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The Role of Parenting Patterns, Parent Characteristics, and the Family Environment in Child and Adolescent Internalizing and Externalizing in the ABCD Study

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B.A., Wake Forest University, 2023

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An abstract of

a thesis submitted to the Faculty of the

James T. Laney School of Graduate Studies of Emory University

in partial fulfillment of the requirements for the degree of

Master of Arts

in Psychology

2025

Abstract

The Role of Parenting Patterns, Parent Characteristics, and the Family Environment in Child and Adolescent Internalizing and Externalizing in the ABCD Study

By Emma E. Webster

Internalizing and externalizing behavior problems during childhood can lead to poor mental health outcomes. Identifying intervenable mechanisms to decrease youth internalizing/ externalizing problems is crucial in preventing long-term negative psychological outcomes. One possible mechanism is parenting, which has been shown to predict youth internalizing and externalizing behaviors. Parenting research typically considers the influence of one or two parenting behaviors at a time, ignoring interactions between the wide range parenting behaviors that can impact child outcomes. Past research is also lacking a nuanced understanding of how parent characteristics, family environments, and parenting interact, along with how these relationships impact youth internalizing/ externalizing behavior. The current study aimed to address these gaps using data from the ABCD Study. We used LPA to explore patterns of parenting and found evidence for three parenting profiles that describe the data well (entropy range 0.956-0.994). Profile 1 was characterized by the lowest levels of positive and the highest levels of negative parenting behaviors, Profile 3 by the lowest levels of positive and the highest levels of negative parenting behaviors, and Profile 2 by comparatively moderate levels of positive and negative parenting behaviors. Increased parental psychopathology and poorer family environments characterized profiles with more negative and fewer positive parenting behaviors. Multiple regression models testing main effects of parenting, parent characteristics, and family characteristics indicated that the most robust indicators of youth internalizing/ externalizing were parent and family characteristics. Post-hoc analyses suggest inconsistent evidence for interactions between parent or family characteristics and parenting in predicting child outcomes.

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Table of Contents

List of Tables

List of Figures

The Role of Parenting Patterns, Parent Characteristics, and the Family Environment in Child and Adolescent Internalizing and Externalizing in the ABCD Study

Internalizing and externalizing problems during childhood lead to poor outcomes throughout childhood and adolescence and into adulthood. Some of the most common childhood internalizing disorders – those that are reflected inward and focus on the self – include depressive, anxiety, and somatic disorders (Liu et al., 2011; Nikstat & Riemann, 2020). Internalizing symptoms during childhood are associated with the development of anxiety disorders, depression, suicidal behavior, and hospitalization in adulthood (Pine et al., 1998). Importantly, internalizing problems during childhood and adolescence are highly correlated with suicide attempts during teenage years, a significant public health problem (Liu et al., 2011). Teenage suicide attempts, in turn, are associated with future adjustment difficulties including increased risk for repeated suicide attempts, poor school attendance, interpersonal relationship problems, internalizing disorders, externalizing behaviors, substance use, criminal arrests, and motor vehicle accidents (Spirito et al., 2000).

On the other hand, externalizing behaviors are expressed outwardly and affect the external environment (Eisenberg et al., 2001; Liu, 2005; Nikstat & Riemann, 2020). Externalizing behaviors during childhood – including aggression, oppositionality, hyperactivity, and other disruptive behaviors – are predictive of later juvenile delinquency, adult crime, adult antisocial behavior, and violence (Betz, 1995; Farrington, 1989; Lilienfeld & Waldman, 1990; Moffitt, 1993). Importantly, externalizing disorders such as conduct disorder, oppositional defiant disorder, attention-deficit hyperactivity disorder, and substance use disorders are more common in teenage suicide attempts compared with older population groups (Conwell & Brent,

1995), highlighting adolescence as an important time period for interventions targeting externalizing problems.

Given the significant impact childhood and adolescent internalizing and externalizing problems can have on future psychological health, it is crucial that we identify early risk factors that may serve as targets for preventative intervention. Parent training interventions effectively reduce both internalizing (Buchanan-Pascall et al., 2018) and externalizing (Chorpita et al., 2011; Forehand et al., 2014; Webster-Stratton & Hammond, 1997) behavior in children and adolescents by teaching parents skills to enhance communication, strengthen parent-child relationships, and promote positive behavior in youth. By gaining a nuanced understanding of the relationship between parenting and child/adolescent internalizing and externalizing behavior problems, researchers would be able to create more tailored parenting interventions for these problems.

Parenting and the Family Environment

There are four parenting styles that have been studied extensively: authoritarianism, authoritativeness, permissiveness, and neglect (Maccoby & Martin, 1983). These styles are based on Baumrind's (1968) authoritative, authoritarian, and permissive parenting styles. These parenting styles are based on two basic parenting dimensions – control or demandingness and affect or responsiveness (Becoña et al., 2012; Smetana, 2017). Generally, authoritative styles are associated with the most positive child outcomes (Baumrind et al., 2010; Smetana, 2017), while neglectful styles are associated with the most negative (Becoña et al., 2012). While parenting styles are quite straightforward in theory, in practice, many parents exhibit a combination of traits and behaviors from each style (Rangarajan et al., 2020; Vasiou et al., 2023). Importantly, specific parenting behaviors are closely linked to child outcomes, with greater parental

monitoring and involvement and less punishment and inconsistent parenting associated with more positive outcomes (Becoña et al., 2012; Mounts, 2002; Vasiou et al., 2023)

Beyond parenting styles, the family environment encompasses patterns of interactions among family members, their roles, and the contextual factors that shape them (Jabbari et al., 2023). Healthy family environments generally emphasize cohesion, warmth, organization, and clear communication (Jabbari et al., 2023; White et al., 2010). On the other hand, family environments that are enmeshed, isolated, rigid, disorganized, or conflictual are generally considered to be unhealthy (White et al., 2010). Factors that may contribute to family dynamics include single parenthood, parental substance misuse, family socio-economic status (SES), family structure (e.g., parental marital status, number of siblings, birth order, presence of step-family members, extended family members in the family setting), parenting behaviors, and parent-child attachment (Osuji, 2023).

Parenting has been linked to many psychological outcomes, including both internalizing and externalizing behavior problems. Parental emotional support, consistent discipline, and monitoring encourage positive psychological adjustment and are related to increased self-control, competence, and positive peer affiliations (Wills & Yaeger, 2003). Negative parenting practices – including inconsistent discipline, poor monitoring, low parental involvement, and coercive control – predict children's externalizing behavior problems (Barnes & Farrell, 1992; Duncombe et al., 2012; Frick et al., 1999; Prevatt, 2003; Reitz et al., 2006). Unsurprisingly, punitive and physical punishment robustly also predicts externalizing behavior problems in children (Frick et al., 1999; Prevatt, 2003; Stormshak et al., 2000). Similarly, family environments high in family conflict predict child externalizing through poor parental monitoring and insecure parent-child attachment (Formoso et al., 2000).

Parenting practices have also been linked to internalizing behavior problems in children. In particular, childhood internalizing problems are associated with parental rejection and control (Scaini et al., 2018). High levels of parental control or over-involvement – which involves excessive parental regulation of children's activities, emotions, and thoughts – can lead to decreased self-efficacy, an increased sense of helplessness, low self-esteem, anxiety, and broader internalizing problems in children and adolescents (Scaini et al., 2018; Yap & Jorm, 2015). Other parenting behaviors including inconsistent discipline practices, low levels of parental monitoring, and low parental warmth are related to increased child internalizing and depression (Yap & Jorm, 2015). Family environments that are high in family conflict and violence have consistently predicted increased youth depression, anxiety, and internalizing outcomes as a whole (Mäntymaa et al., 2011; Yap & Jorm, 2015). Additionally, while moderate levels of family cohesion are generally considered to be protective, too much (enmeshed family environments) or too little cohesion (disengaged family environments) is predictive of offspring internalizing problems (Bernstein et al., 1999; Stark et al., 1990). On the other hand, family factors including increased family stability and organization are protective against youth internalizing problems and have predicted increases in youth self-esteem (Israel et al., 2002; Israel & Roderick, 2001; Ivanova & Israel, 2005).

Parent Characteristics

Besides parenting, other parental characteristics are related to their children's internalizing and externalizing behaviors. Maternal internalizing – indicated by depressive and anxiety symptoms (Gruhn et al., 2016; Hughes & Gullone, 2008) – predict both internalizing and externalizing symptoms and diagnoses in their offspring. Children and adolescents generally have higher rates of depressive, anxiety, and general psychiatric disorders when their parents

have depressive and anxiety disorders themselves, compared to children of parents without psychopathology (Hughes & Gullone, 2008).

Parental externalizing – indicated by antisocial behavior and substance use problems (Bountress & Chassin, 2015; Coley et al., 2011; Loukas et al., 2001) – have been found to predict both internalizing and externalizing symptoms and diagnoses in youth. Children exposed to maternal and/ or paternal substance use are more likely to experience externalizing problems than children who are not exposed (McGovern et al., 2023). In fact, children who have at least one parent with substance use problems show signs of externalizing problems as early as toddlerhood, demonstrating more aggression and poorer self-regulation compared to children without a substance-using parent. Additionally, children with at least one parent affected by substance use problems are at increased risk for internalizing difficulties compared to those without such parental history (Bountress & Chassin, 2015; McGovern et al., 2023).

Parent psychopathology is also related to the parenting practices they use. Parents, particularly mothers, with depressive symptoms tend to show greater inconsistency, criticism, and negativity as well as less involvement with their children compared to non-depressed parents (Goodman & Gotlib, 1999). Similarly, mothers with anxiety tend to be more controlling, more critical, less warm, and less supportive of their children than non-anxious mothers (Dumas et al., 1995). Parental antisocial behavior has been shown to predict disrupted parenting behaviors (Dogan et al., 2007), including overreactivity (Klahr et al., 2017), hostility toward children (Harold et al., 2012), worse monitoring (Ehrensaft et al., 2003), and more inconsistent punishment practices (Ehrensaft et al., 2003).

Parents with alcohol use disorder (AUD) have also been shown to use more maladaptive parenting behaviors compared to parents without AUD. Parents with AUD tend to score lower on

emotional warmth and higher on parental rejection and overprotection (Becoña et al., 2012), demonstrate lower levels of monitoring and supervision (Arria et al., 2012; Rice et al., 2006), and show poorer discipline skills (Arria et al., 2012). Furthermore, children with substance-using parents report less quality time spent with parents, more instances of parents upsetting and criticizing them, harsher parenting, fewer instances of parents being role models, and more liberal rule-setting (Mupier et al., 2002). Parents with SUDs also tend to use more physical punishment with their children (Kumpfer & Bluth, 2004), and children with substance-using parents are prone to experiencing abuse and neglect (Lam & O'Farrell, 2011).

