AMERICAN PSYCHOLOGICAL ASSOCIATION

Developmental Psychology

ISSN: 0012-1649

2020, Vol. 56, No. 10, 1906–1918
http://dx.doi.org/10.1037/dev0001095

Trajectories of Pure and Co-Occurring Internalizing and Externalizing Problems From Early Childhood to Adolescence: Associations With Early Childhood Individual and Contextual Antecedents

Qinxin Shi and Idean Ettekal
Texas A&M University

Marike H. F. Deutz
Erasmus University Rotterdam

Steven Woltering
Texas A&M University

As internalizing and externalizing problems often co-occur, the current study utilized a longitudinal dataset of 784 at-risk children (predominantly from low-income families and academically at-risk; 52.6% male) followed yearly from Grade 1 to Grade 12 to: (a) explore the heterogeneity in the codevelopment patterns of internalizing and externalizing problems by using a person-centered approach, and (b) investigate early childhood antecedents that might explain differentiated codevelopmental patterns. The antecedents consisted of individual (i.e., ego-resilient personality, intelligence, language ability, gender, and ethnicity) and contextual factors (i.e., maternal support and responsiveness, family socioeconomic adversity, teacher–child relationship conflict, and peer rejection). We identified 4 distinct codevelopment patterns including a chronic co-occurring group (30.1%), a moderate co-occurring group (28.5%), a pure-externalizing group (18.6%), and a low-risk group (22.8%). While children who belonged to any of the 3 higher risk groups exhibited more adverse early childhood antecedents compared with the low-risk group, the chronic co-occurring group displayed the most severe profiles of early childhood antecedents compared with the moderate co-occurring and the pure-externalizing groups. Common antecedents for the 3 higher risk groups were lower ego-resilient personality, higher teacher–child relationship conflict, being male, and being African American. Low language ability and peer rejection were identified as unique antecedents for the chronic co-occurring group.

Keywords: internalizing, externalizing, co-occurrence, growth mixture modeling, developmental psychopathology

Supplemental materials: http://dx.doi.org/10.1037/dev0001095.supp

A growing body of evidence supports the viewpoint that internalizing (i.e., social withdrawal, anxiety, depression, and psychosomatic reactions) and externalizing (i.e., conduct problems, aggression, and attention difficulties) problems are continuous rather than categorical, and that different forms of problem behaviors often co-occur (Achenbach, Ivanova, Rescorla, Turner, & Althoff, 2016; Caspi & Moffitt, 2018). Indeed, moderate correlations between internalizing and externalizing problems have been consistently documented in childhood and adolescence (Gilliom & Shaw, 2004). Co-occurring problems have also been associated with unique outcomes and etiologies. Compared with children and adolescents with either externalizing *or* internalizing problems, those with co-occurring problems are more likely to experience other mental health problems such as substance abuse, addiction and eating disorders, suffer from greater functional interference, and exhibit lower academic performance (Achenbach et al., 2016; Oland & Shaw, 2005). Underlying these empirical findings are multiple theoretical perspectives and frameworks which highlight the importance of considering the co-occurrence of problem behaviors, and which propose that internalizing and externalizing behaviors often develop in conjunction with one another (see Caspi & Moffitt, 2018; Keiley, Bates, Dodge, & Pettit, 2000; Lee & Bukowski, 2012; Woltering & Shi, 2016).

There is also considerable evidence indicating that children who face early adversities, including family socioeconomic adversity as well as being academically at-risk, are at greater risk for exhibiting maladaptive trajectories of internalizing and externalizing problems (Hanson et al., 2017). Moreover, when adversity comes in multiple forms (e.g., both low language ability and high family adversity), its effects are more debilitating because children are particularly sensitive to the cumulative negative impact of multiple stressors (Atzaba-Poria, Pike, & Deater-Deckard, 2004; Green-

This article was published Online First August 20, 2020.

Qinxin Shi and Idean Ettekal, Department of Educational Psychology, Texas A&M University; Marike H. F. Deutz, Department of Psychology, Education and Child Studies, Erasmus University Rotterdam; Steven Woltering, Department of Educational Psychology, Texas A&M University.

The authors thank Jan N. Hughes for providing our team access to the project Achieve data set. The data collection for this research project was supported by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) Grant HD39367 to Jan N. Hughes.

Correspondence concerning this article should be addressed to Steven Woltering, Department of Educational Psychology, Texas A&M University, 4225 TAMU, 540 Ross Street, College Station, TX 77843. E-mail: swolte@tamu.edu

berg, Speltz, DeKlyen, & Jones, 2001). Thus, it is of great importance to not only investigate the prevalence and severity of co-occurring internalizing and externalizing problems exhibited by children facing multiple early adversities, but to also examine what early childhood antecedents might buffer some at-risk children from developing these problem behaviors.

Although there has been a longstanding interest in understanding the co-occurrence of problem behaviors, it is notable that the majority of long-term longitudinal studies have examined the developmental trajectories of internalizing and externalizing problems separately. Consequently, the current study aims to contribute to a growing, yet more limited, body of research on the long-term, co-occurring development of problem behaviors. More specifically, the first goal was to identify co-occurring patterns (i.e., heterogeneous developmental trajectories) of internalizing and externalizing problem behaviors across the entire formal schooling period (i.e., Grades 1 to 12) using a high frequency of measurement points (i.e., every year). The second goal was to examine a set of early childhood antecedents in order to identify which factors might account for individual differences in the development of co-occurring internalizing and externalizing problems. To investigate these aims, this study used data from an at-risk sample of children facing both early family socioeconomic adversity and language difficulties.

Co-Occurring Development of Internalizing and Externalizing Problems

The empirical evidence pertaining to the development of co-occurring internalizing and externalizing problems has been garnered from studies that have utilized both variable-centered and person-centered approaches. Findings from variable-centered studies which have typically focused on examining concurrent or prospective associations and (changes in) rank-order stability suggest that internalizing and externalizing problems often co-occur throughout childhood and adolescence, and exhibit transactional or reciprocal associations during these periods (Caspi & Moffitt, 2018; Farrington, 1995; Lahey et al., 2015; Lee & Bukowski, 2012). Moreover, findings from these studies provide support for a general psychopathology factor, indicating a shared commonality between internalizing and externalizing problems.

Using person-centered methods, several studies have examined the heterogeneity in the co-occurring developmental trajectories of internalizing and externalizing problems (see Chen & Simons-Morton, 2009; Fanti & Henrich, 2010; Hinnant & El-Sheikh, 2013; Nivard et al., 2017; Wiggins, Mitchell, Hyde, & Monk, 2015). These methods (e.g., parallel-process latent class growth analysis or growth mixture modeling) allow for the identification of specific developmental trajectories (based on variations in severity and chronicity), and are ideal for detecting distinct subgroups of individuals who share similar developmental trends over time (Muthén & Muthén, 2000). Despite some methodological differences, four subtypes (trajectory classes) have been most consistently identified: (a) low-risk, (b) pure-externalizing, (c) pure-internalizing, and (d) chronic co-occurring (see Supplement Materials Section A for a more detailed discussion of each subtype).

Although there has been some consistency in the identification of these four subtypes, it is important to highlight that investigators have typically examined specific developmental epochs. For instance, patterns of co-occurring developmental trajectories have been previously documented in early childhood (i.e., ages 3 to 9; see Wiggins et al., 2015), middle childhood (ages 8 to 11; see Hinnant & El-Sheikh, 2013), early adolescence (Grades 6 to 9; see Chen & Simons-Morton, 2009), and from early through late childhood (ages 2 to 12; see Fanti & Henrich, 2010). Thus, more is known about patterns of development *within* specific developmental periods, as opposed to potential continuity across longer periods of time, and more specifically, from early childhood through adolescence. However, there has been one published study, to our knowledge, that has examined the transition from childhood through adolescence. Using data from a long-term longitudinal project, Nivard et al. (2017) examined the development of co-occurring internalizing and externalizing problems from ages 7 to 15. One potential limitation of that study was that internalizing and externalizing problems were not assessed on a yearly basis (i.e., their assessments were conducted when participants were 7-, 10-, 13-, and 15-years-old), which may have decreased the ability to detect variations or heterogeneity in developmental trends across this period.

