

A Latent Profile Analysis of High-Risk Children's Problematic Sexual Behavior

Claudia Campbell

University of Missouri–St. Louis

Rachel Wamser

WamserR@umslsystem.edu

University of Missouri–St. Louis

Research Article

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Abstract

As research and intervention regarding children's problematic sexual behavior (PSB) have broadly defined PSB, including all forms of developmentally atypical sexual behavior and all potential etiological factors, no work to date has identified subtypes or unique patterns of PSB using person-centered analysis. The aim of the current study was to examine the presence of unique profiles of children's PSB, interpersonal PSB (IPSB), and etiological factors among high-risk children who exhibited PSB in the prior year. The present study included 689 8-year-old high-risk children (50.1% male, 50.2% Black) who recently exhibited sexual behavior and their caregivers from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN) study. Latent profile analysis (LPA) was utilized to examine profiles based on children's self-focused PSB, interpersonal PSB (IPSB), maltreatment factors, co-occurring symptoms, adaptive functioning, and family functioning. Six profiles were identified: *Developmentally typical* (48.5%), *Non-trauma-related developmental difficulties and PSB* (22.2%), *Family dysfunction and PSB* (9.6%), *Non-child sexual abuse (CSA) polyvictimization and IPSB* (8.27%), *PSB/IPSB and co-occurring symptoms* (7.6%), and *CSA polyvictimization and PSB* (3.9%). Profile membership was associated with all included indicators, including children's exposure to maltreatment, type and level of symptoms, developmental delays, family functioning, as well as form and degree of PSB. The findings highlight the heterogeneity of children with PSB and may further contribute to identification of children with varying presentations of PSB and informed treatment selection.

Introduction

Problematic sexual behavior (PSB) is defined as behaviors in those age 12 and younger involving sexual body parts that are developmentally inappropriate or atypical (Chaffin et al., 2008). Children's sexual behavior is not inherently problematic or age-inappropriate; rather, children may engage in typical sexual development and exploration. It is therefore essential that children's sexual behaviors are conceptualized on a continuum from developmentally expected behaviors to those that are atypical or harmful (Friedrich et al., 1998; Wamser-Nanney & Campbell, 2019). It is difficult to identify the true prevalence of PSB as it is typically measured dichotomously, but recent research suggests that approximately 22% of at-risk children have engaged in PSB (Allen, 2017; Allen et al., 2025b). Moreover, research has often defined PSB broadly, with all forms of developmentally atypical sexual behavior and all etiological factors encapsulated in a single construct. However, there are clear distinctions within PSB that should be explored, as children with PSB can vary significantly in both behaviors (e.g., self-focused, interpersonal, more aggressive and coercive, or impulsive PSB) and in etiology (e.g., child sexual abuse [CSA], other maltreatment exposure, no known maltreatment history). Importantly, PSB is related to many co-occurring symptoms, posttraumatic stress symptoms (PTSS), and social and developmental difficulties, as well as secondary stressors, such as removal from home and legal involvement (Elkovitch et al., 2009; Kelley et al., 2019).

Limited work to date has identified subtypes of PSB. Most commonly, research has examined all forms of PSB compositely or only studied self-focused (i.e., behaviors that are self-directed, such as excessive masturbation) or interpersonal PSB (IPSB; i.e., behaviors that are directed towards others or involve others, such as attempting to touch others' private parts) (Allen, 2017; Wamser-Nanney & Campbell, 2020, 2022). Only two known studies have investigated other PSB forms or patterns of PSB associated with specific etiology, and results were inconsistent (Hall et al., 2002; Pithers et al., 1998b). Moreover, other etiological factors, including PSB without a known maltreatment history, developmental delays, and caregiver and familial factors have been overlooked in relation to PSB subtypes. This is a notable gap, as PSB is a broad term and different subtypes of PSB may require unique prevention and intervention approaches. The present study therefore investigated PSB subtypes based on several behavioral (i.e., self-focused and IPSB) and etiological factors (i.e., child, caregiver, family, developmental, and maltreatment factors).

PSB Subtypes

As mentioned, a few studies have focused on variations within PSB, such as IPSB, or PSB that involve other children or adults (Pithers et al., 1998b), or self-focused PSB, or PSB that only involves the child. Preliminary research suggests that IPSB is a specific form of PSB with potentially distinct risk factors and co-occurring symptoms (Allen, 2017; Simmons et al., 2026; Wamser-Nanney & Campbell, 2020, 2022). Children who exhibit IPSB also demonstrate more frequent self-focused PSB, greater frequency of sexual preoccupation and gestures, "adult-type" sex, planning, and behavior that persists despite caregiver attempts to intervene (Hall et al., 2002). Children with IPSB may have different maltreatment experiences, such as being more likely to have experienced child physical abuse (CPA) that involved force, coercion, or excessive violence (Allen, 2017; Bonner et al., 1999; Simmons et al., 2026) or coercion and violence in the context of CSA (Hall et al., 2002). The relationship between CSA and self-focused PSB appears stronger than between CSA and IPSB (Allen, 2017; Merrick et al., 2008; Simmons et al., 2026). It is particularly critical to separately examine, identify and prevent IPSB given its potential negative impact and associated legal consequences (Allen, 2017; Kelley et al., 2019).

Besides IPSB, very few studies have attempted to examine other potential subtypes of PSB, and none known to the authors in the past two decades. Pithers and colleagues (1998b) identified and labeled five subtypes of PSB: sexually aggressive, nonsymptomatic, highly traumatized, rule breaker, and abuse reactive. These subgroups differed in the age of PSB onset, PSB characteristics (i.e., degree of aggression, interpersonal nature), types of co-occurring diagnoses and symptoms, and maltreatment exposure (Pithers et al., 1998b). Similarly, Hall and colleagues (2002) determined whether children's clinically documented sexual behaviors were developmentally expected; unplanned and interpersonal; self-focused; planned and interpersonal; or planned, coercive, and interpersonal. Exploratory analyses then examined several factors in relation to the identified form of sexual behavior. Subgroups of children varied by frequency of PSB and IPSB, characteristics of CSA, family characteristics (i.e., parental sexual attitudes, parent-child role reversal, and family violence), degree of maltreatment, and treatment outcomes (Hall et al., 2002). These two studies suggest that there may be subtypes of PSB associated with characteristics of the sexual behavior, maltreatment history, and co-occurring symptoms. However, these studies had small sample sizes and did not utilize a person-centered approach to determine empirical subtypes. Additionally, only sexually abused, treatment-seeking children were represented. There are therefore significant gaps in investigating forms of PSB, and given the nuances within the broad category of PSB, it is critical that PSB be comprehensively defined.