Family factors such as household size and household income are also related to parenting quality. Low-income mothers are less likely to communicate effectively or show affection toward their children than high-income mothers (Bradley et al., 2001), and are more likely to report using neglectful behavior and physical punishment (Berger et al., 2009). Additionally, a larger household size can lead to lower frequency and intensity of parent-child interactions (Reynolds-Salmon et al., 2024), more rigid rules, less individualized parenting, and more corporal punishment (Wagner et al., 1985).

Current Study

As illustrated thus far, it is clear that parenting, the family environment, and parental characteristics can have profound impacts on child and adolescent internalizing and externalizing behavior. However, while these factors have all been studied independently or in a bivariate manner, the field lacks an understanding of how these factors work together to influence childhood outcomes. While some studies have examined more than one parenting behavior at a time (e.g., McKinney & Renk, 2007) most studies tend to focus on either one parenting behavior or broad parenting styles (Gruhn et al., 2016). However, this is not representative of how

parenting most often occurs. Despite the use of a particular parenting behavior, it is important to understand the relationships between different aspects of parenting and their joint impact on child outcomes. Furthermore, while parenting behaviors likely interact with each other, they also interact with the broader family environment and other parent characteristics in influencing child behavior. This evidence highlights the need for improved conceptualization in modeling how familial factors shape child behavior. Additionally, it suggests the possibility of complex and more descriptive risk patterns for these behaviors when considering family-, parent-, and child-level factors together (Schleider & Weisz, 2017)

With these gaps in mind, the current study aimed to understand how a broader conceptualization of parenting contributes to internalizing and externalizing behaviors in children and adolescents. More specifically, we investigated 1) profiles of parenting during late childhood and early adolescence; 2) how other child, parent, and family characteristics relate to parenting profiles; and 3) to what extent these parenting profiles and other child, parent, and family characteristics jointly predict child internalizing and externalizing across late childhood into early adolescence.

We hypothesized that between two and four parenting profiles would emerge reflecting variation along the domains of discipline, monitoring, emotional engagement, and supervision. We further hypothesized that psychopathology among parents would predict poorer parenting and worse childhood behavior problems. Lastly, we hypothesized that parenting would have robust effects on child internalizing and externalizing irrespective of parent and family environment characteristics, given its utility as an intervention target. To further test this last hypothesis, we evaluated a model in which parent characteristics and the broader family

environment moderated the influence of parenting behaviors on child/adolescent internalizing/externalizing.

Method

Sample

Hypotheses were tested using data from the Adolescent Brain Cognitive Development (ABCD) Study (https://abcdstudy.org). The ABCD study is the largest longitudinal study of brain development and child health in the United States. The study consists of 21 research sites across the U.S. and comprises 11,880 children aged 9-10 at baseline. Data from the 5.1 release (5-year follow-up) was used in the current study. Analyses focused on a subset of ABCD participants that participated in the social development (ABCD-SD) sub-study. ABCD-SD was created to expand our knowledge of the relationships between adolescent risk characteristics, substance use, delinquency and victimization, and brain development (Hoffman et al., 2019). Participation in ABCD-SD was offered to families who had completed either a 1-year or 2-year ABCD follow-up assessment at the following participating ABCD Study sites: the University of Pittsburgh, University of Michigan, Yale University, University of Florida, and University of Maryland-Baltimore (Hoffman et al., 2019; *Social Development Substudy*, 2025). ABCD-SD measures were collected at the 1-year, 2-year, and 3-year follow-ups (waves 1, 2, and 3, respectively).

Aged 9-12 at baseline, wave 1 had 2,251 participants, wave 2 had 1,876 participants, and wave 3 had 1,273 participants. Participant demographics are described in table 1. Across waves, children ranged in age from 9 years to 14 years old, with an average age of 10.87 (*SD* = 0.65) in wave 1, 11.94 (*SD* = 0.66) in wave 2, and 12.82 (*SD* = 0.65) in wave 3. The majority of the sample was White (n = 1114, 49.49%) followed by Black (n = 609, 27.05%), Other Race (n = 255, 11.33%), Latinx (n = 239, 10.62%), and Asian (n = 34, 1.51%). About half of the children

were reported as being Male (n = 1174, 52.15%) and half were reported as being female (n = 1077, 47.85%). We used a generalized linear mixed model (GLMM) to examine whether participation in the substudy was associated with differences in childhood externalizing/internalizing. We found no evidence of selection bias in internalizing or externalizing T-scores between ABCD-SD participants and non-ABCD-SD participants.

Assessments

All measures used in the ABCD study were selected for their validity and reliability (Barch et al., 2017; Gonzalez et al., 2021; Hoffman et al., 2019). The following assessments were used for the current study:

Demographic Characteristics

We examined child age, child race, child sex, household size, and household income. A 5-level race/ethnicity variable was constructed using parent report of the youth's race and ethnicity during the baseline visit. The categories are: White (if White is the only race selected and Hispanic/ Latino/ Latina is not selected), Black (if Black is the only race selected and Hispanic/ Latino/ Latina is not selected), Asian (if Asian is the only race selected and Hispanic/ Latino/ Latina is not selected), Hispanic (if Hispanic/ Latino/ Latina is selected), and Other (if Other race is selected and Hispanic/ Latino/ Latina is not selected OR if more than one race is selected and Hispanic/ Latino/ Latina is not selected). We dummy-coded the race to represent contrasts between the White race category and all other race categories for analyses. Child sex was reported based on the following options: male, female, intersex-male, and intersex-female. All participants in the current study's sample were either male or female.

Household size was reported as the total number of individuals living in the home with the child full-time. Household income was reported as the total combined household income. For

parents or caregivers that only reported one income, their individual income was used as their household income. Household income was operationalized as 10 ordered categories (<$5,000; $5,000-$11,999; $12,000-$15,999; $16,000-$24,999; $25,000-$34,999; $35,000-$49,999; $50,000-$74,999; $75,000-$99,999; $100,000-$199,999; and >$200,000).

Parent Characteristics

Parents or caregivers reported on family history of psychopathology for immediate and extended family (i.e., parents, siblings, aunts, uncles, and grandparents). Reports of Parent Alcohol Problems and Parent Drug Problems were used in the current study. Specifically, caregivers reported whether the child's mother and/or father (and other family members, including all grandparents, aunt, uncles, and siblings) have ever experienced the following: marital separation or divorce; laid off or fired from work; arrests or DUIs; alcohol/ drugs harmed their health; alcohol/ drug treatment program; suspended or expelled from school 2+ times; isolated self from family, caused arguments, or were drunk/ high a lot. Presence of familial alcohol- or drug-related problems was operationalized as 0 = no, 1 = yes.

Internalizing and externalizing syndrome scores were assessed using the Adult Self-Report (ASR) (Achenbach, 2009) to capture parent self-reported psychopathological syndromes. The Internalizing scale comprised scores from the Anxious/Depressed, Withdrawn/ Depressed, and Somatic Complaints syndrome scales. The Externalizing scale comprised scores from the Aggressive Behavior, Rule-Breaking Behavior, and Intrusive Behavior syndrome scales. Raw Internalizing and Externalizing scores were converted into T-scores for analysis. T-scores range from 0-100 and have a mean of 50 with a standard deviation of 10. Higher T-scores indicate more severe internalizing/externalizing. Analyses focus on externalizing/internalizing T-scores from the baseline and 2-year follow up assessments. For waves which the ASR was not assessed,

scores from the previous year were used: for the 1-year follow-up (Wave 1), baseline ASR data were used, and for the 3-year follow-up (Wave 3), wave 2 ASR data were used.

Parent Behaviors

Parenting behaviors were assessed using the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996). The APQ is a parent self-report survey that measures parenting strategies based on 5 constructs: positive involvement, supervision and monitoring, use of positive discipline techniques, consistency in the use of such discipline, and use of corporal punishment (Elgar et al., 2007). The APQ was measured at all three waves of data used in the present study.

Analyses focused on six parenting subscales. The *Involvement subscale* comprised 10 items that measure the level of parental involvement. Higher scores indicate more parental involvement with a maximum subscale score of 40. The *Positive Parenting subscale* used six items to measure parental behaviors that indicate warmth, support, and praise. Higher scores indicate more positive parenting with a maximum subscale score of 24. The *Inconsistent Discipline subscale* comprised six items that assess the consistency in the use of discipline practices. Higher scores indicate less consistency in the use discipline techniques with a maximum score of 24. The *Poor Monitoring and Supervision subscale* measures the extent to which a parent has knowledge of their child's whereabouts and activities using 10 items. Higher scores indicate worse parental supervision and monitoring with a maximum subscale score of 40. The *Corporal Punishment subscale* used three items to measure the extent to which parents practice corporal punishment with their children. Higher scores indicate higher use of corporal punishment with a maximum subscale score of 12. Lastly, we employed an *Other Punishment subscale* to capture the frequency/variety of parents' use of positive discipline techniques using

seven items. Higher scores indicate more use of positive discipline techniques with a maximum score of 28.

Family Environment

Various aspects of the family environment were assessed using the Phenx Family Environment Scale (FES) (Moos & Moos, 1976; Sanford et al., 1999). The FES is a 90-item true-false measure that is comprised of 10 subscales. The current study focused on the Conflict, Cohesion, and Organization subscales. The Conflict subscale measures the amount of openly expressed anger and conflict among family members. The Cohesion subscale measures the extent to which family members are encourages to express their feelings. The Organization subscale measures the extent to which family behavior is planned and organized (Moos & Moos, 1976) All subscales are comprised of nine items and have a maximum score of nine. Data on Conflict was available at all three waves of data collection. Cohesion and Organization were only measured at waves 2 and 3.

Child/Adolescent Behaviors

The Child Behavior Checklist (CBCL) (Achenbach, 2009) was used to obtain parent-reports of each youth's dimensional psychopathological syndromes and adaptive functioning. Child/adolescent internalizing was based on the internalizing scale that comprised of scores from the Anxious/Depressed, Withdrawn/ Depressed, and Somatic Complaints syndrome scales. Child/Adolescent externalizing was based on the externalizing scale that comprised scores from the Aggressive Behavior and Rule-Breaking Behavior syndrome scales. Raw Internalizing and Externalizing scores were converted into T-scores, which range from 0-100 and have a mean of 50 with a standard deviation of 10. Higher T-scores indicate more severe internalizing or externalizing.