Early Childhood Individual and Contextual Antecedents

Differentiating children with co-occurring developmental trajectories from those who exhibit either internalizing or externalizing problems may also provide additional insights into the etiology of these problem behaviors in early childhood and the extent to which distinct trajectory subtypes either share common or unique antecedents. Common antecedents refer to factors that are involved in the prediction of multiple trajectories, whereas unique antecedents contribute only to the prediction of a specific developmental trajectory subtype. The former construct aligns with the concept of multifinality, which argues that the same antecedents may lead to different forms of maladjustment (Cicchetti & Rogosch, 1996). It is also possible, however, that the antecedents which predict co-occurring problems are distinct from those which predict only one domain of problem behaviors (Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003). Efforts to differentiate the antecedents of these trajectory subtypes would not only contribute to our theoretical understanding of why children are at risk for manifesting different forms of problem behaviors in childhood and adolescence, but may also have implications for intervention and prevention efforts targeting the development of problem behaviors.

In the current study, we apply a risk and resilience framework (Masten, Best, & Garmezy, 1990) to evaluate the role of multiple early childhood antecedents. This framework considers how child adjustment is a dynamic process of adaptation in the context of adversity. This dynamic process has been argued to come from three sets of factors: attributes of the children themselves, characteristics of their families, and influences from their wider social environments (Rutter, 1987). That is to say, these three sets of factors can work to either mitigate or exacerbate children and adolescents' internalizing and externalizing problems in both additive and/or interactive ways. We refer to the attributes of the children themselves as individual factors and the characteristics of families and influences from wider social environments as contextual antecedents.

Additionally, we evaluate the potential additive effects of multiple *individual factors* including aspects of temperament and personality (e.g., ego-resiliency), difficulties in language ability, intelligence, and demographic characteristics such as gender and ethnicity, as well as *contextual factors* consisting of maternal support and responsiveness, problems in interpersonal functioning with teachers and peers at school; and family socioeconomic adversity. A detailed justification for the inclusion of each of these factors can be found in Supplemental Material Section B. Our focus on considering the additive effects of these factors stems from the multiple risk factor model (Atzaba-Poria et al., 2004; Greenberg et al., 2001). According to this model, more severe and persistent forms of maladjustment are likely to be the result of multiple, co-occurring risk factors. Thus, it would be expected that children with chronic co-occurring problem behaviors are likely to exhibit a combination of early childhood risk factors across multiple domains (i.e., at the individual and contextual levels). Moreover, in consideration of resilience perspectives, it is plausible that chronic co-occurring problem behaviors are likely to emerge when children lack individual or contextual assets (e.g., ego-resiliency or supportive parenting) which may help to offset or diminish risk exposure. Although the independent effects of these factors have been substantiated in prior studies, much of this research has focused on internalizing and externalizing problems as distinct outcomes. Moreover, the potential additive effects of multiple individual characteristics and contextual experiences in distinct relational domains (i.e., parents, teachers, and peers) have not been comprehensively examined in one investigation. This has limited our ability to consider and detect potential confounding effects of the risk and protective factors most strongly associated with the development of co-occurring problems.

Study Aims and Hypotheses

The current study extends prior research in several ways as we examined the heterogeneity in the codevelopment of internalizing and externalizing problems across a longer time span than previously investigated (i.e., Grades 1 to 12), and utilized a multiinformant and multimethod approach to assess the additive effects of multiple early childhood antecedents in a sample of at-risk children (predominantly from lower-income families and academically at-risk). Compared with prior studies, we attempted to examine a broader range of antecedents, and incorporated factors that may confer both risk and resilience in the development of internalizing and externalizing problems. In light of the potential confounding effects of individual and contextual antecedents, children's individual characteristics (i.e., resilient personality, language ability, intelligence), contextual factors (i.e., family socioeconomic adversity, maternal support and responsiveness, teacher–child conflict and peer rejection) and demographic characteristics (i.e., gender and ethnicity) were examined simultaneously to control for the effects of other factors. To effectively prevent and intervene in the codevelopment of problem behaviors, it is imperative to identify the most salient risk and protective antecedents that may be associated with their early onset.

With respect to our first aim, we expected to identify four codevelopmental trajectory classes: a pure-internalizing, pure-externalizing, chronic co-occurring, and low-risk class. We hypothesized that the majority of children would be classified in the low-risk class (i.e., exhibiting low rates of internalizing and externalizing problems). Furthermore, we hypothesized that a relatively smaller subset of children would exhibit chronic co-occurring problem behavior trajectories. Considering that externalizing problems tend to be more salient and observable than internalizing problems, particularly in childhood, we hypothesized that a higher frequency of children would exhibit pure-externalizing problems compared to pure-internalizing problems.

With respect to examining early childhood antecedents, consistent with the multiple risk factor model, we hypothesized that children with chronic co-occurring problems would exhibit a more severe profile of early childhood individual and contextual antecedents compared with children whose developmental trajectories were characterized as being low-risk or pure-internalizing *or* externalizing problems (Atzaba-Poria et al., 2004; Greenberg et al., 2001). As a complementary aim, we sought to further explore how these individual and contextual factors collectively functioned as common and unique antecedents which differentiated classification in the pure and co-occurring trajectory classes.

Method

Participants

A total of 784 first graders (47% girls), coming from one urban and two small city school districts in Texas, participated in a 12-year longitudinal study called "Project Achieve." Starting in the Fall of 2001, participants were followed annually from Grades 1 to 12. At the first assessment, the average age was 6.57 years old ($SD = 0.38$). About 65% of participants qualified by income for free or reduced lunch (taken here as an index of socioeconomic status) and 42.5% had parents with a high school diploma or less educational background. The sample was ethnically diverse: 34.1% of the sample was White, 23.2% African American, 37.4% Hispanic, 3.6% Asian or Pacific Islander, and 1.8% Other. Consistent with the broader aims of this research project, and to ensure that the recruited sample was academically at-risk, children were eligible to participate if they scored below the median on a state-approved district administered literacy test at the end of kindergarten or the beginning of Grade 1. Eligible participants also spoke either English or Spanish, were not previously retained in the same grade, were not receiving special education services, and had their parents' written permission to join the project. Although the explicit aims of this recruitment strategy were to identify children who were academically at-risk, the sample was also predominately low-income, and exhibited socioeconomic risks as indicated by their qualification for free/reduced price school lunch and low parental education levels. A total of 1,374 first graders were identified who were eligible to participate in this study, and of the 1,200 parent consent forms returned, 784 parents agreed to have their children participate. Chi-square analyses indicated that there were no significant differences between the eligible participants with or without parental consent on their literacy test scores, age, gender, ethnicity, socioeconomic status, bilingual class placement, and cohort (see details in Hill & Hughes, 2007). The current study entitled Developmental Project received approval from the Institutional Review Board of Texas A&M University (Protocol No. 2015-0789M).

Procedure

This study used a multiinformant, repeated measures research design. More specifically, participating school districts provided the research team with information on participants' demographic background (i.e., age, gender, ethnicity, and eligibility for free or reduced-price lunch). All early childhood antecedents were measured in Grade 1. Trained research staff conducted individually administered assessments with participants to gather data on their intelligence and language ability. Participants were also interviewed at school about their self-perceived maternal support and responsiveness at home. Teachers were asked to report on the target participants' personality attributes (ego-resiliency) and their relationship quality with the participants. Peer reports were collected using sociometric interviews with target participants and their classmates (those with written parental consent for providing nominations). Peers' perceptions of participants were obtained following procedures widely recommended in the peer assessment literature (Cillessen & Bukowski, 2000). Annually (from Grades 1 to 12), teachers completed questionnaires on children's internalizing and externalizing problems (note that no assessments were conducted in Grade 11).

Measures

Externalizing and internalizing problems. Externalizing and internalizing problems were measured annually with the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001), a 25-item teacher-report measure. Teachers responded to each item using a 3-point Likert-scale (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*). Several studies have examined the validity and developmental appropriateness of the SDQ on samples of children and adolescents (He, Burstein, Schmitz, & Merikangas, 2013; Tsang, Wong, & Lo, 2012). Externalizing problems were assessed based on the average score of 10 items from the Conduct Problems scale (five items: often fights, lies or cheats, steals from home, school or elsewhere, has temper tantrums) and the Hyperactivity-Inattention scale (five items: e.g., restless, overactive, fidgeting or squirming). Internalizing problems were assessed based on the average score of five items from the emotional symptoms scale (e.g., complains of headaches, many worries, unhappy, nervous or clingy). Furthermore, a series of confirmatory factor analysis (CFA) and longitudinal measurement invariance tests were performed, and the results showed that the internalizing and externalizing subscales demonstrated sound psychometric properties and longitudinal invariance across time (See Supplement Table S1 and S2). The reliability for these measures was adequate (see Table 1).

Early childhood individual antecedents.