Etiological Factors Related to PSB

Approximately 67-89% of children with PSB have a history of maltreatment (Bonner et al., 1999; Campbell & Wamser, 2024). CSA is the most common form of maltreatment investigated and linked with PSB (Allen et al., 2025b). Other types of maltreatment and violence exposure have been less consistently examined in relation to PSB. CPA has been linked with PSB in multiple studies (Allen, 2023a; Allen et al., 2025b). In addition, a subset of children with PSB have experienced emotional abuse (EA), neglect, and exposure to domestic violence (DV) (Allen, 2017; Elkovitch et al., 2009; Smith et al., 2019). Work on non-CSA maltreatment and exposure to violence is still emerging, and it is not clear precisely how other forms of maltreatment increase the risk for PSB. Furthermore, 10-30% of children with PSB do not have a known history of maltreatment (Elkovitch et al., 2009). It is therefore crucial to contextualize PSB within etiological factors other than maltreatment.

Co-occurring difficulties, including internalizing and externalizing symptoms, PTSS, attentional deficits, hyperactivity, and impulsivity are highly prevalent for children with PSB (Allen et al., 2015; Allen, 2017; Chaffin et al., 2008; Wamser-Nanney & Campbell, 2019). Externalizing problems appear to co-occur more frequently than internalizing challenges (Allen et al., 2025b). Both PSB and other externalizing behaviors typically involve deficits in inhibition or problems with impulse control, difficulties understanding and/or following social expectations for behavior, and varying types of aggression (Lévesque et al., 2010; Silovsky et al., 2007). It therefore may be that some children exhibit a broader pattern of behavioral difficulties that includes PSB. Internalizing difficulties and PTSS have inconsistently exhibited association with PSB (Allen et al., 2025b; Allen & Ferrer-Pistone, 2025), but it is likely essential to understand PSB in the context of PTSS for those whose PSB may be trauma-related. Moreover, children with PSB are at risk for widespread psychological problems, and PSB should not be examined in isolation.

PSB also can co-occur with developmental delays and social difficulties (Elkovitch et al., 2009). As developmentally typical sexual behavior requires an understanding and ability to carry out expected behaviors, some children with developmental and/or social delays are at greater risk for exhibiting PSB related to difficulties with appropriate sexual behavior and boundaries (Davis et al., 2015; Elkovitch et al., 2009). However, limited work has explored the links between PSB and social and developmental impairments, particularly for children without a known history of maltreatment, and research has yet to consider whether this pattern may lead to a unique presentation of PSB. This is a substantial gap as assessment and intervention for children with PSB related to developmental delays may be distinct from trauma-related PSB.

Prior research has also examined child demographic and familial correlates of PSB. A recent meta-analysis revealed higher rates of PSB among boys and preschool-aged children, compared to girls and school-aged children (Allen et al., 2025b). In the scant literature examining race and ethnicity in relation to PSB, racial/ethnic minority status has not been related to PSB (Wamser-Nanney & Campbell, 2019, 2020, 2022). Low socioeconomic status (SES) has been linked to PSB in some studies (Gray et al., 1997; Pithers et al., 1998a; Smith et al., 2019) but not all (Allen, 2023b; Lussier et al., 2019; Smith et al., 2019; Wamser-Nanney & Campbell, 2020) and related factors (e.g., caregiver stress, difficulties providing supervision) may be more relevant (Allen et al., 2023b). Caregiver factors and parental behavior play a crucial role in children's PSB. Caregiver psychological difficulties, as well as parental modeling of coercive, violent, or sexual behavior have been tied to PSB (Friedrich et al., 2003; Hall et al., 2002; Latzman & Latzman, 2015; Pithers et al., 1998a; Wamser-Nanney & Campbell, 2019). Broad family dysfunction has also been associated with increased likelihood of PSB (Elkovitch et al., 2009; Hall et al., 2002). Given the importance of caregiver involvement in trauma- and PSB-focused interventions (St. Amand et al., 2008), research examining malleable caregiver factors is needed to inform prevention and treatment of PSB.

Current Study

The PSB literature has grown substantially over the past two decades, but significant gaps remain, including that PSB refers to a highly variable range of both sexual behaviors and etiology and research delineating subtypes of PSB is sparse (Allen, 2017; Wamser-Nanney & Campbell, 2020, 2022). Moreover, these few studies did not systematically examine the multitude of possible PSB forms, nor did they investigate the various etiological drivers that have been previously revealed in relation to PSB types. As PSB includes a broad range of children, including distinct patterns of behaviors and etiological factors, it is imperative to investigate clinically meaningful profiles of PSB. The aim of the present study was therefore to delineate profiles of PSB among children identified as high-risk for maltreatment or who have been involved with child protective services (CPS) using latent profile analysis (LPA). Form of PSB (i.e., self-focused PSB (hereafter referred to as only “PSB”) and IPSB) and etiological factors (e.g., child, caregiver, family, developmental, and maltreatment factors) were included. The model examined PSB and IPSB, internalizing and externalizing symptoms, attention problems, PTSS, developmental delays, social problems, parenting behavior, family functioning, and maltreatment exposure. It was expected that distinct patterns of children who exhibit PSB and/or IPSB would emerge specific to maltreatment, developmental delays, and widespread behavioral difficulties. Demographic factors (i.e., child gender and race/ethnicity, poverty status, and relationship to caregiver) were also examined as covariates in relation to profile membership.