Data analysis

Given the sampling structure of ABCD, all study hypotheses were examined while accounting for the ABCD sampling/propensity weights. When applicable, child age (in years), child race, and child sex (0 = male, 1 = female) were included in models as additional covariates. Analyses controlled the presence of siblings using the ABCD Family IDs and the sandwich estimator implemented in MPlus Version 8 (Muthén & Muthén, 2007). Data cleaning was performed using R programming software (R Core Team, 2024), and models were fitted in Mplus. Figures were created using R Programming Software (R Core Team, 2024). Statistical significance was determined using the conventional threshold of p-value less than 0.05. Hypotheses were tested within each wave of assessment.

Analytical Plan Overview

We first identified parenting profiles using latent profile analysis (LPA). Latent profile analyses (LPAs) testing the presence of 2-, 3-, 4-, and 5-profiles were executed using the entire sample in preliminary analyses (see Supplementary Table 1). We identified the best-fitting model using the sample size adjusted Bayes information criterion (SSA-BIC), model entropy, and by ensuring that the prevalence of the smallest profile afforded ≥0.80 power to detect a small-medium effect (Cohen's D of 0.30-0.50) (Sullivan & Feinn, 2012). After identifying a 3-profile solution as the best fit, 3-group LPAs were executed in randomly selected halves of the sample within each wave. Our models allowed for the exploratory and validation LPAs to result in different profile membership across waves. The final LPAs used in subsequent analyses were derived from the entire sample within each wave.

Next, we conducted a series of multinomial logistic regressions predicting parenting profile membership using child- parent-, and family-level factors. We also conducted a multiple

linear regression predicting variation in child internalizing and externalizing using parenting profile membership while controlling for child- parent-, and family-level factors. Lastly, we conducted post-hoc analyses to explore how parenting profile effects on childhood internalizing and externalizing are impacted by parent and family characteristics. All post-hoc models controlled for child age, sex, and race. First, we fitted main effects models using each parent or family environment variable, followed by a moderation model that included interaction terms. All post-hoc models operationalized parenting profile using a pair of dummy codes that set profile 3 (Green) as the reference group.

Results

Descriptive Results

Table 1 provides descriptive statistics for all study variables separately for each wave. Generally, participants reported having high levels of Involvement (> 25) and Positive Parenting (> 15), and low levels of Inconsistent Discipline (<10), Poor Monitoring and Supervision (< 5), and Corporal Punishment (< 1). Parents a reported a moderate amount of Other Punishment (≈ 10). Scores for Involvement, Positive Parenting, Inconsistent Discipline, and Other Punishment had moderate variability, and scores for Corporal Punishment had little variability. T-scores for Internalizing and Externalizing were average with considerable variability for the children in the sample. Participants had an average household size of around 5 individuals, but with substantial variability. Most participants reported a household income of $100,000-$199,999. The majority of participants (>85%) did not have a parent with alcohol- or drug- related problems. T-scores for Internalizing and Externalizing were average with considerable variability for the parents in the sample. Concerning the family environment, parents reported relatively low (< 3) levels of

Conflict, and relatively high levels of Cohesion (> 7) and Organization (> 6) on average. Scores for Conflict, Cohesion, and Organization had moderate variability.

Parenting Profiles

Table 2 presents the fit statistics of the LPA models for the two halves of the sample. Figure 1A-I illustrates the patterns of each parenting profile. In total, we fitted nine LPA models, three for each wave. Within waves, LPAs conducted in the exploratory (Fig. 1A-3C) and validation groups (Fig 1D-3F) of the sample suggested similar profile configurations. Based on our observations, we fitted 3-group LPA models using the full sample within each wave (Figure 3G-3I). Details on the observed profiles are provided from the full-sample results.

At wave 1, 196 participants (8.7%) were categorized into Profile 1, 447 (19.9%) into Profile 2, and 1609 (71.4%) into Profile 3. Compared to the other two profiles, Profile 1 had the lowest levels of Involvement (M = 28.11, SE = 0.54) and Positive Parenting (M = 19.16, SE =034), and the highest relative levels of Inconsistent Discipline (M = 8.11, SE = 0.37), Poor Monitoring and Supervision (M = 6.71, SE = 0.57), Corporal Punishment (M = 4.56, SE = 0.09), and Other Punishment (M = 13.26, SE = 0.31). Profile 3 had the highest relative levels of Involvement (M = 30.31, SE = 0.16), and the lowest relative levels of Inconsistent Discipline (M = 6.24, SE = 0.11), Poor Monitoring and Supervision (M = 4.04, SE = 0.11), Corporal Punishment (M = 0.22, SE = 0.01), and Other Punishment (M = 10.98, SE = 0.11). Profile 2 fell in between profiles 1 and 3, with comparatively moderate levels of Involvement (M = 29.01, SE = 0.38), Inconsistent Discipline (M = 6.64, SE = 0.24), Poor Monitoring and Supervision (M =

4.53, *SE* = 0.22), and Corporal Punishment (*M* = 2.25, *SE* = 0.04), but had the highest levels of Positive Parenting (*M* = 19.79, *SE* = 0.21).

At wave 2, 34 participants (1.8%) were categorized into Profile 1, 312 (16.7%) into Profile 2, and 1529 (81.5%) into Profile 3. Compared to the other two profiles, Profile 1 had the lowest levels of Involvement (*M* = 25.47, *SE* = 1.31) and Positive Parenting (*M* = 18.03, *SE* = 0.79), and the highest relative levels of Inconsistent Discipline (*M* = 11.28, *SE* = 1.57), Poor Monitoring and Supervision (*M* = 13.83, *SE* = 3.43), Corporal Punishment (*M* = 6.72, *SE* = 0.93), and Other Punishment (*M* = 14.45, *SE* = 1.02). Profile 3 had the highest relative levels of Involvement (*M* = 29.32, *SE* = 0.19) and Positive Parenting (*M* = 19.17, *SD* = 0.12), and the lowest relative levels of Inconsistent Discipline (*M* = 6.18, *SE* = 0.11), Poor Monitoring and Supervision (*M* = 4.26, *SE* = 0.11), Corporal Punishment (*M* = 0.15, *SE* = 0.02), and Other Punishment (*M* = 10.43, *SE* = 0.11). Profile 2 fell in between profiles 1 and 3, with relatively moderate levels of Involvement (*M* = 27.94, *SE* = 0.40), Positive Parenting (*M* = 19.09, *SE* = 0.26), Inconsistent Discipline (*M* = 7.81, *SE* = 0.28), Poor Monitoring and Supervision (*M* = 4.81, *SE* = 0.33), and Corporal Punishment (*M* = 2.75, *SE* = 0.13), and Other Punishment (*M* = 12.78, *SE* = 0.22).

At wave 3, 60 participants (4.7%) were categorized into Profile 1, 130 (10.2%) into Profile 2, and 1082 (85%) into Profile 3. Compared to the other two profiles, Profile 1 had the lowest levels of Involvement (*M* = 26.49, *SE* = 0.60) and Positive Parenting (*M* = 17.99, *SE* = 0.50), the highest levels of Inconsistent Discipline (*M* = 7.65, *SE* = 0.57), Poor Monitoring and Supervision (*M* = 7.02, *SE* =0.83), Corporal Punishment (*M* = 4.76, *SE* = 0.12), and high, but not the highest, levels of Other Punishment (*M* = 12.26, *SE* =0.38). Profile 3 had the highest relative levels of Involvement (*M* = 28.83, *SE* = 0.21) and Positive Parenting (*M* = 18.87, *SD* =

0.13), and the lowest relative levels of Inconsistent Discipline (*M* = 5.89, *SE* = 0.14), Poor Monitoring and Supervision (*M* = 4.70, *SE* =0.15), Corporal Punishment (*M* = 0.10, *SE* = 0.01), and Other Punishment (*M* = 9.87, *SE* = 0.15). Profile 2 had relatively moderate levels of Involvement (*M* = 28.14, *SE* = 0.59), Positive Parenting (*M* = 18.75, *SE* = 0.38), Inconsistent Discipline (*M* = 7.00, *SE* =0.39), Poor Monitoring and Supervision (*M* = 5.40, *SE* = 0.40), and Corporal Punishment (*M* = 2.20, *SE* = 0.05), but the highest levels of Other Punishment (*M* = 12.48, *SE* = 0.36).

Based on the patterns of parenting profiles found in our analyses, Profile 1 is henceforth referred to as the Red Profile, Profile 2 as the Orange Profile, and Profile 3 as the Green Profile.

Parenting Profile Correlates

Multinomial logistic regression models predicting parenting profile membership (i.e., using Green Profile as the reference) were conducted separately for each child-, parent-, and family-level variable at each wave. Odds ratios (ORs) and 95% confidence intervals (95% CIs) are reported for each predictor of membership in the Red vs Green profiles (P1v3) and the Orange vs Green (P2v3) profiles (Table 3). Observed trends were not always apparent across childhood and adolescence; several replicated observations are noted below:

Several child characteristics were associated with certain combinations of parenting behaviors (aka profiles). On average, females were more likely to have parents who fell into the Green profile as opposed to Red. That said, there were several characteristics that were associated with greater odds of being in the Red (i.e., being Black/Latinx/Asian), and Orange (i.e., being Black/ “Other Race”) profiles. Parent characteristics were also associated with practicing a particular set of parenting behaviors. Higher scores on parent internalizing, externalizing, and lifetime history of drug-related problems were associated with higher odds of

being in the Orange Profile. Notably, higher externalizing scores among parents was associated with greater odds of being in either the Red or Orange Profiles.

Lastly, several family environment characteristics were associated with certain combinations of parenting behaviors. Larger household size predicted greater odds of being in the Orange Profile. Similarly, families with higher levels of Conflict had greater odds of membership in either the Red or Orange profiles. Families with a lower household income were at greater odds of being in the Green compared to both the Red and Orange profiles. As expected, higher levels of Family Cohesion were associated with greater odds of being in the Green Profile compared to the Red Profile.

Parenting, Parent-, and Family Indictors of Childhood/Adolescent Internalizing and Externalizing

We predicted individual differences in child internalizing and child externalizing using the best-predicted parenting profile membership with a set of dummy codes that reflected membership in the Red Profile compared to the Green Profile (P1v3) and membership in the Orange Profile compared to the Green Profile (P2v3) while controlling for all child, parent, and family characteristics used in the previous analyses. Multiple linear regression models conducted for Child Internalizing (Table 4) and Child Externalizing (Table 5) are presented for each wave. Means and standard errors for Child Internalizing and Externalizing T-scores for each parenting profile are reported in Supplementary Table 2.