Ego-resilient personality. An adapted measure was used to assess ego-resilient personality. This measure consisted of a total of 22 items taken from the Child California Q-Set (CCQ; Block & Block, 1980) and the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). Procedures for deriving this measure were adopted

Table 1
Sample Characteristics

Variables	*Grade*	*N*	*M*	*Median*	*SD*	*Min*	*Max*	*a*
Problem Types (Reporter)								
Internalizing (Teacher)	Grade 1	677	0.39	0.20	0.42	0.00	2.00	0.73
	Grade 2	621	0.35	0.20	0.41	0.00	2.00	0.71
	Grade 3	547	0.34	0.20	0.39	0.00	2.00	0.70
	Grade 4	528	0.38	0.20	0.45	0.00	2.00	0.77
	Grade 5	541	0.32	0.20	0.43	0.00	2.00	0.78
	Grade 6	439	0.25	0.00	0.39	0.00	2.00	0.79
	Grade 7	430	0.23	0.00	0.34	0.00	2.00	0.74
	Grade 8	437	0.19	0.00	0.32	0.00	2.00	0.74
	Grade 9	406	0.21	0.00	0.35	0.00	2.00	0.77
	Grade 10	436	0.24	0.00	0.39	0.00	2.00	0.81
	Grade 12	390	0.21	0.00	0.34	0.00	2.00	0.77
Externalizing (Teacher)	Grade 1	675	0.62	0.50	0.51	0.00	2.00	0.89
	Grade 2	619	0.58	0.40	0.51	0.00	2.00	0.89
	Grade 3	547	0.60	0.50	0.50	0.00	2.00	0.89
	Grade 4	528	0.57	0.50	0.49	0.00	2.00	0.88
	Grade 5	541	0.54	0.40	0.49	0.00	2.00	0.90
	Grade 6	439	0.53	0.40	0.49	0.00	2.00	0.90
	Grade 7	430	0.52	0.40	0.46	0.00	1.90	0.88
	Grade 8	437	0.48	0.30	0.44	0.00	2.00	0.88
	Grade 9	406	0.45	0.40	0.39	0.00	1.70	0.86
	Grade 10	435	0.47	0.30	0.42	0.00	1.80	0.87
	Grade 12	390	0.42	0.30	0.41	0.00	1.80	0.88
Individual Antecedents								
Ego-resiliency personality (Teacher)	Grade 1	699	10.32	10.46	2.41	3.57	15.00	0.94
Intelligence (Test)	Grade 1	767	93.06	94.00	14.63	48.00	132.00	0.94
Language ability (Test)	Grade 1	757	433.57	432.00	29.05	117.00	523.00	—
Contextual Antecedents								
Maternal support and responsiveness (Child)	Grade 1	737	2.86	2.83	0.66	1.17	4.00	0.72
Family SES adversity (Parent and school)	Grade 1	776	0.04	−0.01	0.74	−1.27	1.66	—
Teacher-child conflict (Teacher)	Grade 1	702	1.88	1.50	1.02	1.00	5.00	0.91
Peer rejection (Peer)	Grade 1	595	0.03	−0.94	0.95	−1.80	3.21	—

by Kwok, Hughes, and Luo (2007) with this same data-set. Kwok et al. (2007) performed factorial analysis and validated a second-order ego-resilient personality factor. Both the CCQ and BFI use a 1–5 Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). This measure had adequate internal consistency (Cronbach's alpha = .94).

Intelligence. The abbreviated version of the Universal Nonverbal Intelligence Test (UNIT) is a measure of general intelligence that evaluates children's memory and reasoning. The UNIT is administered using nonverbal gestures and has been found to be less culturally and linguistically biased than verbal measures (Bracken & McCallum, 1998). This measure has demonstrated high internal consistency and validity (Cronbach's alpha = .94).

Language ability. Language ability was calculated with Woodcock-Johnson Tests of Achievement Third Edition (WJ-III ACH; Woodcock, McGrew, & Mather, 2007/2001) using a composite of the Broad Reading W score (letter-word identification, reading fluency, and passage comprehension). If children were more proficient in Spanish than in English, they were administered the comparable Spanish version of the Woodcock-Johnson Tests of Achievement-Revised and the Woodcock Compuscore program yields comparable scores for the revised version. Both versions of this measure have been used extensively in education research, and demonstrate adequate reliability and validity (Woodcock et al., 2007/2001).

Early childhood contextual antecedents.

Maternal support and responsiveness. Children reported on their maternal support and responsiveness with a six-item questionnaire adapted from the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter, 1985) using a 4-point Likert scale (1 = *hardly ever*, 2 = *sometimes*, 3 = *usually*, and 4 = *always*). Sample items are "mom smiles," "mom takes you places you like," "mom reads to you," and "mom plays with you." The scale demonstrated acceptable internal consistency (Cronbach's alpha = .72).

Family socioeconomic adversity. Based on both school records and parents' reports, family socioeconomic (SES) adversity was calculated as the mean of the standardized scores on five domains: eligibility for free or reduced lunch (coded 0–1; 1 = *yes*), single-parent status (coded 0–1; 1 = *yes*), rental status (coded 0–1; 1 = *yes*), the highest occupational level of any adult in the home (coded 1–9; e.g., 9 = *farm laborers/menial service workers*; 5 = *clerical and sales work*; 1 = *higher executives, proprietors of large businesses*), and the highest education level of any adult in the home (coded 1–10; e.g., 10 = *elementary school*; 5 = *some college education*; 1 = *PhD, MD, or equivalent*). A higher score represented higher family SES adversity.

Teacher–child relationship conflict. A six-item teacher-reported measure was used to assess teacher-child conflict. This measure was developed from the Teacher Relationship Inventory (TRI; Furman & Buhrmester, 1985; 5-point Likert scale; 1 = *not at all true* to 5 = *very true*) and has been validated previously with the current dataset by Wu and Hughes (2015). Sample items are: "This child and I often argue or get upset with each other" and "I often need to discipline this child." The scale demonstrated excellent internal consistency (Cronbach's alpha = .91).

Peer rejection. Children were asked to rate how much they like, or do not like, to play with each child in their classroom by pointing to one of five faces, ranging from a sad face (1 = *do not like at all*) to a happy face (5 = *like very much*). A rating of "1" was considered equivalent to a "liked least" nomination score (Asher & Dodge, 1986). A participant's peer rejection score was the total number of "1" ratings they received from classmates. These scores were standardized by classroom to adjust for differences in class size (i.e., number of nominators).

Data Analysis Plan

All analyses were performed in Mplus Version 7.4 (Muthén & Muthén, 2012), using full-information maximum likelihood estimation with robust standard errors (MLR). First, unconditional parallel-process growth mixture models (GMMs) were estimated to assess the joint developmental trajectories of children's externalizing and internalizing problems from Grades 1 to 12 (Muthén & Muthén, 2000). These models were specified with varying numbers of classes (i.e., one to six class models). Model fit was assessed using a combination of fit indices including the Akaike information criterion (AIC), Bayesian information criterion (BIC), sample size-adjusted Bayesian information criterion (SSABIC), Lo-Mendell-Rubin likelihood ratio test (LMR-LRT), bootstrap likelihood ratio test (BLRT), and entropy (Nylund, Asparouhov, & Muthén, 2007). Smaller values on the AIC, BIC, and SSABIC are indicative of better model fit (Schwartz, 1978). A nonsignificant LMR-LRT or BLRT statistic suggests that a model with one fewer class is preferred (Nylund et al., 2007). An average entropy value greater than .70 is indicative of a model with adequate classification precision (Muthén, 2000). In addition to examining these fit indices, the qualitative nature of the classes was assessed to ascertain that they were conceptually meaningful and interpretable. Initially, the GMMs were specified using a quadratic latent factor to assess nonlinear growth, however, quadratic effects were consistently small and not statistically significant. Therefore, this factor was removed, and results are presented for the more parsimonious linear models.

Second, after identifying the optimal unconditional model, a predictive model was specified which included the early childhood (Grade 1) individual and contextual antecedents as predictors of the trajectory classes. Using multinomial logistic regression, all predictors were entered in the model simultaneously, thus the estimates for the predictors are controlling for the effects of other predictors. For each predictor, odds ratios (ORs) and significance estimates are reported (predictors were standardized at this step to facilitate the interpretation of the ORs).