Method

Procedures

The present study utilized secondary data from the Longitudinal Studies in Child Abuse and Neglect (LONGSCAN) study (see Runyan et al., 1998). The complete LONGSCAN study includes 1354 children (47.6% female, 45.1% male, 7.3% missing gender) and their primary caregivers. From 1991 to 2012, families were recruited either when identified as high risk for CPS involvement or whose children were previously or currently in CPS custody. Data were collected at 5 sites across the United States, including low-income children from primary healthcare clinics (East), children in a High Priority Infant Program (South), children with reports to CPS (Midwest and Northwest), and children currently in CPS custody (Southwest). At age 4 and again every 2 years, children and their primary caregivers completed common measures across sites, and CPS records were reviewed for maltreatment data. The present study examined data collected at age 8 (collected from 1994 to 2003). As the study relied on archival data that is publicly available, Institutional Review Board (IRB) approval was not required for the present study.

Participants

Participants for the current study were children whose caregivers completed the Child Sexual Behavior Inventory (CSBI; Friedrich, 1997) and endorsed at least one potential PSB or IPSB ($n = 689$). In the LONGSCAN study, the CSBI was administered only at age 8. Approximately half of the sample were male (50.1%) and identified as Black (50.2%; 30.0% White, 12.8% Biracial/multiracial, 6.1% Hispanic/Latino, .3% Native American, .1% Asian, .4% other). The children's caregivers were largely female (95.3%) and 74% were biological parents (4.6% foster parent). Over half of the sample (63.9%) had current or prior involvement with CPS. The median household income was 4, which corresponds to \$15,000-\$19,999 per year, and 43% of the sample fell below the 1995 poverty line for a four-person family.

Measures

Demographics. Caregivers reported on demographic factors (child's age, gender, race/ethnicity, income, and relationship to caregiver). Due to small cell sizes, race/ethnicity was dichotomized (1 = White, 2 = Child of Color). Household income was coded in 11 increments of \$5,000 per year (less than \$5,000 to more than \$50,000). The 1995 poverty line of \$15,000 for a four-person family was used to group income to above or below the poverty line.

Child Sexual Behavior Inventory (CSBI; Friedrich et al., 1992). Caregivers completed the CSBI, an assessment of normative and inappropriate sexual behaviors in children at child age 8. The LONGSCAN investigators modified the CSBI to include 26 of the original 36 items. Responses are indicated on a 4-point Likert scale (0 = *never occurred in the past 6 months*, 3 = *occurred at least once a week in the past 6 months*). Two items, one regarding potential gender dysphoria and one “other sexual behavior” item, were excluded for the present study. Fifteen items regarding self-focused behaviors (e.g., drawing sex parts when drawing pictures of people, pretending that dolls or stuffed animals are having sex) were summed to indicate level of self-focused PSB. To measure IPSB, the nine items that involve others (e.g., touching or trying to touch other's private parts, trying to undress others) were summed (Allen, 2017; Wamser-Nanney & Campbell, 2020, 2022). Evidence of internal consistency and test-retest reliability have been reported, as well as internal and convergent validity (Friedrich et al., 1992, 2001). For the present study, Cronbach's $\alpha = .70$ for the total score, .59 for PSB, and .73 for IPSB.

Modified Maltreatment Classification System (MMCS; English and the LONGSCAN Investigators, 1997). The MMCS is a reliable classification system used to code maltreatment data from CPS records (Hunter et al., 2003). The number of allegations reported to CPS for each maltreatment type (i.e., CSA, CPA, EA, neglect) from birth to age 8 were summed for the study.

Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991). The CBCL, a caregiver report of children's behaviors, was used to assess children's emotional and behavioral difficulties at age 8. The CBCL includes three broadband scales: Internalizing, Externalizing, and Total Problems, and eight clinical subscales: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior. Satisfactory psychometric properties have been established, including reliability and content, construct, and criterion-related validity (Achenbach & Rescorla, 2001). The Externalizing score (Cronbach's $\alpha = .92$), Internalizing score ($\alpha = .86$), Attention problems ($\alpha = .76$), and Social Problems ($\alpha = .62$) were used in the study.

Trauma Symptom Checklist for Children (TSCC; Briere, 1996). Children completed the TSCC, a 54-item self-report measure of trauma-related symptoms for children ages 8–16 years old. The TSCC provides six clinical subscales: Anxiety, Depression, Anger, PTSS, Dissociation, and Sexual Concerns. Adequate internal consistency and adequate convergent, discriminant, and predictive validity in normative and clinical samples have been demonstrated (Briere, 1996). The present study utilized the PTSS subscale, Cronbach's $\alpha = .82$.

Vineland Screener (Sparrow et al., 1993). The Vineland Screener is a semi-structured caregiver interview that measured children's developmental and social functioning at age 8 that is adapted from the Vineland Adaptive Behavior Scales and contains 45 items in three domains: Communication, Daily Living Skills, and Socialization, and an overall score. Higher scores are consistent with greater developmental and social abilities. Prior work has demonstrated high interrater reliability and validity (Sparrow et al., 1993). The Daily Living Skills and Socialization scores were used here (Daily Living Skills $\alpha = .69$, and for Socialization $\alpha = .70$).

Discipline Methods (Straus et al., 1998). The Discipline Methods assesses the methods caregivers implement in response to their child's problem behaviors. Caregivers indicate whether various maladaptive discipline methods have been utilized with the child by the primary caregiver, by another caregiver, or by both the primary caregiver and someone else via 16 items. The present study used the total score which sums the degree of harsh disciplinary practices (i.e., psychological aggression, physical punishments with minor or severe physical force) (Latzman & Latzman, 2015). Cronbach's α for the total score in the present study is .69.

Self-Report Family Inventory (SFI; Beavers & Hampson, 1990). Children completed the SFI, a 36-item measure that examines their perceptions of their family's functioning. Items are rated on a 5-point Likert scale (1 = *fits our household very well*, 5 = *doesn't fit our household at all*). The present study included the Family Health/Competence and Conflict subscales (Family Health/Competence $\alpha = .88$, and for Conflict $\alpha = .72$).