With the exception of wave 1, we saw limited evidence for a robust effect of parenting profile on child internalizing or externalizing. At wave 1, children who had a parent(s) who fell into the Red Profile had higher levels of externalizing compared to children who were parented under the Green Profile. The most robust indicators of increased externalizing behaviors across

waves were positive history of parent drug problems, higher scores on parent internalizing or externalizing, greater family conflict, and lower family cohesion. Similarly, evidence of parent alcohol or drug problems, higher levels of parent internalizing, and greater family conflict were associated with greater internalizing problems in children/adolescents.

Post-hoc analyses (see Tables 6 and 7) confirmed most of the main effects from the comprehensive model. Notably, there was evidence to suggest that parenting profile effects were confounded with several of the parent and family environmental characteristics. As shown in Table 6, in every model, at every wave, we observed higher levels of externalizing, with parent drug and alcohol problems having the most consistent effect across waves of assessment. Evidence of interaction effects were few and inconsistent across waves of assessment. Regarding internalizing, post-hoc models (see Table 7) showed limited evidence of confounding, as the main effects of profile membership were similar to the larger main effects model. Evidence of interaction effects between parenting and the parental or family environmental characteristics were also few and inconsistent. See supplemental Figure 1A-H for visualizations of significant interactions predicting child externalizing and supplemental Figure 2A-E for visualizations of significant interactions predicting child internalizing.

Discussion

The findings of current study provide novel insight into a broader profile of patterns of parenting and their relation to child, parent, and family characteristics. Moreover, the current findings add to our understanding of how parenting and child, parent, and family characteristics jointly impact child/adolescent behavior problems.

We found broad support for parenting patterns indicated by six parenting behaviors that differ in relative intensity of specific behaviors: parental involvement, positive parenting

practices, inconsistent use of discipline, poor monitoring practices, the use of corporal punishment, and the use of other punishment practices. We found consistent evidence for the presence of three parenting profiles. We labeled these as Red, Orange, and Green profiles to reflect a progression from patterns dominated by parenting practices that generally lead to poorer outcomes in children to those dominated by practices leading to better outcomes in children. Generally, the three parenting profiles follow a similar pattern, with higher levels Involvement and Positive Parenting and lower levels of Inconsistent Discipline, Poor Monitoring and Supervision, Corporal Punishment, and Other Punishment.

Profiles differed in the relative levels of each of these parenting behaviors. Parents in the Red Profile tend to be the least involved with their children and use the lowest relative amount of positive parenting practices that foster feelings of warmth and support in the child. Parents in the Red Profile also tend to be the most inconsistent in their discipline practices, monitor their children the least, and use the most corporal and other punishment practices. Parents in the Green Profile are the most involved with their children and use the highest amounts of positive parenting practices. They also are the most consistent in their discipline, monitor their children the most, very rarely use corporal punishment, and use other discipline practices the least. Parents in the Orange Profile fall in between the other two parenting profiles for all parenting behaviors, with moderate child involvement, use of positive parenting techniques, inconsistency in discipline practices, child monitoring levels, and use of corporal punishment. However, parents in the Orange Profile are more similar to parents in the Red Profile in their relatively high use of other punishment practices.

Notably, we did not find evidence supporting either Baumrind's (1968) or Maccoby & Martin's (1983) parenting styles. All three parenting profiles seem to follow the pattern of

authoritative parenting described by both Baumrind (1968) and Maccoby & Martin (1983), which tends to be higher in warmth and affect and lower in control and demandingness. The high levels of involvement found in the current study could be a result of the sample itself – parents who are willing to enroll their children in an intensive, longitudinal study could be more highly involved with their children than typical. However, other studies that have investigated patterns of parenting similarly find that most parents tend to have high levels of involvement or warmth (e.g., Qiu et al., 2022; Vasiou et al., 2023).

Studies that have examined two or three parenting dimensions have consistently found evidence for three parenting patterns which resemble Baumrind's (1968) authoritative, authoritarian, and permissive or "good enough" parenting styles (Brenner & Fox, 1999; Lee et al., 2006; McNamara et al., 2010). These findings contradict the current results in that they found evidence for three parenting clusters that do not all follow the same general pattern. Two other studies have used LPA to explore patterns of parenting and have resulted in conflicting findings, with one finding evidence supporting Maccoby & Martin's (1983) four parenting styles (Borden et al., 2014), and the other closely resembling the current findings (Qiu et al., 2022). Importantly, studies that have found support for Baumrind's (1968) or Maccoby & Martin's (1983) parenting styles using cluster analyses or LPA tend to only include 2 or 3 parenting dimensions as indicators in their analyses, most often a measure of parental control and a measure of parental warmth/ responsiveness (e.g., Brenner & Fox, 1999; Lee et al., 2006; McNamara et al., 2010). However, Qiu et al. (2022) – who found evidence for positive, moderate, and negative parenting profiles that mirror our Green, Orange, and Red parenting profiles – used 5 parenting behavior indicators in their analyses. Thus, the divergence from traditional parenting styles found in the current study could be due to the inclusion of more parenting behavior indicators in our analyses:

the more parenting behaviors that are considered, the more similar parenting patterns seem to appear.

The observed profiles differed in more than just their relative aspects of parenting. Notably, they also differed based on child, parent, and family environment characteristics. Compared to parents in the Green Profile, parents in the Red Profile tended to display higher levels of externalizing behaviors, have a higher household income, and their families tend to be higher in conflict and lower in cohesion across late childhood and into early adolescence. Parents in the Orange Profile tend to display higher internalizing and externalizing behaviors, have a higher household income, and their families have more conflict compared to parents in the Green Profile across late childhood and into early adolescence. These results align with previous findings that parental depression, antisocial behavior, and substance use tend to predict engaging in worse parenting behaviors (e.g., Becoña et al., 2012; Ehrensaft et al., 2003; Hughes & Gullone, 2008). Our findings also highlight that these individuals also engage in other prosocial aspects of parenting, but at lower levels compared to other parents.

Interestingly, we found that parents with a lower household income are more likely to be in the Green Profile compared to the Red and Orange Profiles. This contradicts previous work suggesting that low-income mothers tend to use fewer positive and more negative parenting tactics (Berger et al., 2009; Bradley et al., 2001). However, this finding could be a product of the sample itself. The majority of the ABCD sample reported a relatively high household income (> $100,000), with only a small portion reporting an annual household income below $25,000. Importantly, the data used in the current study was collected between 2019 and 2021, at which time the federal poverty line in the United States for a family of 3 individuals was approximately $21,500 (*2019 Poverty Guidelines*, n.d.; *2020 Poverty Guidelines*, n.d.; *2021 Poverty Guidelines*,

n.d.). Thus, the low rate of lower income households within our sample could have contributed to this finding.

We also noted that race and ethnic differences emerged between the parenting profiles, suggesting that cultural factors may play a role in parenting practices in the ABCD sample. Specifically, Black parents were more likely to be categorized into the Red or Orange Profiles than White parents. Asian parents were also more likely to be categorized into the Red Profile than White parents. Research investigating parenting practices among racial and ethnic groups suggests that Black and Asian mothers tend to be less involved than White mothers (Baumrind, 1972; Mowen & Schroeder, 2018). Specifically, Black parents tend to use parenting tactics characterized by high levels of control and supervision to control externalizing behavior. On the other hand, White parents tend to use tactics characterized by caring and trust to address these behaviors (Cernikovich & Giodano, n.d.; Clark et al., 2002; Paschall et al., 2003). Similarly, Asian parents tend to use authoritarian parenting tactics, which are characterized by high levels of control/ supervision and low levels of warmth/ responsiveness (Leung et al., 1998). Therefore, our results support previous findings that Black and Asian parents tend to use high levels of control and discipline and low levels of involvement and warmth when parenting their children.

We found limited support for our hypothesized relationships between parenting profiles and childhood/adolescent externalizing/ internalizing. This is possibly attributable to a lack of power to resolve differences between profiles, given the importance of both parent and family characteristics in child psychopathology. More specifically, parenting did not predict child internalizing or externalizing consistently when assuming all children have similar parent characteristics and family environments. This contradicts previous findings which suggest that family-level problems, but not parent-level problems, predict children's internalizing and

externalizing symptoms (Stanger et al., 2004). This could be at least partially explained by the fact that, when both positive and negative parenting behaviors are included as predictors for child internalizing and externalizing outcomes, negative parenting seems to have a stronger impact than positive parenting (Stanger et al., 2004). The inclusion of both positive and negative parenting behaviors in our parenting profiles could have masked the overall effects of parenting in our models.

As such, the ABCD Study provided a unique opportunity to examine the robustness of parenting effects in light of a multitude of parent and family contexts. This was most apparent in our post-hoc analyses that evidenced significant main effects of parenting on externalizing when only singular parent and family characteristics were modeled. Children in our sample had more extreme externalizing behavior problems when their parents' parenting was characterized by decreased involvement and warmth and by increased physical punishment and inconsistent parenting. The same could not be said for internalizing outcomes. This contradicts literature suggesting that parenting behaviors such as low warmth, inconsistent discipline, and poor monitoring predict increased internalizing outcomes (Scaini et al., 2018; Yap & Jorm, 2015). However, our results do support previous findings that children with externalizing diagnoses tend to experience less family cohesion, more inconsistent parenting, less parental warmth and responsiveness, and more parental physical punishment (Lindahl, 1998; Morrell & Murray, 2003; Stormshak et al., 2000).

Most importantly, parent and family characteristics reliably explained variation in both child internalizing and externalizing behaviors. Moreover, parent characteristics and family environments had similar impacts on child internalizing and externalizing. Being in a family where either parent has had alcohol or drug problems, parent(s) have increased internalizing or

externalizing problems, family conflict is high, family cohesion is low, and family organization is low predicted increased child externalizing across waves. Similarly, being in a family where either parent has had alcohol or drug problems, parent(s) have increased internalizing or externalizing problems, household size is smaller, family conflict is high, family cohesion is low, and family organization is low predicted increased child internalizing across waves.

Previous research investigating the impact of parental and family characteristics on child internalizing and externalizing problems support the findings of the current study (e.g., Bountress & Chassin, 2015; Coley et al., 2011; Ehrensaft et al., 2003; Hughes & Gullone, 2008; Schleider & Weisz, 2017). It is possible that family environments have such a strong impact on child behavior due to their influence on emotion regulation. Lucia & Breslau (2006) suggested that healthier family environments, particularly those with higher cohesion, could have a beneficial impact on youth internalizing and externalizing because these environments encourage children to express their feelings directly. The researchers suggest that this allows children to develop skills to effectively manage their emotions while they are growing up (Lucia & Breslau, 2006).