Results

Preliminary Analyses

Rates of missing data increased with the passage of time (see Table 1 for the sample sizes at each wave). Additional missing data analyses are reported in the Supplement Materials Section C. Descriptive statistics for all study variables are reported in Table 1. Before examining models with heterogeneous trajectory classes, a parallel process latent growth model was estimated to assess normative changes in externalizing and internalizing problems, as well as the variances and correlations among the latent factors. On average, there were significant mean level decreases for both externalizing and internalizing problems from Grades 1 to 12, with

externalizing problems exhibiting a higher starting value than internalizing problems. The correlations among internalizing and externalizing growth factors were also statistically significant (see Table S3). The bivariate correlations for all study variables are reported in Supplement Table S4. On average, internalizing problems and externalizing problems were significantly and moderately (positively) correlated over time. Compared with internalizing problems, externalizing problems showed higher and more consistent correlations with the individual and contextual variables. All the early childhood antecedents were generally weakly associated with each other, except for ego-resilient personality and teacher–child conflict which were moderately (negatively) correlated.

Co-Occurring Development of Internalizing and Externalizing Problems

Model fit indices for the joint trajectory models are reported in Table 2. Comparing the models with varying numbers of classes, the results indicated that the AIC, BIC, and SSABIC scores decreased as the number of classes increased. Across all models, the BLRT was statistically significant and entropy values were high (above .80). In addition, the LMR-LRT was not statistically significant for the four-class model, suggesting that the three-class model fit the data better. Although the LMR-LRT favored the three-class solution, other information criteria (AIC, BIC, SSABIC) and BLRT favored models with additional classes. Because the fit indices were not consistently indicative of one model having the best fit, it was critical to plot models with varying classes in order to assess their interpretability. Specifically, when comparing the three- and four-class models, the four-class model identified an additional pure-externalizing class which we considered to be a distinct class that characterized children and adolescents who were high on externalizing problems but exhibited lower rates of internalizing problems. Comparing the four- and five-class models, the additional trajectory class identified in the five-class model was not qualitatively distinct from the classes identified in the four-class model (i.e., the five-class model essentially identified two low-risk classes), and was relatively small (about 7% of children). Moreover, the models with five and six classes had some convergence problems (i.e., perturbed starting values). In light of these model comparisons, we selected the four-class model which included *chronic co-occurring* (N = 233; 30.1%), *moderate co-occurring* (N = 221; 28.5%), *pure-externalizing* (N = 144; 18.6%), and *low-risk* (N = 175, 22.6%) classes (see Figure 1). Notably, a *pure-internalizing* class was not identified. Additional Wald chi-square Tests were performed (see Table S5) to examine whether the estimates for the latent intercept factors across the four trajectory classes were statistically different from each other. The results indicated that the intercepts were statistically different from each other (except for the differences between the pure-externalizing and low-risk group on the internalizing problem) indicating that the classes were distinct from one another.

Examining Antecedents of the Trajectory Classes

After selecting the four-class model as the optimal solution, this model was respecified to include the early childhood individual and contextual antecedents. Multinomial logistic regression was used to assess which individual and contextual antecedents were significantly associated with class membership, controlling for the effects of other predictors. Odds ratios (OR) and significance tests are reported in Table 3. The first set of results consisted of using the low-risk class as the reference group. Subsequently, each of the three risk classes was compared with one another to further distinguish potential subgroup differences among the chronic co-occurring, moderate co-occurring and pure-externalizing groups.

Compared with the low-risk group, children in the moderate co-occurring group had lower ego-resiliency but were not significantly different on any of the other predictors. Children in the pure-externalizing group had lower ego-resiliency, higher levels of teacher-child conflict, and were more likely to be males, and African American or Hispanic, compared with the low-risk group. Children in the chronic co-occurring group were characterized by lower ego-resiliency, lower language ability, higher levels of teacher–child conflict and peer rejection, and were more likely to be males, compared with the low-risk group. Contrary to expectations, intelligence, maternal support and responsiveness and family socioeconomic adversity were not significantly associated with being in any of the risk groups.

Additional analyses were performed in order to make comparisons among the three risk groups. Compared with the moderate co-occurring group, children in the pure-externalizing group had higher teacher–child conflict, and were more likely to be boys, and African American. Compared with the pure-externalizing group, children in the chronic co-occurring group had lower ego-resiliency and experienced higher peer rejection. Compared with the moderate co-occurring group, children in the chronic co-

Table 2
Model Fit Indices and Criteria for the Joint Trajectory One- Through Six-Class Models

C	AIC	BIC	SSABIC	Entropy	LMR-LRT	p value	Bootstrap log likelihood	Bootstrap p value
1	12545.549	12573.451	12554.395					
2	9211.802	9272.256	9230.974	0.882	3277.345	$p < .001$	−6266.775	$p < .001$
3	8470.755	8563.760	8500.251	0.836	739.169	$p < .05$	−4592.901	$p < .001$
4	**7791.659**	**7917.217**	**7831.479**	**0.838**	**678.520**	$\boldsymbol{p = .173}$	**−4215.377**	$\boldsymbol{p < .001}$
5	7492.370	7650.480	7542.514	0.838	306.701	$p = .145$	−3868.830	$p < .001$
6	7200.383	7391.044	7260.850	0.848	332.370	$p = .685$	−3728.947	$p < .001$

Note. Model including internalizing and externalizing symptoms are shown. The optimal model is shown in bold font. AIC = Akaike information criterion; BIC = Bayesian information criterion; SSABIC = sample-size adjusted Bayesian information criterion; LMR-LRT = Lo-Mendell-Rubin likelihood ratio test.

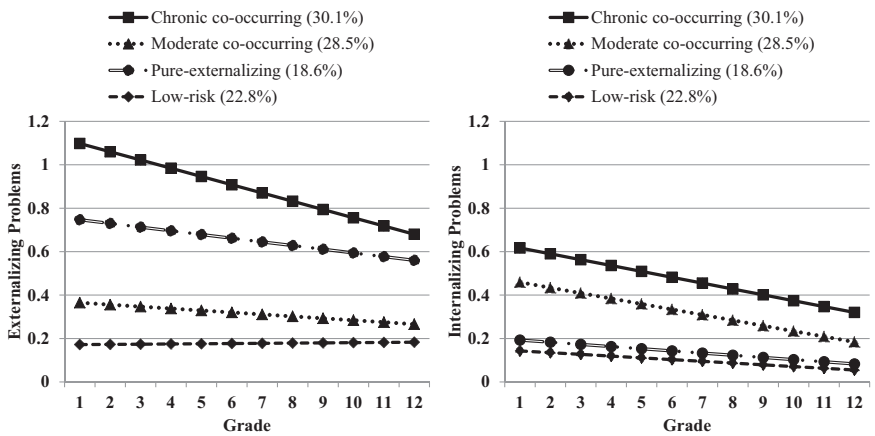

Figure 1. Joint trajectory model examining the codevelopment of externalizing and internalizing problems from Grades 1 to 12. The chronic co-occurring class exhibited the highest levels of externalizing and internalizing problems (I_{ext} = 1.098, $p < .001$; $S_{ext} = -.038$, $p < .001$; I_{int} = .617, $p < .001$; $S_{int} = -.027$, $p < .001$). The moderate co-occurring class exhibited moderate levels of externalizing and internalizing problems (I_{ext} = .365, $p < .001$; $S_{ext} = -.009$, p = .064; I_{int} = .459, $p < .001$; $S_{int} = -.025$, $p < .001$). The pure-externalizing class exhibited high externalizing problems and low levels of internalizing problems (I_{ext} = .747, $p < .001$; $S_{ext} = -.017$, $p < .05$; I_{int} = .193, $p < .001$; $S_{int} = -.010$, $p < .001$). The low-risk class consisted of children with low levels of externalizing and internalizing problems (I_{ext} = .172, $p < .001$; S_{ext} = .001, p = .867; I_{int} = .143, $p < .001$; $S_{int} = -.008$, $p < .003$).

occurring group had lower ego-resiliency, lower language ability, higher levels of teacher-child conflict and peer rejection and were more likely to be males and African American.

