideation (Table 2). Among boys, positive parenting was associated with higher symptoms of depression/anxiety, physical aggression, and social aggression and elevated odds of suicidal ideation. Among boys, harsh discipline was associated with higher symptoms of depression/anxiety, physical aggression/conduct disorder, and social aggression, as well as increased odds of suicidal ideation; these associations were attenuated among girls (Table 2).

Discussion

In this large, prospective study of Canadian children, parenting behaviors were independently predictive of a broad range of adolescent mental health and behavior problems. On the whole, parenting behaviors were associated with early adolescent internalizing and externalizing problems in the expected directions—positive parenting was largely protective against both internalizing and externalizing problems, whereas harsh discipline was associated with higher levels of symptoms. Self-reported parenting behaviors as early as 6 to 7 years of age were associated with early-adolescent-reported internalizing and externalizing symptoms 6 years later at age 12 to 13.

Additionally, a consistent pattern of sex differences emerged, particularly with respect to parenting in late

Table 1. Descriptive Characteristics for Children Age 6 to 7, 8 to 9, and 10 to 11.

Characteristic	Age 6 to 7			Age 8 to 9			Age 10 to 11		
	Full sample	Girls (n = 3,246)	Boys (n = 3,200)	Full Sample	Girls (n = 4,095)	Boys (n = 4,087)	Full Sample	Girls (n = 4,911)	Boys (n = 4,971)
Parenting style—*M* (*SD*)									
Positive interactions	13.05 (2.61)	12.99 (2.59)	13.11 (2.62)	12.2 (2.58)	12.07 (2.6)	12.33 (2.55)*	11.74 (2.66)	11.70 (2.64)	11.78 (2.69)
Punitive parenting	8.72 (1.92)	8.68 (1.95)	8.77 (1.90)*	7.80 (2.58)	7.71 (2.58)	7.88 (2.58)*	6.99 (2.87)	6.94 (2.82)	7.04 (2.92)*
Outcome at age 12 to 13									
Suicidal thought—*n* (%)	362 (3.4%)	229 (4.5%)	134 (2.5%)*	472 (3.8%)	298 (5.0%)	174 (2.8%)*	491 (3.6%)	311 (4.6%)	180 (2.6%)*
Depression/anxiety—*M* (*SD*)	3.31 (2.68)	3.73 (2.77)	2.89 (2.52)*	3.39 (2.79)	3.78 (2.86)	3.01 (2.67)*	3.43 (2.82)	3.83 (2.89)	3.04 (2.68)*
Hyperactivity—*M* (*SD*)	3.87 (2.79)	3.54 (2.68)	4.19 (2.87)*	3.95 (2.87)	3.63 (2.78)	4.26 (2.93)*	3.96 (2.89)	3.68 (2.80)	4.25 (2.95)*
Conduct disorder—*M* (*SD*)	1.07 (1.72)	0.78 (1.48)	1.35 (1.88)*	1.11 (1.76)	0.81 (1.55)	1.41 (1.90)*	1.13 (1.78)	0.81 (1.53)	1.44 (1.94)*
Social aggression—*M* (*SD*)	1.42 (1.70)	1.49 (1.74)	1.36 (1.65)*	1.47 (1.73)	1.52 (1.77)	1.42 (1.68)*	1.52 (1.75)	1.55 (1.77)	1.48 (1.73)*
Caregiver characteristics at baseline									
Sex, female—*n* (%)	5,967 (92.6%)	3,014 (92.9%)	2,952 (92.3%)	7,496 (91.6%)	3,763 (91.9%)	3,733 (91.3%)	9,062 (91.7%)	4,516 (91.9%)	4,547 (91.5%)
Biological parent—*n* (%)	6,321 (98.1%)	3,177 (97.9%)	3,144 (98.3%)	8,003 (97.8%)	4,000 (97.7%)	4,003 (98.0%)	9,627 (97.4%)	4,771 (97.1%)	4,857 (97.7%)
Postsec. degree—*n* (%)	2,797 (43.5%)	1,365 (42.2%)	1,432 (44.8%)*	3,456 (42.4%)	1,654 (40.5%)	1,802 (44.3%)*	4,186 (42.6%)	1,994 (40.9%)	2,193 (44.3%)*
Smoking status—*n* (%)									
Daily	1,587 (24.9%)	766 (23.9%)	821 (25.9%)	1,924 (23.7%)	896 (22.0%)	1,028 (25.4%)*	2,221 (22.7%)	1,064 (21.9%)	1,157 (23.5%)
Occasionally	287 (4.5%)	145 (4.5%)	142 (4.5%)	366 (4.5%)	188 (4.6%)	178 (4.4%)	399 (4.1%)	200 (4.1%)	199 (4.0%)
Currently unemployed—*n* (%)	1,507 (23.6%)	794 (24.7%)	713 (22.5%)	1,664 (20.3%)	849 (20.9%)	815 (20.1%)	1,785 (18.1%)	874 (18.0%)	911 (18.5%)
SES (LICO ratio)—*M* (*SD*)	2.06 (1.43)	2.06 (1.38)	2.07 (1.48)	2.12 (1.49)	2.08 (1.39)	2.16 (1.59)	2.19 (1.52)	2.14 (1.41)	2.24 (1.62)*
Binge drinking[a]—*M* (*SD*)	2.07 (9.32)	1.90 (7.00)	2.25 (11.19)	2.27 (11.28)	2.42 (13.19)	2.12 (8.95)	2.11 (9.09)	2.11 (8.69)	2.11 (9.47)
Depression score—*M* (*SD*)	4.33 (5.10)	4.33 (5.11)	4.34 (5.09)	4.37 (5.40)	4.42 (5.40)	4.32 (5.40)	4.26 (5.29)	4.37 (5.45)	4.15 (5.13)
Age—*M* (*SD*)	35.68 (5.17)	35.69 (5.28)	35.68 (5.05)	37.53 (5.24)	37.61 (5.35)	37.46 (5.13)	39.44 (5.42)	39.51 (5.62)	39.37 (5.20)*