While exploratory, results from the interaction models suggest that certain contexts can cause parenting to have differential impacts on child outcomes. Generally, children tended to exhibit worse internalizing and externalizing behavior problems when their parents demonstrated internalizing or externalizing psychopathology or substance use problems. Furthermore, when parents with internalizing or externalizing psychopathology/ substance use problems were accompanied by worse parenting tactics (i.e., from the Red or Orange Profiles), this exacerbated behavior problems in their children. Previous studies investigating the impact of interactions between parenting and other parent or family characteristics on youth internalizing/ externalizing

problems support these findings. For example, parental internalizing problems have been shown to predict increased adolescent externalizing problems through decreased parenting quality (Gruhn et al., 2016), and poor family functioning and parental substance use problems have been found to interact in predicting children's internalizing and externalizing symptoms (Stanger et al., 2002). These findings highlight the fact that, in the face of parental psychopathology or substance use problems, the parenting behaviors utilized by parents have the potential to exacerbate their children's internalizing/ externalizing problems. Relatedly, these findings also suggest that attenuating the effect of parental psychopathology on child internalizing and externalizing behavior is the mechanism by which parenting interventions are effective.

There were other notable trends that may be clinically relevant. Specifically, increased parent internalizing predicted increased child externalizing problems, and increased family organization and higher household income predicted decreased child externalizing problems for children whose parents fell in the Green Profile, but these effects were not seen for children whose parents fell in the Red Profile. In fact, children whose parents fell in the Red Profile showed similar levels of externalizing across all levels of parent internalizing, family organization, and household income, though these children had higher baseline levels of externalizing than children whose parents fell in the Green Profile. These results indicate that, compared to the Green Profile, children whose parents fall in the Red Profile have more baseline externalizing problems and that these problems are not affected by parent or family characteristics. Importantly, this suggests that, for children who have higher baseline levels of externalizing problems, interventions that target parent characteristics or family environments themselves may not be helpful in reducing these problems. Instead, addressing the parenting patterns used could be an effective way to address child externalizing problems.

Limitations and Future Directions

The current findings should be interpreted in light of several limitations. First, as mentioned previously, the parenting patterns found in this study could be specific to the ABCD sample. Parents who are willing to enroll their children in a cognitively demanding and time-consuming longitudinal study could be more highly involved in their children's lives than other parents. This could mean that the parents in the ABCD sample use more positive parenting practices and fewer negative parenting practices than other parents. Similarly, parenting behaviors were assessed via self-report in our sample, which could leave room for social desirability bias or a lack of self-awareness in reporting parenting. However, there is evidence to support moderate to high convergent validity between parenting self-report measures and other methods of measurement, such as parental observations (Morsbach & Prinz, 2006). Taken together with the high internal consistency (Shelton et al., 1996) and construct validity of the APQ (Elgar et al., 2007; Essau et al., 2006), this suggests that self-report methods are acceptable for measuring parenting behaviors. Additionally, the parenting measures we used were relatively skewed in our sample. Scales measuring more positive parenting behaviors (Involvement and Positive Parenting) tended to be negatively skewed, while scales measuring more negative parenting behaviors (Inconsistent Discipline, Poor Monitoring and Supervision, and Corporal Punishment) tended to be positively skewed.

Finally, the number of individuals categorized into the Red Parenting Profile was consistently quite small, with 196 individuals in wave 1, 34 in wave 2, and 60 in wave 3. While we tried to limit this issue by imposing a size threshold to maintain power in our descriptive analyses, the small size of the Red Profile could have resulted in insufficient power to detect smaller effect size differences between profiles. Future studies should leverage larger sample

sizes to create adequate power to detect potentially small but meaningful effects of parenting on child outcomes.

Summary

The current study provides four key findings that adds to our understanding of the role of parenting behaviors in child psychopathology. First, three parenting profiles reliably exist with ABCD, and these patterns do not mirror the parenting styles proposed by Baumrind (1968) or Maccoby & Martin (1983). While all three parenting profiles follow the same general pattern of higher levels of positive parenting behaviors and lower levels of negative parenting behaviors, the parenting profiles differ in the relative amounts of each parenting behavior used, namely the negative parenting behaviors. Second, parenting profiles can be further distinguished by certain parent- and family-level factors, particularly race/ethnicity, parental internalizing, parental externalizing, family conflict, family cohesion, and household income. Third, parenting profiles may act as a proxy for differences in parent and family characteristics that are robust indicators child internalizing and externalizing. Fourth, parenting practices in combination with certain parent and family environment characteristics can worsen or improve child internalizing and externalizing outcomes. Overall, this study has further refined our conceptual understanding of how parenting, parent characteristics, and family environment characteristics interrelate to affect child internalizing and externalizing behaviors. Additionally, the current findings indicate that more tailored parent training interventions can be created to address these child outcomes: in certain parental or family contexts, interventions targeting parenting have the potential to reduce child and adolescent internalizing and externalizing problems. However, future studies are needed to determine whether these interventions are effective in these contexts.

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Tables and Figures

Table 1. Descriptive Statistics (Mean [standard deviation]/N[%]) by Wave			
Variable Name	Wave 1 (2,251)	Wave 2 (1,876)	Wave 3 (1,273)
Child/Adolescent Behavior			
Child Internalizing	48.54 (10.57)	47.23 (10.47)	47.69 (10.75)
Child Externalizing	45.68 (10.41)	44.33 (10.00)	44.67 (9.78)
Child demographics			
Child Age	10.87 (0.65)	11.94 (0.66)	12.82 (0.65)
Child Race			
White	1,114 (49.5%)	952 (50.7%)	635 (50%)
Black	609 (27.1%)	480 (25.6%)	352 (27.7%)
Latinx	239 (10.6%)	200 (10.7%)	124 (9.7%)
Asian	34 (1.5%)	31 (1.7%)	19 (1.5%)
Other	255 (11.3%)	213 (11.4%)	143 (11.2%)
Child Sex			
Male	1,174 (52.2%)	976 (52%)	664 (52.2%)
Female	1,077 (47.8%)	900 (48%)	608 (47.8%)
Reporter			
Mother	1,831 (81.3%)	1,572 (83.8%)	1,071 (84.2%)
Father	254 (11.3%)	207 (11%)	114 (9%)
Adoptive Parent	28 (1.2%)	26 (1.4%)	17 (1.3%)
Custodial Parent	33 (1.5%)	29 (1.5%)	15 (1.2%)
Other	31 (1.4%)	22 (1.2%)	14 (1.1%)
NA	74 (3.3%)	20 (1.1%)	41 (3.2%)
Parenting measures			
Involvement	30.02 (5.16)	29.25 (5.32)	28.90 (5.36)
Positive Parenting	19.63 (3.17)	19.14 (3.35)	18.82 (3.46)
Inconsistent Discipline	6.59 (3.57)	6.46 (3.61)	6.05 (3.57)
Poor Monitoring	3.74 (0.95)	3.78 (0.66)	3.80 (0.51)
Corporal Punishment	0.95 (1.43)	0.66 (1.30)	0.51 (1.15)
Other Punishment	11.46 (3.57)	10.76 (3.56)	10.14 (3.71)
Parent Alcohol Problems			
Yes	314 (13.9%)	250 (13.3%)	161 (12.7%)
No	1937 (86.1%)	1626 (86.7%)	1111 (87.3%)
Parent Drug Problems			
Yes	243 (10.8%)	190 (10.1%)	138 (10.8%)
No	2008 (89.2%)	1686 (89.9%)	1134 (89.2%)
Parent Internalizing	48.53 (11.11)	48.00 (11.00)	48.04 (11.10)
Parent Externalizing	46.22 (9.99)	45.67 (9.92)	45.77 (9.88)
Family Environment Characteristics			
Household Size	4.55 (1.55)	4.49 (1.55)	6.33 (65.90)
Household Income			
<$5000	145 (6.4%)	104 (5.5%)	70 (5.5%)
$5,000-$11,999	110 (4.9%)	64 (3.4%)	49 (3.8%)

$12,000-$15,999	55 (2.4%)	47 (2.5%)	26 (2.0%)
$16,000-$24,999	119 (5.3%)	76 (4.1%)	58 (4.6%)
$25,000-$34,999	139 (6.2%)	108 (5.8%)	85 (6.7%)
$35,000-$49,999	162 (7.2%)	145 (7.7%)	77 (6.0%)
$50,000-$74,999	222 (9.8%)	192 (10.2%)	131 (10.3%)
$75,000-$99,999	240 (10.7%)	214 (11.4%)	131 (10.3%)
$100,000-$199,999	614 (27.3%)	549 (29.3%)	384 (30.2%)
>200,000	237 (10.5%)	230 (12.3%)	140 (11.0%)
NA	208 (9.2%)	147 (7.8%)	121 (9.5%)
Family Conflict	2.50 (1.92)	2.46 (1.97)	2.31 (1.93)
Family Cohesion	NA	7.24 (1.67)	7.23 (1.66)
Family Organization	NA	6.17 (2.06)	6.18 (2.02)

Note: Means and standard deviations are reported for continuous variables. Number of participants (n) and percent of sample are reported for categorical variables

Table 2. Fit Statistics of LPA Models of Parenting Behaviors

Wave	Model	AIC	BIC	SSA-BIC	Log-Likelihood	Entropy	Smallest Profile Prevalence (%)
1	Exploratory	33982.26	34112.878	34112.878	-16965.13	0.792	15.30%
	Validation	34067.463	34198.196	34198.196	-17007.732	0.964	7.70%
	Full Sample	68089.3	68237.997	68237.997	-34018.65	0.956	8.70%
2	Exploratory	28517.153	28643.09	28643.09	-14232.576	0.972	1.80%
	Validation	28139.8	28265.737	28265.737	-14043.9	0.991	2.40%
	Full Sample	56689.001	56832.96	56832.96	-28318.5	0.981	1.80%
3	Exploratory	18723.604	18839.234	18839.234	-9335.802	0.993	5.20%
	Validation	19078.841	19194.88	19194.88	-9513.421	0.995	4.30%
	Full Sample	37786.637	37920.494	37920.494	-18867.319	0.994	4.70%

Table 3. Regression Results Predicting Parenting Profile Membership from Child, Parent, and Family Characteristics

