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Stability and Change in Maternal Parenting Profiles Across Infancy and Toddlerhood

Rogier E. J. Verhoef, Marissa Hofstee, Joyce J. Endendijk, Jorg Huijding, and Maja Deković
Department of Clinical Child and Family Studies, Utrecht University

During infancy and toddlerhood, parents show large individual differences in the extent to which they are able to tailor their parenting behaviors to their children's swiftly changing developmental needs. The first aim of our study was, therefore, to distinguish parenting profiles at three time points during infancy and toddlerhood (i.e., 5, 10, and 36 months) based on mothers' supportive presence, structure and limit-setting, and quality of instruction, as well as to examine the stability of profile structure and profile membership across time. The second aim was to examine how profile membership and profile transitions at each time point are associated with relevant parental, contextual, and child-specific factors. Data from 244 Dutch mother–child dyads were collected at three waves: when children were approximately 5 months ($n = 203$), 10 months ($n = 181$), and 3 years of age ($n = 178$). We found three types of parenting profiles at each wave: a competent profile, a sufficient profile, and a maladaptive profile. Only the competent parenting profile was found to have a stable structure across all three waves. In general, profile membership was least stable for the maladaptive profile. Results also showed that maternal agreeableness and a higher educational level increased the likelihood to exhibit a more competent parenting profile. Our findings advance our understanding of how parenting profiles might change due to children's swiftly changing needs and inform efforts to tailor parenting interventions to individual parents.

Public Significance Statement
This study advances our understanding of which subgroups of parents exist during infancy and toddlerhood based on their parenting behaviors and how these subgroups change across time. Our findings inform efforts to tailor parenting interventions to parents of infants and toddlers.

Keywords: parenting, infancy, toddlerhood, latent transition analysis

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During infancy and toddlerhood, parents need to continuously tailor their parenting behaviors to their children's swiftly changing developmental needs (Staples & Bates, 2018). Throughout this period, for example, parents need to provide constant care and support, as well as adequately manage their children's rapidly increasing exploratory tendencies (for reviews, see Bornstein, 2019; Verhoeven et al., 2019). Parents show large individual differences in the extent to which they are able to meet these distinct parenting challenges across time (Holden, 2019). A useful method to capture individual differences in parenting behaviors at different time points during infancy and

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Rogier E. J. Verhoef https://orcid.org/0000-0002-0876-1926
Marissa Hofstee https://orcid.org/0000-0002-8211-3468
Joyce J. Endendijk https://orcid.org/0000-0001-8149-912X
Jorg Huijding https://orcid.org/0000-0002-9320-9959
Maja Deković https://orcid.org/0000-0002-8698-9037
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The data that support the findings of this study are available on request due to privacy policies (https://www.uu.nl/en/research/youth-cohort-study/data-access). The syntax of the analyses run for this study is available through the Open Science Framework: https://osf.io/6yq7b/. The study has been preregistered at the Open Science Framework: https://osf.io/2ntkz.

The study was conducted in accordance with the 2013 Helsinki Declaration and the larger YOUth cohort study (Onland-Moret et al., 2020) was approved by the Medical Research Ethics Committee Utrecht. Written informed consent was obtained from parents.

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Correspondence concerning this article should be addressed to Rogier E. J. Verhoef, Department of Clinical Child and Family Studies, Utrecht University, Heidelberglaan 1, P.O. Box 80125, 3508 TC Utrecht, The Netherlands. Email: r.e.j.verhoef@uu.nl

toddlerhood is a longitudinal person-centered approach. This approach allows to distinguish parenting profiles based on individual variation in parenting behaviors, as well as to scrutinize the stability of profile structure and membership across time. Thus far, only a few studies applied a longitudinal person-centered approach to discern parenting profiles across early childhood based on multiple parenting dimensions. Moreover, these studies examined parenting profiles from the second year onward (Cook et al., 2012; Paschall & Mastergeorge, 2018) or did not examine profile transitions across time (Farkas et al., 2020; Howes & Obregon, 2009). In the first year, however, distinct parenting profiles and profile transitions may exist because this period yields unique parenting challenges (Bornstein, 2019). The first aim of our study was therefore to distinguish parenting profiles at three time points during infancy and toddlerhood (i.e., around 5, 10, and 36 months), as well as to examine the stability of profile structure and membership across time. Identifying distinct parenting profiles across infancy and toddlerhood may uncover new possibilities for more effective timing and tailoring of parenting interventions to individual parents' needs.