Note. Abbreviations: SES = socioeconomic status; LICO = low-income cutoff.
[a] Frequency of binge drinking in the past 12 months.
*Sex difference significant at $P < 0.05$.

Table 2. Results of Regression Models Predicting Mental Health Outcomes at Age 12 to 13 from Childhood Parenting Practices.

		Total		Girls		Boys	
Outcome		*B*	*P* value	*B*	*P* value	*B*	*P* value
Depression/anxiety							
Age 6 to 7	Positive parenting	**−0.03**	**0.04**	—	—	—	—
	Harsh discipline	−0.01	0.70	—	—	—	—
Age 8 to 9	Positive parenting	—	—	−0.02	0.31	**0.05**	**0.02**
	Harsh discipline	—	—	0.05	0.12	**0.08**	**0.02**
Age 10 to 11	Positive parenting	—	—	−0.03	0.20	**0.07**	**0.002**
	Harsh discipline	—	—	0.01	0.77	**0.08**	**0 .02**
Hyperactivity							
Age 6 to 7	Positive parenting	0.01	0.44	—	—	—	—
	Harsh discipline	−0.01	0.51	—	—	—	—
Age 8 to 9	Positive parenting	—	—	0.04	0.10	−0.04	0.11
	Harsh discipline	—	—	**0.07**	**0.02**	−0.00	0.95
Age 10 to 11	Positive parenting	−0.00	0.91	—	—	—	—
	Harsh discipline	**0.05**	**0.03**	—	—	—	—
Aggression							
Age 6 to 7	Positive parenting	**−0.02**	**0.04**	—	—	—	—
	Harsh discipline	**0.04**	**0.01**	—	—	—	—
Age 8 to 9	Positive parenting	**−0.03**	**0.01**	—	—	—	—
	Harsh discipline	**0.04**	**0.004**	—	—	—	—
Age 10 to 11	Positive parenting	—	—	**−0.05**	**<0.001**	**0.04**	**0.01**
	Harsh discipline	—	—	−0.01	0.68	**0.06**	**0.01**
Social Aggression							
Age 6 to 7	Positive parenting	−0.00	0.99	—	—	—	—
	Harsh discipline	0.01	0.37	—	—	—	—
Age 8 to 9	Positive parenting	**−0.03**	**0.02**	—	—	—	—
	Harsh discipline	**0.04**	**0.01**	—	—	—	—
Age 10 to 11	Positive parenting	—	—	**−0.04**	**0.02**	**0.05**	**0.002**
	Harsh discipline	—	—	0.01	0.61	**0.10**	**<0.001**