Data Analytic Plan

Missing data was examined in SPSS 29, and multiple imputation (MI) was utilized to prevent loss of data using the Markov Chain Monte Carlo (MCMC) imputation procedure, as the data were reported to be missing at random (Runyan et al., 1998). Missing data was imputed for the CBCL (0.4%), TSCC (6.4%), Discipline Methods (1.2%), and SFI (1.9%). For the present study aims, the data was assessed using the tidyLPA package in R (R Core Team, 2023). LPA was utilized to examine the presence of profiles of children with potential PSB/IPSB based on the following 16 indicators: PSB, IPSB, maltreatment history (i.e., CSA, CPA, neglect, and EA), internalizing and externalizing symptoms, attention difficulties, social problems, PTSS, developmental delays (i.e., daily living skills and socialization), parenting behavior, and family functioning (i.e., family health and conflict).

First, applicability of specific variance and covariance structures that can be utilized in LPA were examined in tidyLPA to which model best represents the data and statistical fit, profile size and separation, and theoretical and clinical interpretability were considered to determine the best model (Bauer, 2022; R Core Team, 2023). The specified model examined the fit for 1–6 potential profiles, and fit statistics helped determine the optimal number of profiles (i.e., lower adjusted Bayesian Information Criterion (aBIC) and Akaike Information Criterion (AIC) values, higher entropy, and significant Bootstrap Likelihood Ratio (BLR) test and Adjusted Lo-Mendell-Rubin (LMR) test). The mclust package in R (Scrucca et al., 2016) indicated that the EEI model should be used. In addition to significant profile separation, the profiles were clinically relevant, and five of the six included over 5% of the sample. Thus, the EEI model was utilized (i.e., variances are estimated and constrained to be equal across profiles and covariances are constrained to zero (Wardenaar, 2024)).

One-way Analyses of Variance (ANOVAs) were computed to identify the significance of each indicator, and Tukey Honest Significant Differences (TukeyHSD) was used to identify the relationships between each profile for each indicator. Child gender (1 = male, 2 = female) and racial/ethnic minority status (1 = White, 2 = Child of Color), poverty status (1 = below \$15,000, 2 = above \$15,000), and relationship to caregiver (1 = biological parent, 2 = non-biological parent) were examined with Chi-square goodness-of-fit and post-hoc tests with

Bonferroni corrections in relation to the profile classifications to investigate their associations with profile membership. Descriptors were used to interpret the profiles. For indicators with T-scores or standard scores (i.e., CBCL, TSCC, Vineland), the standard descriptors were used. A few indicators do not have a descriptors (i.e., PSB, IPSB, maltreatment, parenting behavior, and family functioning), and the following were used: relatively low (M that is at or below overall sample M), slightly elevated ($M < 1 SD$ above sample M), moderately elevated (M that is approximately $1 SD$ above sample M), and markedly elevated ($M > 1 SD$ above sample M).

Results

Descriptives. Nearly all children engaged in at least one form of PSB in the past month (99.1%) and 18.9% exhibited at least one IPSB. The most common form of CPS maltreatment allegations was neglect (55%), followed by CPA 31.1%, EA 30.3%, and CSA 13.4%.

LPA. The six-profile model was identified as the optimal solution (see Table 1), based on having the lowest aBIC and AIC, and a high entropy value near 1, indicating significant heterogeneity within the six profiles. BLR and LMR tests indicated that the six-profile model was the best fit ($ps < .05$). The six profiles and indicators were examined and named based on theory and the 16 indicators: *Developmentally typical; Non-trauma-related developmental difficulties and PSB; Non-CSA polyvictimization and IPSB; CSA polyvictimization and PSB; PSB/IPSB and co-occurring symptoms; and Family dysfunction and PSB*. One-way ANOVAs revealed significant differences between the profiles among all 16 indicators (see Table 2 and Fig. 1).

Table 1
Fit indices for latent class models with 1 to 6 classes ($n = 689$)

Number of profiles	Log likelihood	AIC	BIC	aBIC	Entropy	BLRT p value	LMRT p value
1 profile	-31051.43	62166.85	62311.98	62210.38	--	--	--
2 profiles	-30259.29	60616.59	60838.82	60683.23	0.896	.010	< .001
3 profiles	-29973.53	60079.06	60378.38	60168.62	0.856	.010	< .001
4 profiles	-29698.06	59562.12	59938.55	59675.01	0.888	.010	< .001
5 profiles	-29488.68	59177.36	59630.88	59313.37	0.906	.010	< .001
6 profiles	-29369.89	58973.79	59504.41	59132.92	0.904	.010	< .001
Note. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; aBIC = Adjusted Bayesian Information Criterion; BLRT = Bootstrapped Likelihood Ratio Test; LMRT = Adjusted Lo Mendell Test							