Variable Name	Profile (vs Profile 3)	Wave 1 OR [95% CI]	Wave 2 OR [95% CI]	Wave 3 OR [95% CI]
Child Age	Class 1	1.14 [.87, 1.50]	1.15 [.79, 1.67]	0.89 [.56, 1.42]
	Class 2	0.82 [.67, 1.01]	0.94 [.73, 1.20]	0.95 [.67, 1.34]
Child Sex	Class 1	0.74 [.51, 1.06]	**0.59 [.36, .97]**	**0.51 [.27, .98]**
	Class 2	0.91 [.71, 1.17]	0.81 [.59, 1.12]	0.81 [.52, 1.27]
Child Race				
Black vs White	Class 1	**6.60 [4.13, 10.54]**	**7.765 [3.78, 15.94]**	**9.88 [3.79, 25.78]**
Latinx vs White		1.62 [.73, 3.58]	**4.65 [1.08, 12.0]**	**5.12 [1.34, 19.59]**
Asian vs White		**7.36 [2.78, 19.54]**	**7.14 [1.75, 29.16]**	**26.21 [5.32, 129.24]**
Other vs White		**2.42 [1.09, 5.39]**	2.78 [.89, 8.62]	2.66 [.69, 10.3]
Black vs White	Class 2	**2.67 [2.0, 3.56]**	**2.89 [1.99, 4.19]**	**2.16 [1.32, 3.54]**
Latinx vs White		1.46 [.94, 2.25]	**1.74 [1.01, 3.0]**	1.04 [.46, 2.33]
Asian vs White		1.02 [.34, 3.09]	2.55 [.89, 7.26]	**7.1 [2.18, 23.15]**
Other vs White		**2.52 [1.61, 3.94]**	**1.95 [1.12, 3.4]**	1.88 [.83, 4.26]
Parent Alcohol Problems	Class 1	1.06 [.64, 1.77]	1.83 [.99, 3.4]	0.84 [.31, 2.26]
	Class 2	1.03 [.71, 1.49]	0.80 [.49, 1.32]	1.05 [.55, 2.02]
Parent Drug Problems	Class 1	1.16 [.66, 2.03]	1.08 [.46, 2.52]	0.63 [.21, 1.91]
	Class 2	**1.51 [1.03, 2.21]**	1.39 [.86, 2.22]	1.37 [.72, 2.62]
Parent Internalizing	Class 1	1.01 [.99, 1.03]	1.01 [.99, 1.03]	0.99 [.97, 1.02]
	Class 2	**1.02 [1.0, 1.03]**	**1.02 [1.0, 1.03]**	**1.03 [1.0, 1.05]**
Parent Externalizing	Class 1	**1.04 [1.02, 1.06]**	**1.04 [1.02, 1.06]**	**1.04 [1.02, 1.07]**
	Class 2	**1.03 [1.02, 1.05]**	**1.03 [1.01, 1.04]**	**1.04 [1.01, 1.06]**
Family Conflict	Class 1	**1.3 [1.18, 1.43]**	**1.33 [1.17, 1.52]**	**1.2 [1.05, 1.36]**
	Class 2	**1.24 [1.16, 1.32]**	**1.15 [1.07, 1.24]**	**1.25 [1.13, 1.39]**
Family Cohesion	Class 1	-	**0.76 [.67, .86]**	**0.81 [.69, 0.94]**
	Class 2	-	0.96 [.87, 1.06]	0.99 [.88, 1.14]
Family Organization	Class 1	-	0.92 [.82, 1.03]	0.96 [.83, 1.11]
	Class 2	-	0.96 [.88, 1.04]	0.92 [.84, 1.02]
Household Size	Class 1	0.97 [.84, 1.13]	0.92 [.75, 1.13]	0.999 [.997, 1]
	Class 2	**1.13 [1.04, 1.23]**	**1.13 [1.01, 1.26]**	0.999 [.998, 1]
Household Income	Class 1	**0.8 [.75, .85]**	**0.76 [.7, .83]**	**0.82 [.75, .89]**
	Class 2	**0.86 [.82, .9]**	**0.88 [.83, .93]**	**0.91 [.84, .99]**
Parent Reporter				
Father vs Mother	Class 1	0.51 [0.25, 1.04]	0.42 [.13, 1.36]	1.12 [.41, 3.02]
Adoptive vs Mother		0.53 [.12, 2.44]	1.87 [.24, 14.46]	-
Custodial vs Mother		1.12 [.32, 3.94]	3.41 [.99, 11.78]	-
Other Parent vs Mother		1.54 [.41, 5.70]	1.67 [.35, 7.85]	-

Father vs Mother	Class 2	0.86 [.56, 1.33]	0.69 [.37, 1.26]	0.53 [.17, 1.67]
Adoptive vs Mother		0.95 [.22, 4.18]	0.73 [.19, 2.79]	0.94 [.12, 7.38]
Custodial vs Mother		1.90 [.78, 4.62]	0.32 [.07, 1.39]	-
Other Parent vs Mother		0.98 [.35, 2.74]	0.96 [.27, 3.40]	3.10 [.89, 10.80]

Note: Bolded values represent those that reached statistical significance as indicated by 95% confidence intervals that do not include 1

Table 4.Unstandardized Effect Sizes and Standard Errors Predicting Child Externalizing from Parenting and all Parent and Family Characteristics

	Wave 1	Wave 2	Wave 3
	Estimate (SE)	Estimate (SE)	Estimate (SE)
(Intercept)	25.60 (4.40)	30.35 (5.19)	52.27 (6.84)***
Red Profile (vs Green)	2.12 (1.07)*	0.54 (1.34)	1.19 (1.75)
Orange Profile (vs Green)	0.97 (0.70)	0.74 (0.83)	1.89 (0.10)
Household Size	-0.002 (0.17)	0.18 (0.17)	-0.12 (0.20)
Household Income	-0.23(0,13)	0.004 (0.12)	0.19 (0.14)
Parent Alcohol Problems	1.02 (0.84)	0.62 (0.85)	1.24 (1.05)
Parent Drug Problems	3.12 (0.97)**	2.94 (2.55)*	2.33 (1.13)*
Parent Internalizing	0.16 (0.03)***	0.19 (0.03)***	0.15 (0.04)***
Parent Externalizing	0.15 (0.04)***	0.17 (0.038)***	0.16 (0.05)***
Family Conflict	1.35 (0.14)***	1.01 (0.15)***	0.87 (0.18)***
Family Cohesion	-	-0.49 (0.19)*	-0.83 (0.22)***
Family Organization	-	-0.06 (0.14)	-0.30 (0.17)

*Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Table 5. Unstandardized Effect Sizes and Standard Errors Predicting Child Internalizing from Parenting and all Parent and Family Characteristics

	Wave 1	Wave 2	Wave 3
	Estimate (SE)	Estimate (SE)	Estimate (SE)
(Intercept)	25.26 (4.80)	29.10 (5.24)	50.22 (7.51)***
Red Profile (vs Green)	-1.47 (1.08)	-0.30 (1.15)	-0.43 (1.60)
Orange Profile (vs Green)	-0.08 (0.71)	0.06 (0.80)	0.90 (1.02)
Household Size	-0.38 (0.17)*	-0.37 (0.18)*	-0.68 (0.22)**
Household Income	0.095 (0.13)	0.26 (0.13)	0.43 (0.14)**
Parent Alcohol Problems	2.88 (0.86)***	1.73 (0.81)*	0.65 (1.09)
Parent Drug Problems	2.15 (1.00)*	1.15 (1.11)	2.89 (1.19)*
Parent Internalizing	0.29 (0.04)***	0.40 (0.03)***	0.33 (0.04)***
Parent Externalizing	0.10 (0.04)*	0.06 (0.04)	0.07 (0.05)
Family Conflict	0.69 (0.16)***	0.28 (0.15)	0.16 (0.18)
Family Cohesion	-	0.01 (0.19)	-0.42 (0.23)
Family Organization	-	-0.32 (0.15)*	-0.72 (0.18)

*Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

Table 6. Unstandardized Effect Sizes and Standard Errors Predicting Child Externalizing from Parenting and Individual Parent and Family Characteristics

		Main Effects Models			Interaction Models	
Wave	Main Effect Variable	Profile 1 vs 3 Main Effect	Profile 2 vs 3 Main Effect	Variable Main Effect	P1v3 x Main Effect	P2v3 x Main Effect
1	Parent Alcohol Problems	6.27 (1.10)***	3.44 (.77)***	3.99(.85)***	-2.20 (2.57)	-1.57 (2.06)
	Parent Drug Problems	6.12 (1.09)***	3.16 (.76)***	5.27 (.93)***	-0.76 (2.39)	0.67 (2.21)
	Parent Internalizing	4.71 (.99)***	2.54 (.68)***	0.34 (.02)***	-0.04 (.08)	0.10 (.06)
	Parent Externalizing	4.10 (.97)***	2.01 (.71)**	0.37 (.03)***	0.02 (.08)	0.05 (.07)
	Household Size	6.18 (1.13)***	3.75 (.79)***	0.06 (.20)	-0.68 (.67)	-0.65 (.45)
	Household Income	5.07 (1.12)***	2.81 (.79)***	-0.60(.13)***	0.72 (.37)*	0.22 (.29)
	Family Conflict	4.44 (1.09)***	1.97 (.73)**	1.87 (.14)***	-0.52 (.49)	0.23 (.35)
2	Parent Alcohol Problems	3.10 (1.41)*	2.96 (.99)**	2.86 (.94)**	-3.24 (4.10)	-1.30 (2.46)
	Parent Drug Problems	3.23 (1.37)*	2.65 (.96)**	4.73 (1.16)***	-2.37 (4.48)	0.99 (2.93)
	Parent Internalizing	2.02 (1.33)	1.69 (.80)*	0.39 (.03)***	-0.07 (.11)	0.13 (.06)*
	Parent Externalizing	0.90 (1.30)	1.38 (.83)	0.43 (.03)***	-0.02 (.11)	0.16 (.07)*
	Household Size	3.34 (1.44)*	3.00 (.99)**	0.12 (0.19)	-0.18 (.77)	.26 (.55)
	Household Income	3.18 (1.47)*	3.01 (1.05)**	-0.49 (.16)**	-0.03 (.53)	0.40 (.40)
	Family Conflict	1.12 (1.33)	1.89 (.93)*	1.85 (.14)***	-0.43 (.60)	0.26 (.46)
	Family Cohesion	1.60 (1.32)	2.71 (.94)**	-1.72 (.19)***	0.06 (.71)	-0.04 (.54)
	Family Organization	2.52 (1.35)	2.53 (.93)**	-1.18 (.14)***	-0.08 (.61)	-0.65 (.43)
3	Parent Alcohol Problems	4.74 (1.61)**	4.09 (1.22)**	3.26 (1.07)**	2.83 (8.85)	5.69 (2.36)*
	Parent Drug Problems	4.77 (1.59)**	3.90 (1.20)**	3.73 (1.03)***	3.33 (8.83)	6.12 (2.21)**
	Parent Internalizing	4.30 (1.69)*	2.81 (1.05)**	0.34 (0.03)***	-0.36 (.11)**	0.04 (0.08)
	Parent Externalizing	2.22 (1.52)	2.48 (1.01)*	0.39 (.03)***	-0.10 (.10)	0.20 (.08)**
	Household Size	4.59 (1.67)**	3.93 (1.25)**	-.103 (.22)	-0.68 (.78)	1.29 (.80)
	Household Income	3.95 (1.73)*	4.17 (1.28)**	-0.14 (.16)	-0.97 (.85)	-0.04 (.48)
	Family Conflict	3.57 (1.72)*	2.59 (1.11)*	1.70 (.17)***	-1.19 (1.10)	0.39 (.55)
	Family Cohesion	3.60 (1.57)*	4.08 (1.21)**	-1.75 (.22)***	0.23 (.92)	0.39 (.78)
	Family Organization	4.04 (1.67)*	3.38 (1.19)**	-1.26 (.17)***	1.33 (0.63)*	-0.56 (.50)

*Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

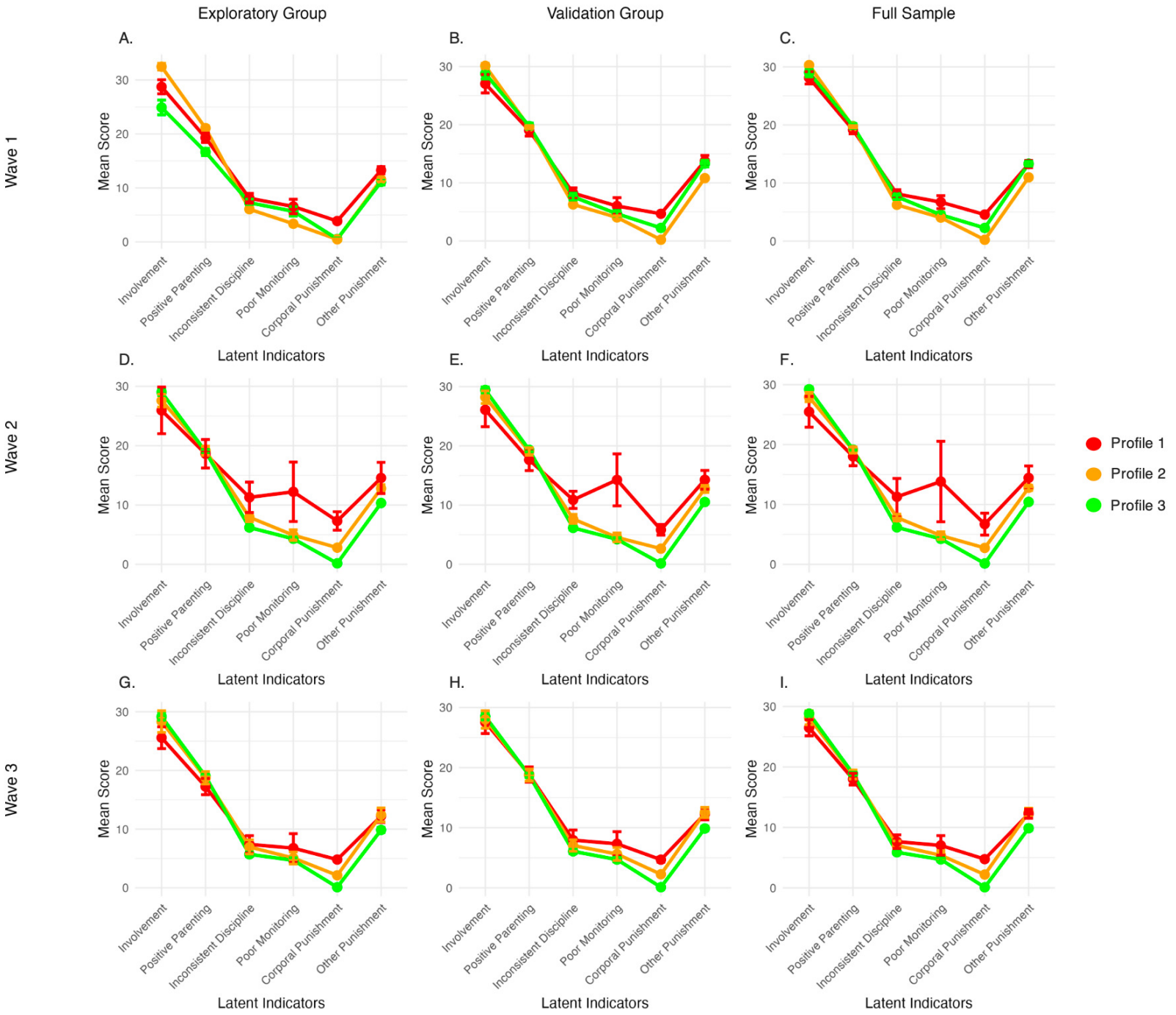
Table 7. Unstandardized Effect Sizes and Standard Errors Predicting Child Internalizing from Parenting and Individual Parent and Family Characteristics

		Main Effects Models			Interaction Models	
Wave	Main Effects Variables	Profile 1 vs 3 Main Effect	Profile 2 vs 3 Main Effect	Variable Main Effect	P1v3 x Main Effect	P2v3 x Main Effect
1	Parent Alcohol Problems	1.67(1.10)	1.64(.75)*	5.52(.86)***	0.04 (2.84)	-0.64 (2.38)
	Parent Drug Problems	1.58 (1.11)	1.42 (.75)	4.82 (.92)***	-0.02 (3.34)	-1.01 (2.32)
	Parent Internalizing	0.15 (1.02)	0.59 (.68)	0.40 (.02)***	0.06 (.08)	0.07 (.05)
	Parent Externalizing	-0.26 (1.01)	0.21 (.73)	0.37 (.03)***	0.15 (.08)	0.04 (.08)
	Household Size	1.7 (1.17)	2.06 (.78)**	-0.34 (.19)*	-0.73 (.63)	-0.84 (.40)*
	Household Income	0.86 (1.19)	1.16 (.80)	-0.34 (.14)**	0.26 (.43)	-0.12 (.30)
	Family Conflict	0.49 (1.09)	0.66 (.75)	1.30 (0.16)***	0.62 (.53)	0.34 (.41)
2	Parent Alcohol Problems	0.34 (1.36)	1.62 (1.02)	2.99 (.95)**	-2.71 (3.41)	-3.82 (2.63)
	Parent Drug Problems	0.55 (1.35)	1.05 (.99)	2.86 (1.13)**	-3.08 (3.94)	1.66 (3.06)
	Parent Internalizing	-1.03 (1.07)	-0.29 (.76)	0.49 (0.02)***	0.10 (.08)	0.17(.05)**
	Parent Externalizing	-1.77 (1.27)	-0.27 (.84)	0.41 (.03)***	0.11 (.10)	0.28 (.06)***
	Household Size	0.74 (1.40)	1.58 (1.01)	-0.55 (.19)**	-0.55 (.71)	0.02 (.58)
	Household Income	1.19 (1.43)	1.91 (1.07)	-0.20 (.16)	-0.59 (.52)	-0.50 (.40)
	Family Conflict	-0.75 (1.40)	0.60 (.97)	1.12 (.16)***	-0.74 (.67)	0.82 (.48)
	Family Cohesion	-0.70 (1.39)	1.06 (.95)	-1.27 (.20)***	0.11 (.83)	-0.97 (.55)
	Family Organization	-0.26 (1.34)	0.81 (.92)	-1.23 (.15)***	0.27 (.76)	-0.96 (.40)**
3	Parent Alcohol Problems	1.73 (1.51)	3.15 (1.27)*	2.78 (1.7)*	0.11 (5.81)	4.35 (4.48)
	Parent Drug Problems	1.74 (1.50)	2.95 (1.27)*	3.89 (1.22)**	0.28 (8.00)	3.57 (3.15)
	Parent Internalizing	1.16 (1.50)	1.52 (1.01)	0.43 (.03)***	-0.28 (.12)*	0.08 (.07)
	Parent Externalizing	-0.81 (1.43)	1.52 (1.09)	0.40 (.04)***	-0.10 (.10)	0.14 (.11)
	Household Size	1.74 (1.54)	3.07 (1.30)*	-0.63 (.26)*	-0.29 (.82)	0.01 (.91)
	Household Income	1.21 (1.59)	2.97 (1.34)*	-.007 (.20)	-1.27 (.74)	-0.72 (.51)
	Family Conflict	0.99 (1.58)	2.17 (1.24)	1.10 (.19)***	-0.60 (.87)	0.10 (.63)
	Family Cohesion	0.74 (1.54)	3.13 (1.29)*	-1.52 (.22)***	0.50 (.84)	1.16 (.66)
	Family Organization	0.94 (1.54)	2.37 (1.22)*	-1.39 (.19)***	0.52 (.62)	-0.76 (.55)

*Note: * $p < 0.5$, ** $p < 0.01$, *** $p < 0.001$.*

Figure 1. Means and 95% Confidence Intervals of Parenting Behaviors by Parenting Profile.

(RStudio Team, 2024).



Note: Error bars indicate 95% confidence intervals around the means. Maximum scores for parenting behavior scales are as follows: Involvement = 40, Positive Parenting = 24, Inconsistent Discipline = 24, Poor Monitoring = 40, Corporal Punishment = 12, and Other Punishment = 28.