		Total		Girls		Boys	
		OR	95% CI	*OR*	95% CI	*OR*	95% CI
Suicidal Ideation							
Age 6 to 7	Positive parenting	—	—	0.94	[0.88 to 1.01]	1.08	[0.99 to 1.18]
	Harsh discipline	—	—	1.04	[0.95 to 1.14]	**1.13**	**[1.00 to 1.27]**
Age 8 to 9	Positive parenting	1.04	0.99 to 1.09	—	—	—	—
	Harsh discipline	**1.05**	**1.01 to 1.10**	—	—	—	—
Age 10 to 11	Positive parenting	—	—	**0.85**	**[0.80 to 0.91]**	**1.10**	**[1.02 to 1.19]**
	Harsh discipline	—	—	0.97	[0.92 to 1.03]	**1.08**	**[1.01 to 1.17]**

Note. All models adjusted for caregiver age, sex, biological parent status, education, smoking status, binge drinking, and depression score. Individual models additionally adjusted for corresponding mental/behavioral symptoms at age of exposure (e.g., depression/anxiety models adjusted for depression/anxiety at age of exposure). Boldface indicates statistical significance ($P < 0.05$).

childhood (age 10 to 11). Among boys, harsh discipline predicted higher symptom levels for all outcomes assessed, whereas this association was not found among girls. A notable sex difference in the influence of positive parenting in late childhood also emerged: Among girls, positive parenting was associated with lower physical aggression, social aggression, and suicidal ideation. Among boys, this association was not observed—in fact, positive parenting at age 10/11 was associated with increased symptoms of depression/anxiety, physical aggression, social aggression, and higher odds of suicidal ideation. At earlier ages, fewer sex differences were observed.

The consistency of findings across a range of outcomes suggests that (1) parenting behavior has a lasting influence on child mental health and (2) girls and boys may be differentially susceptible to the influences of different parenting styles, especially later in childhood.

Harsh discipline has been consistently associated with adolescent externalizing symptoms,[22,25] and a few studies have reported that this association is stronger among boys.[27,39] The present results extend these findings, showing an association between harsh discipline in childhood and symptoms of both externalizing and internalizing problems, including suicidal ideation, in adolescence. The sex

differences in the present study support the idea that harsh discipline in late childhood may be particularly detrimental to boys.

There is mounting evidence suggesting that positive parenting in childhood is protective against adolescent psychiatric and behavioral problems.[21,22] Our results suggest a more nuanced picture, suggesting that this type of parenting may be particularly beneficial for girls, especially in late childhood. Though protective for all children at earlier ages, among boys aged 10 to 11, higher levels of positive parenting were actually predictive of worse mental health 2 years later, across a wide range of outcomes. What drives this change in the direction of association remains unclear—One possibility is that, as boys approach adolescence and peer interaction becomes increasingly important,[40] spending large amounts of time with one's primary caregiver (most often the mother in the current study) may become less normative. It is important to note, however, that in this study, positive parenting remained protective against physical and social aggression for girls at this age. Future research examining different facets of positive parental interaction in conjunction with peer interactions may help clarify the mechanisms of these associations.

Whereas some authors have suggested that boys may be more susceptible to the effects of parenting overall,[41] the present results indicate that different parenting styles may be more or less influential depending on child sex, with boys being more vulnerable to the detrimental effects of harsh discipline and girls being more responsive to the benefits of warm, supportive interaction. These sex-specific effects may be exacerbated by the fact that girls and boys are likely to be parented differently, with boys receiving more harsh discipline[16] and girls more positive parenting.[42] For example, in a study of African American preschoolers, Barnett and Scaramella[42] reported that girls received more positive parenting than boys and that associations between positive parenting and externalizing behavior were stronger among girls. In our sample, mean scores for harsh discipline were significantly higher among boys in all age groups (Table 1).