Table 2
Comparisons among PSB profiles

	Sample (n = 689)	Development- ally typical (n = 334)	Non-trauma- related developmental difficulties and PSB (n = 153)	Family dysfunction and PSB (n = 66)	Non-CSA poly- victimization and IPSB (n = 57)	PSB/IPSB and co- occurring symptoms (n = 52)	CSA poly- victimization and PSB (n = 27)	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>F(5, 683)</i>
PSB	3.79 (3.36)	2.73 (2.05)	4.37 (3.46)	3.90 (2.76)	4.05 (3.20)	8.07 (5.68)	4.18 (3.73)	31.97***
IPSB	.44 (1.40)	.13 (.47)	.54 (1.19)	.27 (.81)	.74 (1.92)	1.97 (3.43)	.34 (.78)	21.96***
CSA	.21 (.63)	.06 (.25)	.12 (.32)	.02 (.001)	.19 (.38)	.30 (.54)	2.71 (1.07)	271.40***
CPA	.74 (1.50)	.28 (.70)	.49 (1.01)	.35 (.52)	3.33 (2.49)	1.00 (1.56)	2.77 (2.44)	84.38***
Neglect	2.27 (3.77)	1.02 (1.89)	1.77 (2.22)	1.59 (2.23)	9.33 (6.25)	3.39 (4.05)	4.71 (5.07)	85.05***
EA	.60 (1.18)	.32 (.74)	.33 (.64)	.56 (1.20)	2.38 (1.77)	.47 (.87)	1.96 (2.12)	57.38***
Internalizing symptoms	7.87 (6.77)	4.31 (3.66)	10.88 (5.38)	8.24 (5.07)	8.15 (5.64)	20.99 (8.46)	7.08 (5.43)	120.90***
Externalizing symptoms	14.08 (9.27)	8.50 (5.49)	19.45 (6.43)	14.43 (6.97)	15.72 (7.43)	30.89 (9.08)	14.95 (9.81)	139.30***
Attention problems	4.82 (4.04)	2.35 (1.81)	7.57 (2.88)	4.15 (2.70)	4.89 (2.87)	13.21 (3.50)	4.79 (3.55)	225.80***
Social problems	3.07 (2.48)	1.96 (1.44)	4.51 (1.96)	2.82 (1.83)	3.59 (1.98)	7.55 (2.55)	2.58 (2.31)	129.10***
PTSS	11.05 (6.90)	10.30 (6.34)	10.73 (7.22)	10.13 (6.76)	13.79 (6.91)	12.49 (7.02)	15.83 (6.71)	6.52***
Daily living skills	93.09 (18.30)	100.29 (14.59)	84.59 (17.22)	94.55 (17.64)	90.12 (18.42)	74.51 (19.94)	89.83 (14.30)	37.44***
Social skills	85.94 (17.00)	94.11 (15.46)	77.75 (12.95)	81.48 (15.16)	80.93 (15.52)	72.00 (14.65)	81.64 (16.00)	43.09***
Parenting behavior	3.23 (2.23)	2.52 (1.83)	4.06 (2.18)	4.12 (2.63)	2.92 (2.10)	4.79 (2.21)	2.57 (2.15)	24.37***
Family health difficulties	37.36 (11.73)	32.23 (7.28)	36.95 (7.97)	55.51 (12.76)	37.85 (12.30)	46.24 (12.85)	35.10 (9.51)	89.75***
Family conflict	21.17 (7.62)	17.47 (4.34)	21.40 (5.18)	33.68 (6.70)	20.96 (7.12)	27.66 (9.04)	19.17 (6.33)	122.00***
Note. PSB = sexual behavior problems; IPSB = interpersonal sexual behavior problems; CSA = child sexual abuse; CPA = child physical abuse; EA = emotional abuse; PTSS = posttraumatic stress symptoms								
*** $p < .001$								

The greatest number of children were assigned to the *Developmentally typical* profile (48.5%) which had the lowest levels of both PSB and IPSB, fewest allegations of all forms of maltreatment, lowest levels of internalizing, externalizing, attention, PTSS and social problems, as well as the highest adaptive daily living and socialization skills. This group also had the most adaptive parenting behaviors and better family functioning. These children represent those who exhibit few potential PSB and otherwise appear to be relatively typical in their development in terms of few co-occurring developmental concerns and symptoms.

The *Non-trauma-related developmental difficulties and PSB* profile (22.2%) was characterized by slightly elevated levels of PSB and average levels of IPSB, as well as slightly elevated externalizing symptoms, moderately elevated levels social difficulties and internalizing symptoms, markedly elevated attention difficulties, and below average daily living skills and socialization. These children experienced relatively low rates of maltreatment and PTSS, as well as average adaptive parenting behavior and family functioning.

The *Family dysfunction and PSB* profile (9.6%) included children who exhibited slightly elevated PSB and relatively low IPSB, but the highest degree of family dysfunction as well as slightly elevated maladaptive parenting behaviors. This subgroup had relatively low rates of maltreatment and were reported to have average internalizing, externalizing, attention, and social problems, relatively low PTSS, average daily living skills, and below average socialization. The *Non-CSA polyvictimization and IPSB* profile (8.3%) was characterized by the second greatest level of IPSB and slightly elevated PSB, and had the highest rates of allegations of CPA, neglect, and EA, but relatively low rates of CSA. These children had slightly elevated PTSS and internalizing, externalizing, and social problems, relatively low attention problems, and average daily living skills but below average socialization. This group had relatively low use of maladaptive parenting behavior and family dysfunction.

The *PSB/IPSB and co-occurring symptoms* profile included 7.6% of the sample demonstrated the highest levels of both PSB and IPSB, as well as the highest internalizing, externalizing, attention, and social problems, the lowest daily living skills and socialization, the most maladaptive parenting behavior, and slightly elevated PTSS and family dysfunction. These children experienced slightly elevated rates of CSA, CPA, neglect, but relatively low EA exposure. Finally, the *CSA polyvictimization and PSB* profile (3.9%) included children who exhibited slightly elevated PSB, yet relatively low IPSB. They also had greatest rates of CSA allegations, markedly elevated rates of CPA and EA, moderately elevated neglect exposure and the highest levels of PTSS. These children were characterized by relatively low internalizing symptoms and attention and social problems, slightly elevated externalizing symptoms, as well as below average daily living skills and socialization. However, this group had adaptive parenting behavior and family functioning.

Covariate analyses. Neither gender ($\chi^2 (5, N = 689) = 10.3, p = .06$) nor poverty status ($\chi^2 (10, N = 689) = 14.4, p = .15$) were linked with profile classification. Racial/ethnic minority status was related to profile classification, $\chi^2 (5, N = 689) = 17.8, p = .003$. The *Developmentally typical* profile had a greater proportion of children of color to White children than the *Non-CSA polyvictimization and IPSB* profile ($p = .01$), which had an equivalent number of children of color and White children. Relationship to caregiver was associated with profile classification, $\chi^2 (5, N = 689) = 41.0, p < .001$. The *Family dysfunction and PSB* profile had a greater proportion of biological parents to non-biological caregivers than the *Non-trauma-related developmental difficulties and PSB* ($p = .008$) and *PSB/IPSB and co-occurring symptoms* ($p = .01$) profiles, which had equal numbers of biological and non-biological caregivers. The *Developmentally typical* profile also had a greater number of biological parents to non-biological caregivers than the *Non-trauma-related developmental difficulties and PSB* ($p < .001$), *PSB/IPSB and co-occurring symptoms* ($p = .001$), and *Non-CSA polyvictimization and IPSB* ($p = .01$) profiles, which had equivalent biological and non-biological caregivers.