Parenting Profiles in Infancy and Toddlerhood

Erikson's model on psychosocial development (Erikson, 1963) provides a useful theoretical framework to identify parenting dimensions that are relevant for distinguishing parenting profiles across infancy and toddlerhood. This model proposes that children go through various developmental stages that build upon each other. Each developmental stage encompasses a specific developmental need that ought to be fulfilled to promote children's psychosocial development. During infancy, children need to build a sense of safety and trust to learn that the world is reliable and predictable, and they need to find a balance between seeking proximity and initial exploration of the environment. Subsequently, during toddlerhood, it becomes important that children develop a sense of autonomy and self-efficacy to explore the world in a confident manner without putting themselves and others in danger. Parents may fulfill these needs through three parenting behaviors (Erickson et al., 1985): (a) supportive presence (i.e., being accessible and emotionally supportive), (b) structure and limit-setting (i.e., adequately structuring situations and setting firm and consistent limits to children's behavior), and (c) quality of instruction (i.e., providing clear instructions to help children master their environment).

Different developmental stages may pose distinct challenges for each of these parenting behaviors. For instance, as young infants fully rely on their parents for care and safety, and their emotional signals may still be difficult to interpret (e.g., crying may indicate various forms of distress; Mesman et al., 2012), being accessible and emotionally supportive may be especially challenging (Landry et al., 2001). In contrast, as young infants' mobility is limited to rolling over and their language comprehension abilities are still lacking (Staples & Bates, 2018), it seems less likely that parents would experience major difficulties with structure and limit-setting and quality of instruction (Bornstein, 2019). At 10 months of age, children have shown an increase in exploratory tendencies because of advances in mobility (e.g., crawling, walking) and their play behavior has become more complex (Bornstein, 2019). This developmental stage thus requires parents to provide more structure to children's activities and limits to their behavior than at 5 months of age. At 36 months of age, children's sense of autonomy has further increased. For instance, children have started to develop food and clothing preferences, refuse parental demands, and engage in running, jumping, and climbing (Verhoeven et al., 2019). This developmental stage thus challenges parents more strongly to provide adequate structuring and limit-setting than at 10 months of age. In addition, children's language comprehension has developed considerably (Verhoeven et al., 2019), demanding from parents that they provide clear instructions to help their children master their rapidly expanding world.

To the best of our knowledge, no research on distinguishing parenting profiles across infancy and toddlerhood using these three parenting dimensions yet exists, we could not directly base our hypotheses on earlier empirical work. Nevertheless, given that previous research on parenting profiles in early childhood often distinguished between competent, sufficient, and maladaptive profiles (e.g., Farkas et al., 2020; Goodman et al., 2011; Paschall & Mastergeorge, 2018; Ryan et al., 2006), we predicted a similar distinction at each time point in our study. That is, parenting profiles are characterized by high, moderate, and low levels of supportive presence, structure and limit-setting, and quality of instruction. In addition, earlier longitudinal work on parenting profiles in early childhood has consistently found the same number of profiles across waves, with some studies discerning three profiles at each wave (Cook et al., 2012; Farkas et al., 2020) and one study differentiating between four profiles at each wave as it found an additional maladaptive profile (Paschall & Mastergeorge, 2018). As our study included a relatively small sample consisting of mothers who were mostly highly educated and from middle-class families, we expected to find one maladaptive profile instead of two. We thus predicted to find three profiles at each wave: a competent profile, sufficient profile, and a maladaptive profile.