Discussion

The present study investigated the codevelopment of internalizing and externalizing problems in a sample of children who were generally from lower-income families and academically at-risk. Our primary aim was to identify common and unique early childhood antecedents related to the codevelopment of externalizing and internalizing problems. Toward this end, four distinct trajectory classes were identified including a chronic co-occurring group, a moderate co-occurring group, a pure-externalizing group, and a low-risk group. Early childhood antecedents, such as low ego-resilient personality, teacher–child conflict, peer rejection, low language abilities as well as being a boy and African American were relevant in explaining the more severe trajectories of problem behaviors. With respect to examining how early childhood individual and contextual antecedents differentiated the identified trajectory classes, the results revealed that ego-resilient personality, teacher–child conflict, and gender were associated with both co-occurring and the pure-externalizing trajectory classes in

Table 3
Multinomial Logistic Regression Analyses Comparing the Four Codevelopment Trajectories in Terms of Early Childhood Antecedents (N = 784)

Early childhood factors	Moderate co-occur versus low-risk	Pure-externalizing versus low-risk	Chronic co-occur versus low-risk	Pure-externalizing versus moderate co-occur	Chronic co-occur versus pure-externalizing	Chronic co-occur versus moderate co-occur
	Odds ratios					
Early individual antecedents						
1. Ego-resilient personality	0.304***	0.303***	0.116***	0.995	0.383***	0.381***
4. Gender (1 = boys)	1.263	4.785***	4.103***	3.794***	0.854	3.248***
3. Language ability	0.889	0.741	0.557**	0.841	0.750	0.630*
2. Intelligence	0.788	0.822	0.830	1.042	1.010	1.053
5. African American	0.842	3.444*	2.382	4.107**	0.692	2.841*
6. Hispanics	1.141	2.159*	1.422	1.892	0.660	1.250
Early contextual antecedents						
7. Maternal support and responsiveness	0.976	0.841	0.893	0.860	1.062	0.913
8. Family SES adversity	1.057	0.695	0.993	0.652	1.435	0.936
9. Teacher–child relationship conflict	0.764	4.202***	5.911***	5.408***	1.409	7.618***
10. Peer rejection	0.940	1.487	2.143**	1.568	1.443*	2.263**

Note. SES = socioeconomic.
* $p < .05$. ** $p < .01$. *** $p < .001$.

comparison to the low risk group. In contrast, low language ability and peer rejection appeared to be unique risk factors which differentiated the chronic co-occurring group from other risk subtypes.

Co-Occurring Development of Internalizing and Externalizing Problems

The identification of two distinct co-occurring developmental patterns (i.e., moderate and chronic co-occurring) fit well with the proposition that co-occurrence (of internalizing and externalizing problems) should be regarded as a distinct syndrome or symptomology (Lilienfeld, 2003). Moreover, these results indicated heterogeneity in the severity of co-occurring problem behaviors, which is a finding that has been identified in previous studies (e.g., Chen & Simons-Morton, 2009; Fanti & Henrich, 2010; Hinnant & El-Sheikh, 2013; Wiggins et al., 2015). The identification of a pure-externalizing group was also consistent with previous literature (Chen & Simons-Morton, 2009; Fanti & Henrich, 2010; Nivard et al., 2017). Though most of our findings were in line with other studies, there were also some discrepancies. Most notably, we did not identify a pure-internalizing trajectory class, despite the fact that this subgroup has been identified by other investigators (see Chen & Simons-Morton, 2009; Fanti & Henrich, 2010; Hinnant & El-Sheikh, 2013). Although the reasoning for this discrepancy is unclear, there are several possible explanations. It is notable that this subgroup identified by Fanti and Henrich (2010) was relatively small (only 2.3% of children), and this investigation consisted of a larger sample size than the one used in the present study. Thus, we may not have had a sufficient sample size to identify this distinct, yet small, subgroup of children. Furthermore, the informant type and developmental period also differed between our two studies. For instance, in contrast to assessing teacher-reports in the current study, Fanti and Henrich (2010) utilized mother reports. It is possible that mothers may be more observant of young children's internalizing symptoms compared with teachers or other informants (Keiley et al., 2000). With respect to potential developmental differences in class identification, it is notable that Nivard et al. (2017), who also investigated trajectories across childhood and adolescence similarly did not identify a pure internalizing class. They reasoned that there may be a low prevalence of children with pure and chronic internalizing problems (in combination with low externalizing problems), particularly across childhood and adolescence. However, these investigators identified an adolescent-onset internalizing group with low levels of externalizing problems, which was not identified in our sample. As an alternative explanation, it may be important to further scrutinize potential developmental differences in subtypes or forms of internalizing problems. For instance, Cohen, Andrews, Davis, and Rudolph (2018) found that symptoms reflecting anxiety and depression exhibited variations in their developmental progression (e.g., homotypic vs. heterotypic continuity) from childhood to adolescence. In the current study, the measure of internalizing behaviors consisted of items that reflected both anxious and depressive symptoms. Although the analyses indicated that this measure maintained longitudinal invariance, it is possible that measures of internalizing behaviors which are more reflective of anxiety, as opposed to depression, may exhibit an earlier onset, which was not observed in the current study (Cohen et al., 2018).

In terms of the prevalence of symptoms, co-occurrence between internalizing and externalizing is common as 50% of those who qualify for a clinical diagnosis qualify for more than one (Newman, Moffitt, Caspi, & Silva, 1998). Though a handful of studies report prevalence rates of co-occurring internalizing and externalizing problems, constructing a comprehensive set of comparisons across these studies is difficult due to the diversity of measures used to assess the focal constructs, and variations in the developmental periods investigated. Thus, there remain gaps and inconsistencies in in terms of the prevalence rates reported in the existing literature.

Early Childhood Individual and Contextual Antecedents

The results indicated that children belonging to the *chronic* co-occurring group were more likely to experience multiple individual and contextual difficulties compared with the other classes. These findings are in line with the multiple risk factor model which emphasizes the additive effects of multiple risk antecedents that lead to problem behavior symptomology (Atzaba-Poria et al., 2004; Greenberg et al., 2001). In addition, compared with the moderate co-occurring group, the chronic co-occurring group appeared to be more maladjusted with respect to the early childhood individual and contextual antecedents, which indicated that the accumulated and unique challenges faced by children in this group may have contributed to their more severe profile of co-occurring problem behaviors. Although the moderate co-occurring and chronic co-occurring groups also displayed some common antecedents, the odds ratios indicated that these factors contributed more strongly to being in the chronic co-occurring group. Stated differently, higher conflict with teachers, higher rejection from peers, and lower ego-resiliency increased the likelihood that children exhibited chronic, as opposed to moderate, co-occurring problems. Additionally, compared with the moderate co-occurring group, the pure-externalizing group showed higher levels of conflict with teachers in early childhood. This suggests that poor interpersonal relationships in a classroom context may increase the rate and severity of externalizing problems in school settings.

Early Childhood Common and Unique Antecedents

Applying risk and resilience frameworks, we evaluated how attributes of the child (i.e., individual characteristics), and parent–, peer–, and teacher–child relationships (i.e., contextual factors) in early childhood functioned to either ameliorate or exacerbate the likelihood that children would exhibit internalizing and externalizing problems across childhood and adolescence. Taken together, the results revealed a pattern in which individual resilience factors and contextual risks exhibited an additive effect. Moreover, one of the primary aims of this study was to further differentiate how these early childhood antecedents were either more broadly associated with risk group membership (i.e., common factors that predicted membership across multiple groups) or uniquely associated with membership in a specific risk group. The results provided support for both a combination of common and unique antecedents. Persistent *common* antecedents included ego-resilient personality, gender, and teacher–child conflict. That is, children who were characterized with low ego-resiliency, being a boy, and

higher rates of conflict with teachers were at greater risk for developing either pure or co-occurring problems.

The protective role of ego-resilient personality for developing externalizing or co-occurring problems may result from its associated trait characteristics. Resilient coping skills, such as being confident and resourceful, may make some children more resistant to adverse environmental experiences and allow them to recover and establish a positive developmental trajectory in the face of adversity (Masten et al., 1990). For instance, individuals with high ego-resiliency have been characterized as being neither under controlled (e.g., exhibiting impulsiveness, distractibility, hostility, and emotional lability), nor overcontrolled (e.g., inhibited, shy, fearful, withdrawn; Krettenauer, Ullrich, Hofmann, & Edelstein, 2003). This characteristic or dispositional style may contribute to how they are flexible in the face of new and challenging circumstances and more likely to recover from adverse events. In contrast, individuals with low ego-resiliency who are either under or overcontrolled, are more likely to exhibit cognitive, emotional, and interpersonal difficulties which may exacerbate their risks for developing both internalizing and externalizing problems (Deutz et al., 2018; Krettenauer et al., 2003).

In addition to ego-resilient personality, our study highlighted the negative influence of teacher–child conflict on the development of pure and co-occurring problems. Researchers have long recognized the importance of teachers as socialization agents that may enhance children's social and emotional development. Experiencing repeated conflicts with teachers may deprive children from learning how to recognize and address their feelings, and prevent them from regulating their emotions and behaviors, thus increasing their risks for internalizing and externalizing problems (Woltering & Shi, 2016). It is also possible that when there is a high-quality supportive classroom environment, students can use their teachers as resources to actively engage in social interactions, better navigate their emotions and behaviors, and resolve interpersonal conflicts more effectively (O'Connor, Dearing, & Collins, 2011).