Discussion

Although sizable literature has documented a wide range of risk factors associated with PSB and IPSB, research has yet to comprehensively examine whether there may be unique subtypes of children with PSB and IPSB specific to these previously identified factors. Further, the term PSB as it is most often utilized is broad and encompasses all potential sexual behaviors and etiology, making it challenging to identify critical nuances within children's sexual behavior that will inform assessment and treatment of PSB and IPSB. Research thus far has also overlooked children with PSB who do not have a known maltreatment history. The present study addressed these gaps by using a person-centered approach to determine the presence of profiles of high-risk eight-year-olds who previously exhibited PSB and/or IPSB.

As expected, there were significant patterns of heterogeneity in symptoms and etiological factors among children who exhibit PSB and IPSB, and the results revealed six unique profiles that varied in terms of frequency of PSB and IPSB, developmental competencies, internalizing and externalizing symptoms, attention difficulties, maltreatment exposure and PTSS, and family functioning. Children who exhibit PSB and IPSB are significantly heterogenous in their presentations and are not adequately characterized by only understanding their sexual behavior. These findings emphasize the necessity of comprehensive assessment of children with PSB in determining etiological factors associated with these symptoms and in making determinations regarding potential best treatment fits for children with PSB and IPSB.

Nearly half of the children (48.5%) were included in the *Developmentally typical* profile. This is notable for several reasons. First, even in a high-risk sample, a large portion of children who exhibit at least one potential PSB often engage in a relatively low number of sexual behaviors and otherwise have few risk factors (i.e., low-to-no maltreatment exposure, low co-occurring symptoms, typical development,

family functioning strengths). Thus, many otherwise relatively typically developing children engage in potential PSB for less clear reasons. Many in this group may engage in one potential PSB, learn that the behavior is inappropriate, and refrain from future sexual behaviors. These children have received very little prior attention, despite representing the largest subset of children with potential PSB. It may be harmful, both for these children who demonstrate few, time-limited behaviors and for children with higher severity PSB and co-occurring difficulties, to be generalized into one category or term. Additionally, it is possible that these children may be particularly responsive to preventative sex education or briefer PSB-focused interventions that address families' knowledge gaps regarding sexual development, behavior, and boundaries, such PSB-CBT (Silovsky et al., 2018).

Similarly, the *Non-trauma-related developmental difficulties and PSB* profile captured a sizable portion of the sample (22.2%) and describes children who engage in PSB with co-occurring developmental- and social-related impairments. Consistent with literature regarding children with ASD and other developmental delays and sexual behavior, PSB among these children may be due to broader difficulties understanding boundaries and appropriate sexual behavior, as well as a lack of appropriate sex education (Davis et al., 2015). Intervention that emphasizes appropriate sex education, social skill training, and impulse control techniques may be beneficial for children who exhibit this pattern of PSB. Critically, the majority of the sample (70.7%) was captured by the *Developmentally typical* and *Non-trauma-related developmental difficulties and PSB* profiles and experienced relatively low rates of maltreatment and PTSS. While it is paramount to acknowledge that some children within these subtypes have nonetheless experienced some incidents of maltreatment, this finding highlights the importance of research regarding PSB including samples that are not only trauma-exposed and reiterates that etiological factors outside of trauma, specifically developmental challenges, are commonly associated with potential PSB.

The *Family dysfunction and PSB* profile was somewhat consistent with what has been previously described by Friedrich and colleagues (2003) in which family dysfunction is described as a critical factor in understanding PSB, rather than CSA. Prior findings regarding the links between various parenting and family factors have been mixed (Campbell & Wamser, 2024; Elkovitch et al., 2009). It may be that, rather than parenting behavior and family functioning acting as broad predictors for the larger population of children with PSB or maltreated children with PSB, there is a unique subgroup of children who exhibit PSB that have significant family dysfunction. Conversely, PSB can also understandably contribute to family discord and create additional parenting challenges that were not present prior to the onset of PSB. The temporal relationship between family dysfunction, parenting behavior, and PSB in the present study is unknown but should be explored in future research. These findings reiterate the need to prioritize caregiver involvement and provide support to families within PSB intervention.

Interestingly, children captured by the *Non-CSA polyvictimization and IPSB* profile exhibited IPSB and had high rates of maltreatment but relatively lower CSA, in line with prior work that has observed that IPSB is associated with CPA, whereas CSA may be more strongly related to non-interpersonal PSB (Allen, 2023b; Allen & Wamser, 2025; Simmons et al., 2026). Children in this profile had elevated symptoms across domains, in addition to IPSB and some self-focused PSB; therefore, it may be that IPSB are one symptom among broader, widespread maltreatment-related dysregulation.

The *PSB/IPSB and co-occurring symptoms* profile was less common (7.6%) and was associated with the most severe and widespread symptoms, maltreatment exposure, and maladaptive parenting. These children may be highly dysregulated, and this is demonstrated through many symptoms, including PSB and IPSB. Interestingly, while these children have experienced maltreatment and have some elevation in PTSS, the degree of other behavioral and emotional symptoms were higher in this profile. This may reflect the etiology of children who have experienced complex trauma and related widespread dysregulation, rather than specifically PTSS (Wamser-Nanney & Vandenberg, 2013). Although children in this group did not experience the highest rates of maltreatment, the severity of the documented incidents of maltreatment is unknown. It may be that these children experienced fewer, but more severe or chronic, episodes of maltreatment.