Two important issues when examining parenting profiles across infancy and toddlerhood concern the *stability of profile structure* (i.e., whether profiles remain conceptually similar over time) and *stability of profile membership* (i.e., how likely parents are to remain in the same profile across time). A few studies have shown that the structure of *competent* parenting profiles remains relatively stable across early childhood and that transitions out of competent parenting profiles are rare (Cook et al., 2012; Paschall & Mastergeorge, 2018). This may reflect that parents with a competent profile are proficient at distinct parenting behaviors at an early stage, and remain so when confronted with new parenting challenges across time. In our case, this would imply that parents with this profile will be competent at providing supportive presence, structure and limit-setting, and quality of instruction at 5 months and remain so at subsequent time points when children's exploratory tendencies and language comprehension abilities have increased.

Previous work on the stability of *sufficient* parenting profiles in early childhood in terms of profile structure and profile membership is limited. One study including a high-risk sample reported a sufficient profile from 36 months onward only (Paschall & Mastergeorge, 2018). Moreover, this profile was characterized by intermediate levels of positive as well as negative parenting behaviors and therefore might be considered a mixed profile rather than a sufficient profile. Another longitudinal person-centered study, however, found that high-risk mothers with a sufficient parenting profile were the most stable group across early childhood (Farkas et al., 2020). In addition, some indirect evidence for the stability of sufficient parenting profiles in early childhood in terms of profile structure and profile membership comes from research that discerned subgroups of mothers based on their parenting trajectories across early childhood (Hirsh-Pasek & Burchinal, 2006). This study found a subgroup of mothers with stable intermediate scores on a composite of various parenting behaviors (i.e., maternal sensitivity and stimulation, supportive presence, respect for autonomy, positive regard, nonintrusiveness, and nonhostility), as well as a subgroup of

mothers with increasing intermediate scores. Together these findings might suggest that the structure of sufficient parenting profiles is relatively stable over time, with some parents having a sufficient profile transitioning into a competent profile across time. In our case, this could imply that parents with this profile will be sufficient at supportive presence, structure and limit-setting, and quality of instruction at 5 months and remain so across early childhood.

In contrast, *maladaptive* parenting profiles have been shown to exhibit substantial changes in structure across early childhood (Cook et al., 2012; Paschall & Mastergeorge, 2018). This may suggest that the structure of maladaptive parenting profiles is more strongly affected by the distinct parenting challenges across time. In our case, this could imply that parents with this profile struggle with supportive presence from 5 months onward, with structure and limit-setting from 10 months onward, and with quality of instruction at 36 months. Regarding stability of maladaptive profile membership in early childhood, findings are mixed, with one study showing that transitions out of maladaptive profiles are uncommon (Cook et al., 2012) and another study showing that transitions out of maladaptive profiles are common (Paschall & Mastergeorge, 2018). As these studies did not use identical parenting dimensions and thus found distinct types of maladaptive parenting profiles, it is difficult to explain these contradictory findings. However, these findings may indicate that some parents with a maladaptive parenting profile improve certain parenting behaviors over time, while other parents remain less competent across early childhood.

In sum, based on the literature, we expected three parenting profiles: (a) a competent profile that is characterized by stable high scores on each parenting dimension across time, (b) a sufficient parenting profile that is characterized by stable intermediate scores on each parenting dimension across time, and (c) a maladaptive parenting profile that is characterized by low scores on each parenting dimension central to their child's specific developmental stage. In addition, we predicted that transitions out of the maladaptive and sufficient parenting profile are more likely to occur than transitions out of the competent parenting profile.

Predictors of Parenting Profile Membership and Transitions

A second aim of this study was to scrutinize how profile membership and transitions between profiles at each time point are associated with parental, contextual, and child-specific factors. This may yield valuable insights for both theory development and clinical practice, because it allows to identify which parents are most likely to exhibit certain profiles and profile transitions across time. Our selection of parental, contextual, and child-specific factors was derived from an updated version of Belsky's process model (1984) on empirically supported determinants of parenting behaviors in early childhood (Taraban & Shaw, 2018).