The results indicated that peer rejection was a *unique* antecedent for the chronic co-occurring class as children who belonged to this group experienced higher peer rejection compared to the moderate co-occurring, the pure-externalizing and the low-risk classes. Moreover, the pure-externalizing and moderate co-occurring classes had comparable levels of peer rejection in comparison to the low-risk class. Although other studies have reported that elevated levels of peer rejection may contribute to the development of pure-externalizing problems (Keiley et al., 2003), the findings reported in the current study are notable in that they suggest that the relational adversities experienced by children with pure-externalizing and moderate co-occurring problems may not be as severe as those experienced by children with chronic co-occurring problems. It is possible that some children who engage in externalizing behaviors, either in moderation or in the absence of internalizing problems, may use these behaviors as a means to enhance their social status or popularity, resulting in more normative rates of peer rejection (Ettekal & Ladd, 2015a).

Language ability was also found to be a *unique* antecedent for the chronic co-occurring group as these children scored significantly lower on language ability compared with the moderate co-occurring, the pure-externalizing, and the low-risk groups, even within a sample of academically at-risk children. Adequate language processing is necessary for emotional and behavioral success in school, and allows children to more successfully navigate the dynamic, language-rich environments of classrooms and schools (Chow & Wehby, 2018). However, children with low language capacities tend to struggle with communicating and interpreting social cues and may be at increased risk of developing behavioral and social problems (Horowitz, Jansson, Ljungberg, & Hedenbro, 2005).

We also investigated the effects of children's gender, ethnicity, and socioeconomic adversity on their co-occurring internalizing and externalizing trajectories. Taken together, the results indicated that children's gender and ethnicity were significantly associated with several of the identified trajectory groups. That is, boys and African American children were more likely to belong to the chronic co-occurring and the pure-externalizing classes. Hispanic children were also significantly more likely to be in the pure-externalizing class. These findings are consistent with a large body of literature which indicates that boys and ethnic minorities are at greater risk for internalizing and externalizing problems (Rosenfield & Mouzon, 2013). Socioeconomic adversity was not associated with any of the co-occurring trajectory classes. This may be due to its potential confounding associations with ethnicity (Samaan, 2000), or alternatively, given that the majority of the sample was low income, perhaps there was not sufficient variability to detect its effects.

Implications

Findings from the current study highlight the importance of fostering social support and ego resiliency in early childhood in order to reduce engagement in long-term problem behaviors. Notably, many of the antecedents identified in the current study (ego-resiliency, language ability, teacher–child conflict, peer rejection) are malleable factors that, with intervention, may hold great promise for reducing risk, and promoting more adaptive behavioral outcomes. Consequently, our findings provide support for the implementation of pre- and elementary school whole-school universal social-emotional learning (SEL) programs, and more specifically, programs which apply comprehensive approaches to not only aid in improving children's interpersonal skills, but also foster resiliency and communication skills (Masten et al., 1990; Oland & Shaw, 2005). In line with findings which indicated greater risks for African American students, there also remains a need for more culturally responsive SEL intervention efforts and programming (Graves et al., 2017). Notably, because intervention programs are frequently designed to target one form of problem behavior, studies that aim to evaluate their effectiveness may not be designed to differentiate program effects on children with pure and co-occurring internalizing and externalizing problems, which may obfuscate potential intervention effects on distinct subgroups (Oland & Shaw, 2005). Without effective interventions, these pure and co-occurring behavior patterns are likely to persist and potentially escalate into other forms of maladaptive behavior (Ettekal & Ladd, 2015b). Thus, attempts to better understand the etiology of internalizing and externalizing problem behaviors, and to more accurately identify the common and unique antecedents associated with their development may

have important implications for evidence-based intervention efforts (Cosgrove et al., 2011).

Strengths, Limitations, and Future Directions

Strengths of this investigation included a relatively large sample of children followed from Grades 1 to 12. The 12 data points used to measure externalizing and internalizing problems enhanced the reliability and flexibility of the longitudinal analyses (Singer, Willett, & Willett, 2003). Furthermore, the analyses incorporated data from multiple informants and multiple methods. From an analytic standpoint, our person-centered modeling approach allowed for the investigation of multiple codevelopment patterns by accounting for heterogeneity in children's developmental trajectories, as well as assessing potential nonlinear change. The current study also extended previous literature and examined a broader range of early childhood antecedents ranging from individual characteristics such as ego-resilient personality, intelligence, language ability, gender, ethnicity, and contextual factors including family socioeconomic adversity, maternal support and responsiveness, teacher–child conflict, and peer rejection. This approach contributed to a more comprehensive understanding of how and why children deviate from more normative developmental trajectories and develop various co-occurring problem behaviors.

Notwithstanding these strengths, there are several notable limitations. One limitation of the current study was that externalizing and internalizing problems were measured exclusively by teacher reports. Because internalizing problems tend to be less disruptive for classroom management and instruction than externalizing problems, teachers may be less attuned to observing these symptoms, particularly when they have large classrooms and many students to interact with on a daily basis. The second limitation was the attrition rate which could restrict the generalizability of our findings. The third limitation, or consideration, of the current study also involved generalizability because we focused on an at-risk sample. Few studies, however, have focused specifically on children facing multiple early adversities. Thus, our sample may be viewed as a strength for replicating and expanding existing findings which have typically been based on more normative samples.

There are several future directions that may extend the findings reported in the current study. First, considering that our research design focused on examining additive individual and contextual effects, one future direction may be to further investigate interactive effects among the early childhood antecedents. Consistent with person by environment models, it is plausible that certain individual factors may be exacerbated under specific contextual conditions, however, we were not able to explicitly test this hypothesis. Second, there remains a need for additional person-centered research to further explicate the potential common and unique individual and contextual antecedents which may differentiate co-occurring problem behaviors from pure internalizing and externalizing problems. For example, in addition to ego-resiliency, other temperament factors such as negative emotionality, impulsivity, difficult temperament, and effortful control have also been associated with both internalizing and externalizing problems (Eisenberg et al., 2003; Keiley et al., 2003). However, studies related to this area of investigation have not consistently examined the development of co-occurring problems, or accounted for multiple contextual (i.e., parent, teacher, and peer) influences in their research designs. Third, further studies are needed to examine the effects of a broad range of individual and contextual antecedents during infancy and the preschool period. It may be the case that preexisting problem behaviors contributed to some of the difficulties children experienced by the time they entered Grade 1 (Wiggins et al., 2015). For instance, teacher-child conflict can also increase due to existing problem behaviors (Ettekal & Shi, in press), potentially leading to a maladaptive cycle. Fourth, future studies can further examine the heterogeneity of internalizing and externalizing problems at a higher-order-level. In our study, an examination of the trajectories (i.e., intercept and slope effects) for both the moderate and chronic co-occurring groups revealed a developmental pattern in which externalizing and internalizing problems appeared to develop in parallel. That is, although initial rates (intercepts) appeared to vary with externalizing problems being more severe than internalizing problems, the rates of discontinuity (i.e., declining slopes) were relatively similar. Specifically, the general psychopathology model assumes that both internalizing and externalizing problems share a generalized underlying vulnerability (i.e., a common syndrome explanation) in which symptoms of distinct problematic behaviors are, in part, explained by one general psychopathology factor (p-factor) that reflects common features across all forms of psychopathology (Caspi et al., 2014; Caspi & Moffitt, 2018). This may suggest that the heterogeneity in co-occurring problems may exist at a higher-order-level factor (Deutz et al., 2018). Finally, although the current study examined linear and nonlinear changes in problem behaviors across childhood and adolescence, there may be other models that warrant further investigation. For instance, future research may further examine whether the transition to adolescence functions as a sensitive period in which children exhibit qualitative changes in their problem behaviors (e.g., the transition from one class to another).