The rarest profile (3.9%) was the *CSA polyvictimization and PSB* profile, which had the highest rates of maltreatment and PTSS, and their sexual behaviors were primarily self-focused. This class is consistent with the recognition that CSA is a pathway to PSB, and it is the one that has received the most attention. Indeed, early research described PSB as a trauma-related behavior and direct result of CSA in which children are engaging in PSB as a PTSS-related re-enactment of CSA (Allen, 2023b). Although more recent work has documented that CSA is not the only important risk factor for PSB, CSA has been tied to PSB (Allen et al., 2025b), and specifically PSB of a non-interpersonal nature (Allen, 2023b; Smith et al., 2019). Further, as maltreatment often co-occurs with other forms, this profile captures children with significant cumulative maltreatment exposure. Difficulties with impulse control that occurs alongside PSB is likely also reflected in the elevated externalizing and attention problems.

Gender and poverty status were not associated with profile classification, in line with some of the prior work (Allen et al., 2023b; Smith et al., 2019; Wamser-Nanney & Campbell, 2020). However, there were a greater proportion of children of color to White children in the

Developmentally typical profile, compared only to the *Non-CSA polyvictimization and IPSB* profile. Limited prior research has documented greater reports of PSB for White children than with children of color (Bonner et al., 1999; Thigpen et al., 2003) or no relationship between racial/ethnic identity and PSB (Wamser-Nanney & Campbell, 2019, 2020, 2022). It is critical to contextualize this finding, as research efforts, including the LONGSCAN study, did not adequately assess traumatic experiences and symptoms for children and caregivers of color (e.g., Hanna et al., 2016). Research regarding children's PSB is very limited in terms of inclusion of racial and cultural factors, and the opportunity to draw conclusions is limited by dichotomous categorizations of race and ethnicity. It is paramount that ongoing work better contextualizes children's PSB within their unique racial and cultural contexts.

In addition, greater proportions of biological to non-biological parent caregivers were present for the *Family dysfunction and PSB* and *Developmentally typical* profiles. Regarding the *Family dysfunction and PSB* profile, it may be that non-biological parent caregivers, who typically have contact with the child welfare system, have additional support and access to psychoeducation and parenting support. Thus, these children and their non-biological parent caregivers may endorse more adaptive family functioning, whereas biological parents and children in the *Family dysfunction and PSB* profile experience greater challenges and less access to formal support networks. Children in the *Developmentally typical* profile were also more likely to have biological parent caregivers, which is consistent with other characteristics of this group, where children have relatively low adversity and fewer risk factors. Nonetheless, further research should explore more specific caregiving factors that may contribute to this link between children's relationship to their primary caregiver and PSB (e.g., attachment characteristics, parent-child relationship characteristics, access to resources).

Taken together, the identification and examination of these profiles of children with PSB is valuable to furthering the understanding of the development or maintenance of PSB. In addition to the emergence of PSB subtypes, these results also emphasize the importance of including those with little to no known maltreatment history. The emergence of six profiles also further bolsters the notion that there is utility in conceptualizing children with PSB in the context of their developmental functioning, co-occurring symptomatology, and their broader environment, including maltreatment exposure and family factors. PSB does not occur in a vacuum, nor does it exhibit a direct relationship with one risk factor. Moreover, successful treatment of PSB relies, in part, on these contextual factors. It is necessary to understand more specifically the potential mechanisms for children's PSB in treatment informing treatment approach. Caregivers also play a vital role in PSB intervention and in supervision of children who have a history of PSB (which is critical in preventing further PSB) (Allen et al., 2025a; St. Amand et al., 2008). Thus, identifying the pattern of caregiver- and family-related factors associated with children's PSB may bolster intervention efforts by pinpointing treatment targets.

Limitations and Conclusions

It is important to consider the present findings within the context of the study limitations. Data utilized were from the LONGSCAN study which was collected from 1994 to 2003, and there have been many societal shifts since then, including increased internet usage and the emergence of electronic PSB, that is not captured in the study or CSBI. The present study examined 8-year-old children, and ongoing research should investigate profiles of children with PSB among preschool-aged children to 12-year-olds. Further, the LONGSCAN sample includes specifically children identified as high risk for maltreatment or as having experienced maltreatment and these findings are therefore not generalizable to broader populations of children with PSB.

The CSBI does not include specific subscales for self-focused PSB and IPSB separately. Prior studies created informal subscales (Allen, 2017; Wamser-Nanney & Campbell, 2020, 2022); however, research regarding the psychometrics of these subscales is needed, particularly as the self-focused PSB subscale had somewhat low reliability (.59) in the present study. The present study included all children who displayed at least one PSB, but the CSBI is outdated and not all children exhibited repeated or pervasive occurrences of PSB. Some caregivers may also have only endorsed behavior that, in isolation, may occur in multiple contexts unrelated to PSB (e.g., "hugged adults he/she does not know well"). Nonetheless, children in the sample engaged in an average of nearly four self-focused PSB behaviors. Future research may consider examination of profiles of children with PSB utilizing alternative approaches, such as including only children who had a clinically significant score on the CSBI.

Exposure to CSA, CPA, neglect, and EA was measured by number of CPS allegations. It is well-known that many instances of maltreatment are not reported to CPS, and there are racial biases in CPS reports, such that children and caregivers of color are more likely to be reported to CPS (Maloney et al., 2017; U.S. Department of Health and Human Services, 2016). Future research should include child- and caregiver-reported maltreatment exposure. Due to small sample size, DV exposure was excluded from the models. Additionally, many of the variables in the present study rely on caregiver reports of symptoms and environmental factors. Shared variance may be partially related to use of the same reporter for multiple variables, and future studies would benefit from more robust use of other reporters (e.g., child, teacher). The use of LPA also has some drawbacks as the models are contingent upon the factors included and are constrained by the available indicators in the dataset. There were factors that have been frequently associated with PSB that were not available, such as exposure to

sexualized content, DV, and emotion regulation (Allen, 2023a; Elkovitch et al., 2009), and thus the model does not reflect all potential factors and presentations for children with PSB and IPSB. Given the small literature on subtypes of children with PSB, replication is necessary in samples of children across ages and degrees of risk in order to draw more robust conclusions.