On the level of the *parent*, it could be argued that parenting profiles and profile transitions are related to parents' personality traits and cognitions. For instance, parents who tend to be cooperative and organized might be supportive and structured in their parenting as well. Similarly, emotionally unstable and disorganized parents might be less supportive and structured in their parenting, especially when children's exploratory tendencies start to increase. Indeed, empirical work has linked specific personality traits and cognitions to distinct parenting patterns (Taraban & Shaw, 2018). Parents with higher levels of agreeableness and conscientiousness, for example, have been shown to engage in more warm and autonomy-supportive parenting (for a review, see Prinzie et al., 2009). This suggests that parents with these personality traits are more likely to show a competent profile or transition into this profile. Relatedly, mothers with higher levels of neuroticism and lower agreeableness were found to engage in less nurturing and more negative parenting (Kochanska et al., 1997; Prinzie et al., 2009), suggesting these personality traits might increase the likelihood of showing a maladaptive profile or transitioning into this profile. In addition, empirical work has revealed strong positive associations between perceived parental competence and supportive parenting (for a review, see Jones & Prinz, 2005), indicating that parents who feel competent at parenting are prone to exhibit a competent parenting profile or transition into this profile.

On the *contextual* level, demographic factors and stressful life events may predict profile membership and profile transitions. For instance, parents with a higher educational level may be more likely to show a competent profile because they generally have larger social networks that can provide them with assistance in their parenting role (Cochran & Niego, 2002; Hoff et al., 2019). In contrast, parents who experience stressful life events would be expected to show a maladaptive profile because their worries make it more difficult to be patient, helpful, or thoughtful with their child (Yates et al., 2010). Indeed, research has found competent and maladaptive parenting profiles to be associated with specific demographic factors and stressful life events. Mothers with a competent parenting profile in early childhood, for example, tend to be older and married, earn a higher income, and have a higher educational level than mothers with a maladaptive profile (Cook et al., 2012; Guttentag et al., 2006). In addition, there is some evidence that mother's experiences with their firstborns may improve their efficiency and expertise in meeting the developmental needs of their second born (Bornstein et al., 2019). This suggests that parents with a nonfirstborn child are more likely to exhibit a competent parenting profile. Furthermore, stressful life events such as family conflict and family instability (e.g., caregiver changes, income/job loss, family member death) have been shown to increase the likelihood of showing a maladaptive parenting profile or to transition into such a profile (Paschall & Mastergeorge, 2018; Sturge-Apple et al., 2014).

On the level of the *child*, children's negative emotionality and regulatory deficits may predict profile membership and profile transitions. For instance, children who are easily overstimulated or tend to act out may frequently evoke parental stress or frustration, making parents prone to exhibit maladaptive parenting patterns (Williford et al., 2007). Indeed, empirical work demonstrated that parents show an increase in overreactive parenting across infancy and toddlerhood in response to their child's increases in negative emotionality (Lipscomb et al., 2011). In addition, mothers who exhibit stable low levels of supportive parenting across early childhood are more likely to have children with regulatory deficits (Fuligni et al., 2013). Relatedly, longitudinal research has shown that infants and toddlers with an emotionally reactive temperament or regulatory deficits elicit more maladaptive parenting over time (Bridgett et al., 2009; Micalizzi et al., 2017), suggesting that these child characteristics may increase the likelihood of transitioning into the maladaptive parenting profile.