Conclusion

Applying risk and resilience frameworks, the current study contributes to ongoing research on the codevelopment of internalizing and externalizing problems, and also examined multiple individual and contextual antecedents related to the distinct problem behavior risk groups. Our study identified that roughly half of the children showed a developmental trajectory which could be characterized by co-occurring problems. The chronic co-occurring children displayed the most severe profiles of early childhood antecedents as they showed the lowest scores on ego-resilient personality, lower language ability, and higher conflict with teachers and peers. More specifically, among the significant antecedents, early childhood ego-resiliency and teacher-child conflict exhibited the strongest additive effects with respect to membership in the pure externalizing, moderate and chronic co-occurring trajectory groups. In contrast, language ability and peer rejection contributed unique and additive effects associated with an increased risk for being in the chronic co-occurring group. Our study emphasizes the severe consequences of conflictual interpersonal relationships with teachers and peers on the development of various forms of problem behavior. Moreover, our study highlights the importance of early childhood temperamental attributes on the development of internalizing and externalizing problems. That is,

having an ego-resilient personality appeared to be an important protective factor in reducing children's risks for co-occurring externalizing and internalizing problems.

References

Achenbach, T. M., Ivanova, M. Y., Rescorla, L. A., Turner, L. V., & Althoff, R. R. (2016). Internalizing/externalizing problems: Review and recommendations for clinical and research applications. *Journal of the American Academy of Child & Adolescent Psychiatry, 55,* 647–656. http://dx.doi.org/10.1016/j.jaac.2016.05.012

Asher, S. R., & Dodge, K. A. (1986). Identifying children who are rejected by their peers. *Developmental Psychology, 22,* 444–449. http://dx.doi.org/10.1037/0012-1649.22.4.444

Atzaba-Poria, N., Pike, A., & Deater-Deckard, K. (2004). Do risk factors for problem behaviour act in a cumulative manner? An examination of ethnic minority and majority children through an ecological perspective. *Journal of Child Psychology and Psychiatry, 45,* 707–718. http://dx.doi.org/10.1111/j.1469-7610.2004.00265.x

Block, J., & Block, J. (1980). *California Child Q-set*. Palo Alto, CA: Consulting Psychologists Press.

Bracken, B. A., & McCallum, R. S. (1998). *Universal nonverbal intelligence test*. Chicago, IL: Riverside Publishing Company.

Caspi, A., Houts, R. M., Belsky, D. W., Goldman-Mellor, S. J., Harrington, H., Israel, S., . . . Moffitt, T. E. (2014). The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clinical Psychological Science, 2,* 119–137. http://dx.doi.org/10.1177/2167702613497473

Caspi, A., & Moffitt, T. E. (2018). All for one and one for all: Mental disorders in one dimension. *The American Journal of Psychiatry, 175,* 831–844. http://dx.doi.org/10.1176/appi.ajp.2018.17121383

Chen, R., & Simons-Morton, B. (2009). Concurrent changes in conduct problems and depressive symptoms in early adolescents: A developmental person-centered approach. *Development and Psychopathology, 21,* 285–307. http://dx.doi.org/10.1017/S0954579409000169

Chow, J. C., & Wehby, J. H. (2018). Associations between language and problem behavior: A systematic review and correlational meta–analysis. *Educational Psychology Review, 30,* 61–82. http://dx.doi.org/10.1007/s10648-016-9385-z

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8,* 597–600. http://dx.doi.org/10.1017/S0954579400007318

Cillessen, A. H., & Bukowski, W. M. (2000). *Recent advances in the measurement of acceptance and rejection in the peer system*. San Francisco, CA: Jossey-Bass.

Cohen, J. R., Andrews, A. R., Davis, M. M., & Rudolph, K. D. (2018). Anxiety and depression during childhood and adolescence: Testing theoretical models of continuity and discontinuity. *Journal of Abnormal Child Psychology, 46,* 1295–1308. http://dx.doi.org/10.1007/s10802-017-0370-x

Coie, J. D., Lochman, J. E., Terry, R., & Hyman, C. (1992). Predicting early adolescent disorder from childhood aggression and peer rejection. *Journal of Consulting and Clinical Psychology, 60,* 783–792. http://dx.doi.org/10.1037/0022-006X.60.5.783

Cosgrove, V. E., Rhee, S. H., Gelhorn, H. L., Boeldt, D., Corley, R. C., Ehringer, M. A., . . . Hewitt, J. K. (2011). Structure and etiology of co-occurring internalizing and externalizing disorders in adolescents. *Journal of Abnormal Child Psychology, 39,* 109–123. http://dx.doi.org/10.1007/s10802-010-9444-8

Deutz, M. H. F., Shi, Q., Vossen, H. G. M., Huijding, J., Prinzie, P., Deković, M., . . . Woltering, S. (2018). Evaluation of the Strengths and Difficulties Questionnaire-Dysregulation Profile (SDQ-DP). *Psychological Assessment, 30,* 1174–1185. http://dx.doi.org/10.1037/pas0000564

Eisenberg, N., Valiente, C., Fabes, R. A., Smith, C. L., Reiser, M., Shepard, S. A., . . . Cumberland, A. J. (2003). The relations of effortful control and ego control to children's resiliency and social functioning. *Developmental Psychology, 39,* 761–776. http://dx.doi.org/10.1037/0012-1649.39.4.761

Enders, C. K. (2010). *Applied missing data analysis*. New York, NY: Guilford Press.

Ettekal, I., Eiden, R. D., Nickerson, A. B., Molnar, D. S., & Schuetze, P. (2020). Developmental cascades to children's conduct problems: The role of prenatal substance use, socioeconomic adversity, maternal depression and sensitivity, and children's conscience. *Development and Psychopathology, 32,* 85–103. http://dx.doi.org/10.1017/S095457941800144X

Ettekal, I., & Ladd, G. W. (2015a). Costs and benefits of children's physical and relational aggression trajectories on peer rejection, acceptance, and friendships: Variations by aggression subtypes, gender, and age. *Developmental Psychology, 51,* 1756–1770. http://dx.doi.org/10.1037/dev0000057

Ettekal, I., & Ladd, G. W. (2015b). Developmental pathways from childhood aggression-disruptiveness, chronic peer rejection, and deviant friendships to early-adolescent rule breaking. *Child Development, 86,* 614–631. http://dx.doi.org/10.1111/cdev.12321

Ettekal, I., & Shi, Q. (in press). Developmental trajectories of teacher-student relationships and longitudinal associations with children's conduct problems from Grades 1 to 12. *Journal of School Psychology*.

Fanti, K. A., & Henrich, C. C. (2010). Trajectories of pure and co-occurring internalizing and externalizing problems from age 2 to age 12: Findings from the National Institute of Child Health and Human Development Study of Early Child Care. *Developmental Psychology, 46,* 1159–1175. http://dx.doi.org/10.1037/a0020659

Farrington, D. P. (1995). The Twelfth Jack Tizard Memorial Lecture. The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry, 36,* 929–964. http://dx.doi.org/10.1111/j.1469-7610.1995.tb01342.x

Francis, R., Hawes, D. J., & Abbott, M. (2016). Intellectual giftedness and psychopathology in children and adolescents: A systematic literature review. *Exceptional Children, 82,* 279–302. http://dx.doi.org/10.1177/0014402915598779

Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21,* 1016–1024. http://dx.doi.org/10.1037/0012-1649.21.6.1016

Gilliom, M., & Shaw, D. S. (2004). Codevelopment of externalizing and internalizing problems in early childhood. *Development and Psychopathology, 16,* 313–333. http://dx.doi.org/10.1017/S0954579404044530

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry, 40,* 1337–1345. http://dx.doi.org/10.1097/00004583-200111000-00015

Graves, S. L., Jr., Herndon-Sobalvarro, A., Nichols, K., Aston, C., Ryan, A., Blefari, A., . . . Prier, D. (2017). Examining the effectiveness of a culturally adapted social-emotional intervention for African American males in an urban setting. *School Psychology Quarterly, 32,* 62–74. http://dx.doi.org/10.1037/spq0000145

Greenberg, M. T., Speltz, M. L., DeKlyen, M., & Jones, K. (2001). Correlates of clinic referral for early conduct problems: Variable- and person-oriented approaches. *Development and Psychopathology, 13,* 255–276. http://dx.doi.org/10.1017/S0954579401002048

Hamre, B. K., & Pianta, R. C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development, 72,* 625–638. http://dx.doi.org/10.1111/1467-8624.00301

Hanson, J. L., van den Bos, W., Roeber, B. J., Rudolph, K. D., Davidson, R. J., & Pollak, S. D. (2017). Early adversity and learning: Implications for typical and atypical behavioral development. *Journal of Child Psy-*

chology and Psychiatry, 58, 770–778. http://dx.doi.org/10.1111/jcpp.12694

Harter, S. (1985). *Manual for the self-perception profile for children (Revision of the Perceived Competence Scale for Children)*. Denver, CO: University of Denver.