Appendix

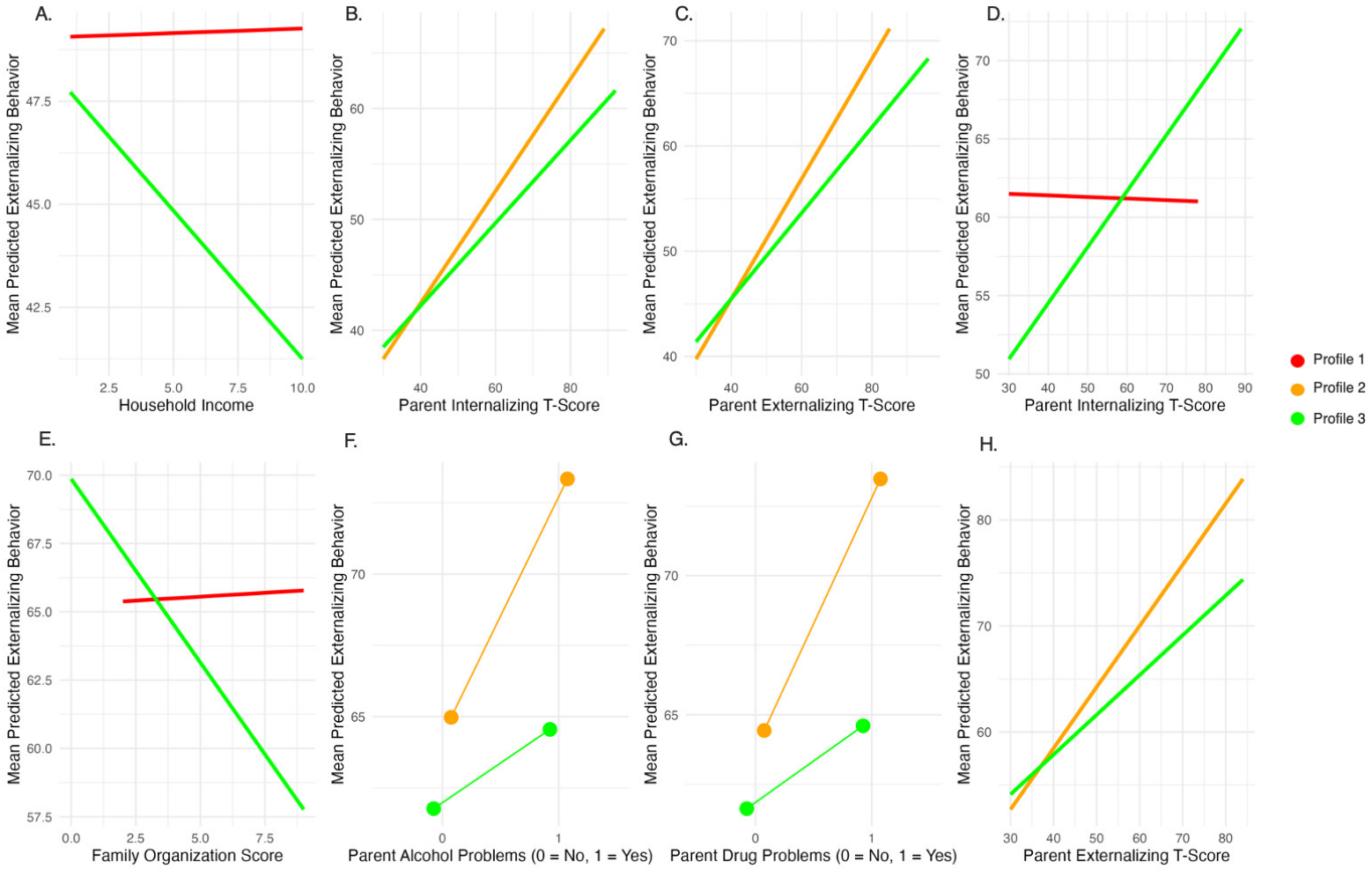
Table 1. Fit Statistics of Preliminary Exploratory LPA Models

Number of Profiles	AIC	BIC	SSA-BIC	Log-Likelihood	Entropy	Smallest Profile Prevalence (%)
2	176987.248	177113.875	177053.499	-88474.624	0.940	12%
3	174673.583	174846.862	174764.242	-87310.792	0.973	6.15%
4	173274.786	173494.717	173389.852	-86604.39	0.954	2.6%
5	171865.060	172131.643	172004.534	-85892.530	0.851	1.57%

Table 2. Child Internalizing and Externalizing T-Score Means and Standard Deviations by Profile and Wave

Variable Name	Wave 1 (N = 2,251)	Wave 2 (N = 1,876)	Wave 3 (N = 1,273)
Child Internalizing	48.54 (10.57)	47.23 (10.47)	47.69 (10.75)
Profile 1	49.22 (11.02)	46.77 (11.02)	46.42 (9.44)
Profile 2	49.23 (10.93)	48.03 (11.61)	49.59 (10.79)
Profile 3	48.29 (10.42)	47.14 (10.24)	47.56 (10.79)
Child Externalizing	45.68 (10.41)	44.33 (10.00)	44.67 (9.78)
Profile 1	51.32 (11.10)	47.69 (11.03)	57.77 (10.00)
Profile 2	48.32 (11.22)	47.41 (11.47)	48.74 (11.12)
Profile 3	44.42 (9.79)	43.64 (9.54)	44.11 (9.50)

Figure 1. Moderation Effects of Parenting Profile on the Relationships Between Parent and Family Characteristics and Child Externalizing. (RStudio Team, 2024).



Note: Figures 1A, 1D, and 1E display the moderation effects of membership in Parenting Profile 1 (Red) vs Profile 3 (Green) and Household Income in wave 1 (A), Parent Internalizing T-scores in wave 3 (D), and Family Organization in wave 3 (E) in predicting Child Externalizing T-scores within their respective waves of data. Figures 1B, 1C, 1F, 1G, and 1H display the moderation effects of membership in Parenting Profile 2 (Orange) vs Profile 3 (Green) and Parent Internalizing T-scores in wave 2 (B), Parent Externalizing T-scores in wave 2 (C), history of Parent Alcohol Problems in wave 3 (F), history of Parent Drug Problems in wave 3(G), and Parent Externalizing T-scores in wave 3 (H) in predicting Child Externalizing T-scores within their respective waves of data. T-scores range from 0-100 with a mean of 50 and a standard deviation of 10. Household income is represented in 10 ordered bins: <$5,000; $5,000-$11,999; $12,000-$15,999; $16,000-$24,999; $25,000-$34,999; $35,000-$49,999; $50,000-$74,999; $75,000-$99,999; $100,000-$199,999; and >$200,000. Family Organization scores range from 0-12. History of Parent Alcohol and Drug Problems are represented as 0 = No and 1 = Yes. All interactions displayed reached statistical significance ($p < 0.05$)

Figure 2. Moderation Effects of Parenting Profile on the Relationships Between Parent and Family Characteristics and Child Internalizing. (RStudio Team, 2024)

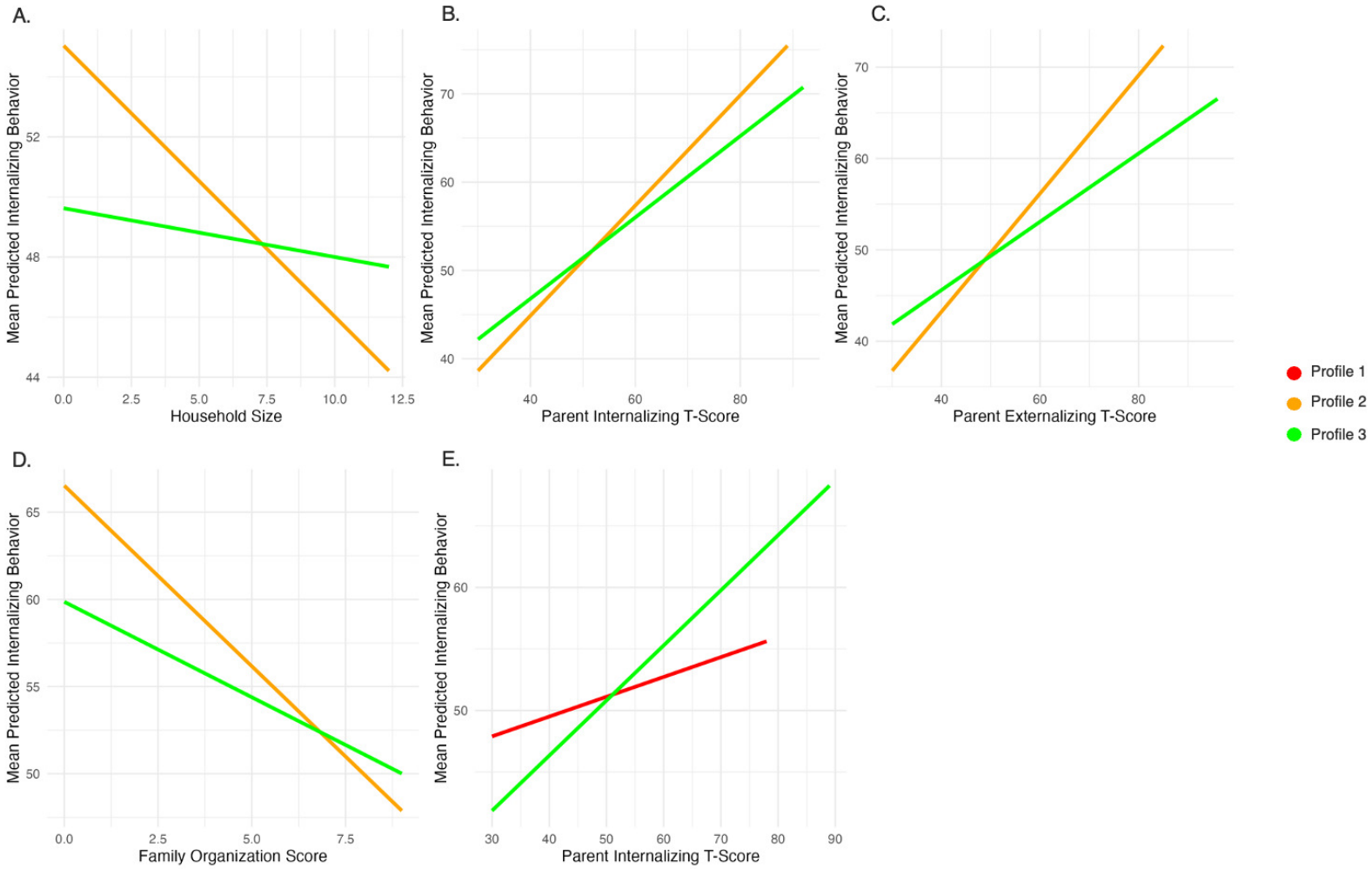


Figure 2E displays the moderation effects of membership in Parenting Profile 1 (Red) vs Profile 3 (Green) and Parent Internalizing T-scores in wave 3 in predicting Child Internalizing T-scores within their respective waves of data. Figures 2A, 2B, 2C, and 2D display the moderation effects of membership in Parenting Profile 2 (Orange) vs Profile 3 (Green) and Household Size in wave 1 (A), Parent Internalizing T-scores in wave 2 (B), Parent Externalizing T-scores in wave 2 (C), and Family Organization in wave 2 (D) in predicting Child Externalizing T-scores within their respective waves of data. T-scores range from 0-100 with a mean of 50 and a standard deviation of 10. Household size is represented as the total number of individuals living in the household. Family Organization scores range from 0-12. All interactions displayed reached statistical significance ($p < 0.05$)