The Present Study

Our study goals were to (a) distinguish parenting profiles at three time points during infancy and toddlerhood (i.e., 5, 10, and 36 months) based on mother's supportive presence, structure and limit-setting, and quality of instruction, as well as to examine the stability of profile structure and

profile membership across time, and (b) examine how profile membership and transitions between profiles at each time point are associated with relevant parental, contextual, and child-specific factors. We expected three parenting profiles at each time point: (a) a competent profile that is characterized by stable high scores on each parenting dimension across time, (b) a sufficient parenting profile that is characterized by stable intermediate scores on each parenting dimension across time, and (c) a maladaptive parenting profile that is characterized by a low score on supportive presence from 5 months onward, a low score on structure and limit-setting from 10 months onward, and a low score on quality of instruction at 36 months). Furthermore, we expected more competent profiles and transitions into more competent profiles to be associated with higher levels of parental agreeableness and conscientiousness, lower levels of parental neuroticism, higher levels of perceived parental competence, a higher parental educational level, a lower number of stressful life events, having a non-firstborn child, lower child negative emotionality, and better child self-regulation capacities. In addition, we predicted that transitions out of the maladaptive parenting profile and sufficient parenting profile are more likely to occur than transitions out of the competent parenting profile (our study hypotheses have been preregistered at the Open Science Framework: https://osf.io/2ntkz).

Method

Participants

Participants were mother–child dyads drawn from a larger longitudinal cohort study on behavioral development (YOUth; Onland-Moret et al., 2020). Our study included only mothers. We acknowledge that both parents are important; however, we focused on mothers because of a too small number of fathers in the study to discern parenting profiles. Mothers were recruited through 32 midwifery practices. Midwives handed out flyers to pregnant women at their first visit and provided information on the study. Women who were interested received an extensive information brochure explaining the study, the informed consent forms, and a reply envelope. Approximately 60%–65% of the women requesting an information brochure decided to participate in the larger YOUth study. Mothers and their children were mostly highly educated and part of Dutch middle-class families, all living in urban and rural areas in the province of Utrecht (for sample characteristics, see Table 1). Mothers were excluded if they had no parental authority of their children, and children were excluded if they were not mentally or physically capable of performing the tests. Mothers were required to have sufficient knowledge of the Dutch language to be able to understand all study information and instructions. As family effects were not part of the study aims, we included one child per family. Data from 244 mother–child dyads were collected at three waves: when children were approximately 5 months ($n = 203$), 10 months ($n = 181$), and 3 years of age ($n = 178$). Mothers gave written informed consent for their own participation and both parents for the participation of their child. The study was conducted in accordance with the 2013 Helsinki Declaration, and the larger YOUth cohort study was approved by the Medical Research Ethics Committee Utrecht.

Procedure

To assess mother's parenting behaviors at each measurement wave, mothers and their children engaged in a videotaped, standardized parent–child interaction task conducted in a lab setting in the Child Research Center at the Utrecht Science Park. This task took

Table 1
Sample Characteristics

Demographics	Wave 1 ($n = 203$)	Wave 2 ($n = 181$)	Wave 3 ($n = 178$)
Age mother (in years)	33.15 (3.54)	33.18 (3.68)	35.48 (3.60)
Age child (in months)	4.88 (0.76)	9.98 (0.84)	35.31 (7.90)
Child gender (boys)	46.3%	45.9%	47.2%
Biological mother	98.0%	94.5%	97.2%
Ethnicity			
Dutch	90.6%	87.3%	89.9%
Moroccan/Turkish	0.0%	0.0%	0.0%
Suriname/Antillean	0.0%	0.6%	0.0%
Asian	2.0%	3.3%	2.8%
European (non-Netherlands)	3.4%	3.3%	2.8%
Non-Europe	1.5%	1.1%	1.1%
Partner status			
I have a partner who I live with	92.6%	85.1%	78.7%
I have a partner who I do not live with	0.5%	0.0%	0.7%
I have no partner	1.5%	1.1%	2.2%
Educational level			
Lower	0.0%	0.0%	0.6%
High school	3.0%	5.5%	3.9%
Secondary vocational	13.3%	12.7%	11.8%
Higher vocational	31.5%	28.2%	33.7%
University	49.8%	49.2%	47.2%
Income (per month)			
Less than 1,250€	0.0%	1.1%	1.1%
1,250–2,000€	1.5%	2.2%	3.4%
2,000–3,000€	5.4%	8.8%	3.4%
3,000–4,000€	26.6%	20.4%	23.0%
More than 4,000€	58.6%	59.1%	62.9%
Do not want to say/cannot estimate	5.9%	5.0%	4.0%

Note. Total percentages do not count up to 100% because of missing data on these variables.