He, J. P., Burstein, M., Schmitz, A., & Merikangas, K. R. (2013). The Strengths and Difficulties Questionnaire (SDQ): The factor structure and scale validation in U.S. adolescents. *Journal of Abnormal Child Psychology, 41,* 583–595. http://dx.doi.org/10.1007/s10802-012-9696-6

Hill, C. R., & Hughes, J. N. (2007). An examination of the convergent and discriminant validity of the Strengths and Difficulties Questionnaire. *School Psychology Quarterly, 22,* 380–406. http://dx.doi.org/10.1037/1045-3830.22.3.380

Hinnant, J. B., & El-Sheikh, M. (2013). Codevelopment of externalizing and internalizing symptoms in middle to late childhood: Sex, baseline respiratory sinus arrhythmia, and respiratory sinus arrhythmia reactivity as predictors. *Development and Psychopathology, 25,* 419–436. http://dx.doi.org/10.1017/S0954579412001150

Hollo, A., Wehby, J. H., & Oliver, R. M. (2014). Unidentified language deficits in children with emotional and behavioral disorders: A meta-analysis. *Exceptional Children, 80,* 169–186. http://dx.doi.org/10.1177/001440291408000203

Horowitz, L., Jansson, L., Ljungberg, T., & Hedenbro, M. (2005). Behavioural patterns of conflict resolution strategies in preschool boys with language impairment in comparison with boys with typical language development. *International Journal of Language & Communication Disorders, 40,* 431–454. http://dx.doi.org/10.1080/13682820500071484

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory—Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.

Keiley, M. K., Bates, J. E., Dodge, K. A., & Pettit, G. S. (2000). A cross-domain growth analysis: Externalizing and internalizing behaviors during 8 years of childhood. *Journal of Abnormal Child Psychology, 28,* 161–179. http://dx.doi.org/10.1023/A:1005122814723

Keiley, M. K., Lofthouse, N., Bates, J. E., Dodge, K. A., & Pettit, G. S. (2003). Differential risks of covarying and pure components in mother and teacher reports of externalizing and internalizing behavior across ages 5 to 14. *Journal of Abnormal Child Psychology, 31,* 267–283. http://dx.doi.org/10.1023/A:1023277413027

Krettenauer, T., Ullrich, M., Hofmann, V., & Edelstein, W. (2003). Behavioral problems in childhood and adolescence as predictors of ego-level attainment in early adulthood. *Merrill-Palmer Quarterly, 49,* 125–153. http://dx.doi.org/10.1353/mpq.2003.0009

Kwok, O. M., Hughes, J. N., & Luo, W. (2007). Role of resilient personality on lower achieving first grade students' current and future achievement. *Journal of School Psychology, 45,* 61–82. http://dx.doi.org/10.1016/j.jsp.2006.07.002

Lahey, B. B., Rathouz, P. J., Keenan, K., Stepp, S. D., Loeber, R., & Hipwell, A. E. (2015). Criterion validity of the general factor of psychopathology in a prospective study of girls. *Journal of Child Psychology and Psychiatry, 56,* 415–422. http://dx.doi.org/10.1111/jcpp.12300

Lee, E. J., & Bukowski, W. M. (2012). Co-development of internalizing and externalizing problem behaviors: Causal direction and common vulnerability. *Journal of Adolescence, 35,* 713–729. http://dx.doi.org/10.1016/j.adolescence.2011.10.008

Lilienfeld, S. O. (2003). Comorbidity between and within childhood externalizing and internalizing disorders: Reflections and directions. *Journal of Abnormal Child Psychology, 31,* 285–291. http://dx.doi.org/10.1023/A:1023229529866

Martel, M. M., Nigg, J. T., Wong, M. M., Fitzgerald, H. E., Jester, J. M., Puttler, L. I., . . . Zucker, R. A. (2007). Childhood and adolescent resiliency, regulation, and executive functioning in relation to adolescent problems and competence in a high-risk sample. *Development and Psychopathology, 19,* 541–563. http://dx.doi.org/10.1017/S0954579407070265

Masten, A. S., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2,* 425–444. http://dx.doi.org/10.1017/S0954579400005812

Muthén, B. (2000). Latent variable mixture modeling. In G. A. Marcoulides & R. E. Schumacker (Eds.), *Advanced structural equation modeling: New developments and techniques* (pp. 1–33). Hillsdale, NJ: Erlbaum.

Muthén, B., & Muthén, L. K. (2000). Integrating person-centered and variable-centered analyses: Growth mixture modeling with latent trajectory classes. *Alcoholism: Clinical and Experimental Research, 24,* 882–891. http://dx.doi.org/10.1111/j.1530-0277.2000.tb02070.x

Muthén, L. K., & Muthén, B. O. (2012). *Mplus: Statistical analysis with latent variables–user's guide*. Los Angeles, CA: Author.

Newman, D. L., Moffitt, T. E., Caspi, A., & Silva, P. A. (1998). Comorbid mental disorders: Implications for treatment and sample selection. *Journal of Abnormal Psychology, 107,* 305–311. http://dx.doi.org/10.1037/0021-843X.107.2.305

Nivard, M. G., Lubke, G. H., Dolan, C. V., Evans, D. M., St Pourcain, B., Munafò, M. R., & Middeldorp, C. M. (2017). Joint developmental trajectories of internalizing and externalizing disorders between childhood and adolescence. *Development and Psychopathology, 29,* 919–928. http://dx.doi.org/10.1017/S0954579416000572

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14,* 535–569. http://dx.doi.org/10.1080/10705510701575396

O'Connor, E. E., Dearing, E., & Collins, B. A. (2011). Teacher-child relationship and behavior problem trajectories in elementary school. *American Educational Research Journal, 48,* 120–162. http://dx.doi.org/10.3102/0002831210365008

Oland, A. A., & Shaw, D. S. (2005). Pure versus co-occurring externalizing and internalizing symptoms in children: The potential role of socio-developmental milestones. *Clinical Child and Family Psychology Review, 8,* 247–270. http://dx.doi.org/10.1007/s10567-005-8808-z

Rosenfield, S., & Mouzon, D. (2013). Gender and mental health. In C. S. Aneshensel & J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 277–296). New York, NY: Springer. http://dx.doi.org/10.1007/978-94-007-4276-5_14

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57,* 316–331. http://dx.doi.org/10.1111/j.1939-0025.1987.tb03541.x

Samaan, R. A. (2000). The influences of race, ethnicity, and poverty on the mental health of children. *Journal of Health Care for the Poor and Underserved, 11,* 100–110. http://dx.doi.org/10.1353/hpu.2010.0557

Schwartz, G. (1978). Estimating the dimension of a model. *Annals of Statistics, 6,* 461–464. http://dx.doi.org/10.1214/aos/1176344136

Singer, J. D., Willett, J. B., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. Oxford, UK: Oxford University Press. http://dx.doi.org/10.1093/acprof:oso/9780195152968.001.0001

Tsang, K. L. V., Wong, P. Y. H., & Lo, S. K. (2012). Assessing psychosocial well-being of adolescents: A systematic review of measuring instruments. *Child: Care, Health and Development, 38,* 629–646. http://dx.doi.org/10.1111/j.1365-2214.2011.01355.x

Weeks, M., Wild, T. C., Ploubidis, G. B., Naicker, K., Cairney, J., North, C. R., & Colman, I. (2014). Childhood cognitive ability and its relationship with anxiety and depression in adolescence. *Journal of Affective Disorders, 152,* 139–145. http://dx.doi.org/10.1016/j.jad.2013.08.019

Wiggins, J. L., Mitchell, C., Hyde, L. W., & Monk, C. S. (2015). Identifying early pathways of risk and resilience: The codevelopment of internalizing and externalizing symptoms and the role of harsh parenting. *Development and Psychopathology, 27,* 1295–1312. http://dx.doi.org/10.1017/S0954579414001412

Woltering, S., & Shi, Q. (2016). On the neuroscience of self-regulation in children with disruptive behavior problems: Implications for education. *Review of Educational Research, 86,* 1085–1110. http://dx.doi.org/10.3102/0034654316673722

Woodcock, R. W., McGrew, K. S., & Mather, N. (2007). *Woodcock–Johnson III Normative Update (NU) complete*. Rolling Meadows, IL: Riverside. (Original work published 2001)

Wu, J. Y., & Hughes, J. N. (2015). Teacher Network of Relationships Inventory: Measurement invariance of academically at-risk students across ages 6 to 15. *School Psychology Quarterly, 30,* 23–36. http://dx.doi.org/10.1037/spq0000063

Received September 17, 2019
Revision received May 18, 2020
Accepted June 23, 2020 ■