Notably, our findings with respect to sex differences differed across age groups. In a previous study using NLSCY data, Browne and colleagues assessed parenting by sex interactions in the prediction of late childhood psychopathology, reporting that associations between parenting at age 4 to 5 and psychopathology at age 10 to 11 largely did not vary as a function of child sex.[28] Our findings build on these to suggest that sex-specific influences of parenting may emerge only later in childhood, as offspring approach adolescence.

Limitations and Future Directions

Overall, our findings suggest that harsh and positive parenting styles in childhood are independently associated with adolescent mental health and behavior problems and that these associations vary consistently by child sex. However, these results must be interpreted in the context of some limitations to the study design.

First, our study relied on self-reported parenting tendencies, which may not fully reflect parents' actual behavior. Studies using observational protocol may be better able to assess parents' true behaviors, as parents may be reluctant to report harsh disciplinary techniques or likely to overreport positive parenting. However, such social desirability would tend to bias results in favor of the null; as such, our estimates are likely to be conservative. Early adolescents' reports of their perceptions of parenting behavior may also be more relevant that parents' self-reported behaviors.

Our study examined the moderating effect of child sex on the associations between parenting and mental health. There are many other individual characteristics that may affect these associations, which were not taken assessed in the present study. For example, one meta-analysis reported that infants with difficult temperaments were both more vulnerable to the deleterious effects of negative parenting and more responsive to the benefits of positive parenting.[43] Similarly, Prinzie and colleagues reported that the effects of harsh discipline on trajectories of internalizing symptoms differed based on child temperament—harsh parenting was found to be particularly detrimental to children who exhibited higher degrees of shyness or irritability.[30]

As data from the NLSCY were collected between 1994 and 2008, it is not certain whether findings derived from this sample are generalizable to later generations of Canadian children. For example, there is some evidence to suggest that parenting practices may have changed over the past 30 years,[44] with harsh parenting becoming less normative. However, we have no reason to believe that the associations between parenting practices and mental illness would have changed over time.

We have framed our results in terms of the impacts of parenting style on offspring mental health. Of course, pathways between parent and child behavior are likely to be bidirectional, with children's behavior influencing parenting strategies over time.[45] The present study attempted to mitigate this potential limitation by adjusting for parent reports of offspring mental health at baseline. However, this may not be a perfect adjustment, as parent and child reports of psychiatric symptoms may differ. Future research utilizing data from multiple informants, as well as other analytical strategies including cross-lagged panel models, may directly examine the mutual influence of parent and child behavior on mental health over time.

Finally, our study considered parenting behaviors of only one parent (most often the mother). Fathers' parenting behaviors also have important influence on child behavior, which may also vary depending on child sex.[16] This may be particularly relevant to examine given our somewhat counterintuitive findings regarding sex differences in the effects of positive parenting, as paternal positive parenting may be uniquely associated with boys' wellbeing.[46,47]

This study's strengths include a large sample size, prospective assessment of parenting behaviors and mental health outcomes, and inclusion of a large number of covariates linked to both parenting and offspring mental health (e.g., caregiver depression and alcohol misuse, family economic disadvantage).

Conclusion

Overall, results of the study provide evidence that parenting practices in middle and late childhood are strongly associated with later mental health and behavior problems. For example, an odds ratio of 1.08 indicated a dramatic increase in risk of suicidal ideation for a one-point increase in harsh parenting on a 16-point scale. Parenting practices represent a modifiable risk factor for mental illness and, as such, may present a viable target for public health intervention. Though parenting ideologies and goals differ across parents, focusing on the reduction of harsh disciplinary practices such as physical punishment and promotion of positive interactions with young children may improve adolescent mental health.

Authors' Note

This paper is based on data from Statistics Canada, and the opinions expressed do not represent the views of Statistics Canada. The National Longitudinal Survey of Children and Youth is administrated by Statistics Canada; this study constituted a secondary analysis of data. As per Statistics Canada privacy and confidentiality guidelines, parties seeking access to this data must apply for access through Canadian Research Data Centers. Study funders had no role in the design, collection, analysis, or interpretation of data, writing the manuscript, or decision to submit the manuscript for publication.

Declaration of Conflicting Interests

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Supplemental Material

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