15 min and included five subtasks of 3 min each: (a) free play, (b) an age-appropriate structured task (i.e., exploring a toy at Wave 1 and Wave 2; solving a puzzle at Wave 3), (c) reading a book, (d) free play, and (e) cleaning up. For a detailed description of each subtask, see Table S1 in the online supplemental materials.

Measures

Parenting Behaviors

Parenting behaviors at each wave were coded using the videotaped observations of the parent–child interaction task. To this end, the subscales supportive presence, structure and limit-setting, and quality of instruction of the Erickson scales were used (Erickson et al., 1985). Each of these scales was coded on a 7-point scale, with higher scores meaning that mothers were more competent in the specific parenting behavior.

Supportive Presence. Supportive presence reflects mother's expression of positive regard and emotional support to the child. Mothers scoring high on this scale acknowledge their child's achievements, motivate their child using positive emotional regard, and are reassuring when their child is struggling with the task. Mothers scoring low on this scale fail to provide supportive cues and remain passive or uninvolved. In addition, these mothers may be more focused on their own task performance than their child's emotional needs.

Structure and Limit-Setting. Structure and limit-setting reflects mother's ability to provide structure, adequately impose their agenda, and establish their expectations for their child's behavior. Mothers scoring high on this scale are able to structure the task and increase their attempts to set limits before their child's behavior becomes intolerable. For mothers scoring low on this scale, structuring and limit-setting behaviors are absent, ineffective, or inconsistent.

Quality of Instruction. Quality of instruction reflects mother's ability to provide clear instructions to help their child master the task. Mothers scoring high on this scale provide adequately timed task-oriented hints or corrections, present their instructions in logical steps, and show flexibility in their approach by rephrasing instructions or suggesting alternative strategies. Mothers scoring low on this scale provide instructions of poor quality, are uninvolved, and disorganized or inflexible in their strategies.

We took two steps to ensure coding reliability. First, an expert in the coding system trained Marissa Hofstee during four meetings of approximately 2 hr until they were reliable with each other on each wave (intraclass correlation [ICC] $>$ .73 on all scales). The practice videos that were used for the training sessions consisted of videos from the YOUth pilot study, in which exactly the same setting was used as in the videos used for the current study. These videos were previously coded with the Emotional Availability Scales (EAS) within another study (Endendijk et al., 2019). The expert chose 25 videos that contained substantial variation in the EAS scores, as this ensured that these videos would also show variation in the parenting behaviors assessed with the Erikson scales. Next, Marissa Hofstee trained 11 students until they were reliable. In this procedure, the students received five weekly training sessions of approximately 2 hr in which the coding of the videos was practiced and discussed in detail. After each session, students coded several videos themselves as homework. In the following meeting, these videos were examined in detail and disagreements were resolved through discussion between the students and with Marissa Hofstee until consensus was reached. In addition, the coding of a set of new videos was again practiced and discussed. This process was repeated for 5 weeks and the number of practice videos was increased each week (25 videos in total) until students' coding closely matched the coding of Marissa Hofstee (i.e., not more than 1 point difference on the 7-point Erickson scales). Then interrater agreement of the coders was examined based on 30 new practice videos that were double coded by all the coders and Marissa Hofstee (10 videos per wave). During this process, two coders with ICCs below .6 were removed. Interrater agreement from the remaining coders ranged from good to excellent, with ICCs ranging from .75 to .86 for supportive presence, from .64 to .81 for structure and limit-setting, and from .70 to .81 for quality of instruction. The remaining nine coders were thus all reliable with Marissa Hofstee and each other on each wave. They received supervision of Marissa Hofstee during the process of coding the videos for the study.