Despite these limitations, the present study expanded the PSB literature in several ways: 1) emphasizing the heterogeneity of children with PSB and IPSB specific to their maltreatment history, co-occurring symptoms, developmental functioning, and family functioning, 2) demonstrating the proportion of children with PSB who have otherwise relatively typical developmental, behavioral, and familial functioning, as well as the majority whom experienced little to no known maltreatment, 3) identifying a potential subtype of PSB that is associated with specifically developmental difficulties, and 4) reiterating unique relationships between maltreatment forms and PSB or IPSB. Findings indicate that more streamlined, individualized decision-making for appropriate treatment models that considers children's contextual factors may be feasible and should be explored in ongoing research. Further person-centered research is necessary to replicate these findings in various samples, and future work should explore whether knowledge of PSB subtypes guide intervention and prevention efforts. Given the heterogenous nature of children who have displayed PSB and the degree of co-occurring distress and stigma, it is critical that research and intervention efforts utilize an empathic and holistic understanding of children and their families in order to most effectively address PSB and support broader emotional and behavioral well-being.

Declarations

Ethical Approval. Institutional Review Board (IRB) approval was not required for the present manuscript which includes secondary analyses. However, the LONGSCAN study received IRB approval and the procedures are available from the National Data Archive on Child Abuse and Neglect (NDACAN).

Consent to Participate and Consent to Publish. However, the LONGSCAN study received IRB approval and the participants provided informed consent and assent prior to study participation. Participants provided their informed consent and assent to publish their data.

Competing Interests. The authors have no conflicts of interest or competing interest to disclose.

Author Contributions- Author 1 lead the conceptualization of the study, conducted the analyses, and lead writing the paper and results. Author 2 was part of the study's design, helped supervise the results and was involved in the data analysis, and helped write and edit the paper.

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Availability of Data and Materials: The data that support the findings of this study are available from the National Data Archive on Child Abuse and Neglect (NDACAN). Restrictions apply to the availability of these data, which were used under license for this study. Data are available from Runyan, D., Dubowitz, H., English, D., Kotch, J., Litrownik, A., & Thompson, R. at <https://www.ndacan.acf.hhs.gov/datasets/dataset-details.cfm?ID=170> with the permission of NDACAN.

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Figures

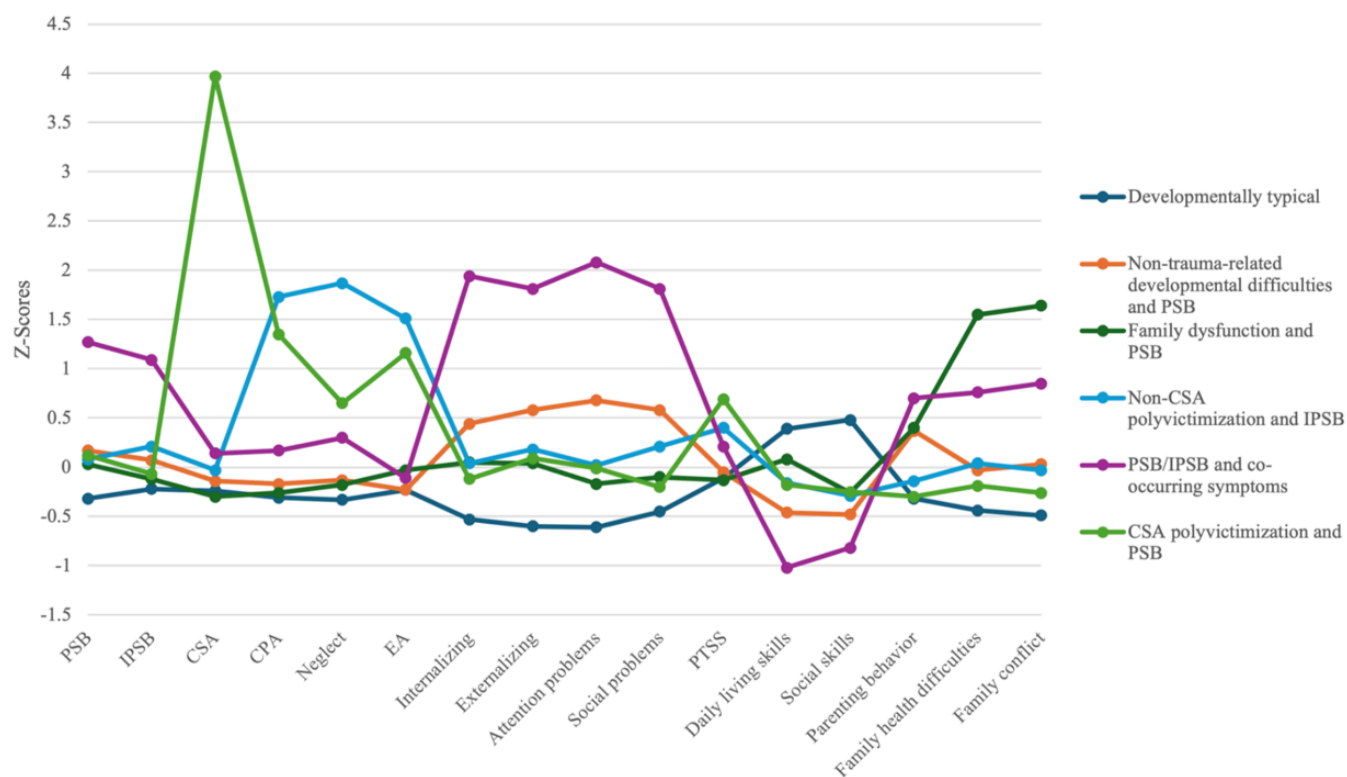


Figure 1

Z-scores of indicators across profiles of children with PSB

Note. PSB = problematic sexual behavior; IPSB = interpersonal problematic sexual behavior; CSA = child sexual abuse; CPA = child physical abuse; EA = emotional abuse; PTSS = posttraumatic stress symptoms