Maternal, Contextual, and Child-Specific Factors

To assess maternal, child-specific, and contextual factors, mothers filled out various questionnaires at each wave, except for maternal personality traits which were assessed only one time. For each construct, a minimum of three items had to be completed by mothers to yield a reliable scale (Marsh et al., 1998), otherwise data were imputed.

Maternal Personality. We assessed maternal personality traits around 30 weeks pregnancy with the subscales neuroticism, agreeableness, and conscientiousness of the Dutch version of the Neuroticism–Extraversion–Openness Five-Factor Inventory 3 (NEO-FFI-3; Hoekstra & De Fruyt, 2014; McCrae & Costa, 2007). Mothers rated 12 items per subscale on a 5-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item of the neuroticism subscale is: "I often feel tense and jittery," an example item of the agreeableness subscale is: "I try to be courteous to everyone I meet," and an example item of the conscientiousness subscale is: "I try to perform all the tasks assigned to me conscientiously." We calculated maternal personality trait scores as the average across items per subscale (neuroticism, $\alpha = .84$; agreeableness, $\alpha = .72$; conscientiousness, $\alpha = .78$).

Perceived Parental Competence. We assessed perceived parental competence at each wave with the sense of competence subscale of the shortened Dutch version of the Parenting Stress Index (NOSI; De Brock et al., 1992). Mothers rated nine items on a 6-point Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). An example item is: "Parenting this child is harder than I thought it would be." We calculated perceived parental competence scores for each wave as the average across items (Wave 1, $\alpha = .90$; Wave 2, $\alpha = .89$; Wave 3, $\alpha = .91$). Items were reverse-scored so that higher scores indicated higher perceived parental competence.

Demographics. We assessed demographics, including mothers' educational level, using multiple-choice items and open-ended questions at each wave. Maternal educational level was coded on an ordinal scale (see Table 1).

Stressful Life Events. Stressful life events were assessed at each wave with items derived from the Generation R study (Hofman et al., 2004). Mothers rated 46 items about the occurrence of various major life events in the past year. Items were answered on a dichotomous scale (yes/no) and concerned events related to family (e.g., divorce/breaking up with partner), work (e.g., losing job), finances (e.g., financial problems), health (e.g., hospitalization), and others (e.g., problems

with school). As we were interested in the total number of major life events experienced in the last year and not event-specific effects, we summed all items to create a total score for each wave.

Children's Negative Emotionality. Children's negative emotionality was assessed at Wave 1 and Wave 2 with the subscales sadness, distress to limitations, fear, and falling reactivity of the Dutch version of the Infant Behavior Questionnaire-revised short form (IBQ-R-SF; Putnam et al., 2014). Mothers rated these 25 items on a 7-point Likert scale from 1 (*never*) to 7 (*always*). An example item is: "How often did the baby seem angry (crying and fussing) when you left her/him in the crib?" We calculated children's negative emotionality scores for each wave as the average across items so that higher scores indicated more negative emotionality (Wave 1, $\alpha = .76$; Wave 2, $\alpha = .75$).

Children's Self-Regulation. Children's self-regulation was assessed with the Dutch versions of the IBQ-R-SF (Putnam et al., 2014), Early Childhood Behavior Questionnaire–short form (ECBQ-SF; Putnam et al., 2006) and Children's Behavior Questionnaire–very short form (CBQ-SF; Putnam & Rothbart, 2006). The IBQ-R-SF was assessed at Wave 1 and Wave 2. The ECBQ-SF was assessed at Wave 3 for children <3 years (54.5%) and the CBQ-SF at Wave 3 for children ≥3 years (45.5%). The IBQ-R-SF, ECBQ-SF, and CBQ-SF are developmentally equivalent measures that show stability across adjacent measurement periods (Putnam et al., 2008).

With the IBQ-R-SF, we used the subscales low-intensity pleasure, cuddliness, duration of orienting, and soothability. Mothers rated these 26 items on a 7-point Likert scale from 1 (*never*) to 7 (*always*). An example item is: "When singing or talking to your baby, how often did s/he soothe immediately?" With the ECBQ-SF, we used the subscales attention focusing, attention shifting, cuddliness, inhibitory, and low-intensity pleasure. Mothers rated these 32 items on a 7-point Likert scale from 1 (*never*) to 7 (*always*). An example item is: "When asked to do so, how often was your child able to be careful with something breakable?" With the CBQ-SF, we used the subscales attention focusing, inhibitory control, perceptual sensitivity, and low-intensity pleasure. Mothers rated these 26 items on a 7-point Likert scale from 1 (*extremely untrue of my child*) to 7 (*extremely true of my child*). An example item is: "Approaches places (s)he has been told are dangerous slowly and cautiously." We calculated children's self-regulation scores as the average across items on the IBQ-R-SF (Wave 1, $\alpha = .81$; Wave 2, $\alpha = .83$), and the ECBQ ($\alpha = .85$) or CBQ ($\alpha = .85$) at Wave 3, so that higher scores indicated better self-regulation capacities.

Statistical Analysis

To test our hypotheses, analyses were conducted in five steps and carried out using Mplus (Version 8.8).

First, to distinguish parenting profiles at three time points during infancy and toddlerhood (i.e., around 5, 10, and 36 months), we conducted latent transition analyses (LTA) based on mothers' supportive presence, structure and limit-setting, and quality of instruction at each wave. To this end, we fitted both regular LTA and random-intercept LTA (RI-LTA) models. RI-LTA models allow to separate between-subject variation from the within-subject latent profile transitions over time and therefore typically yield better model fit and latent transition probability estimates (Muthén & Asparouhov, 2022). We searched for the LTA model with the lowest Bayesian information criterion (BIC) and sufficient entropy (i.e., entropy > .80). As RI-LTA model fit is evaluated based on only BIC (Muthén & Asparouhov, 2022), we also conducted cross-sectional latent profile analyses (LPA) for each wave separately to examine whether the best cross-sectional LPA models included the same number of profiles as the best LTA model. LPA models were evaluated based on the Akaike information criterion (AIC), BIC, sample size adjusted BIC (aBIC), entropy, and the Lo–Mendell–Rubin likelihood ratio test (LMRT; Lo et al., 2001). In both procedures, we increased the number of profiles until the model no longer improved in terms of model fit, interpretability, and parsimony (McCutcheon, 2002). Profile-solutions with small class sizes (i.e., less than 5% of the sample size) were avoided (Collins & Lanza, 2010). We described how parenting profiles differed in terms of parenting behaviors using three labels (i.e., low, moderate, high). We applied these labels by dividing the scale of parenting variables (i.e., 1–7) into three categories. Hence, *low* equals a score between 1 and 3, *moderate* between 3 and 5, and *high* between 5 and 7. Although arbitrary, these labels may help interpret differences between parenting profiles. In our analyses, we controlled for age differences between children within each wave.

Second, we investigated whether model modifications were required. To this end, we tested for local independence and cross-class equality of the indicator variances. Local independence entails that correlations between profile indicators within each profile are solely explained by latent profile membership (Vermunt, 2011). To test for this, we added the correlation between each pair of indicators at a time point to the LTA model, one correlation at a time, and examined whether it was significant. Cross-class equality of the indicator variances implies that indicator variances are equal across profiles (Vermunt, 2011). To test for this, we conducted Wald tests for each indicator separately.

Third, to examine the stability of profile structure across time, we tested for measurement invariance of indicator means of equivalent profiles at time t and time $t + 1$ by conducting Wald tests. This was done for each equivalent profile separately and one parenting behavior at a time.

Fourth, to examine the stability of profile membership across time, we scrutinized latent transition probabilities from profiles at time t to profiles at time $t + 1$ (Collins & Lanza, 2010).

Lastly, to examine associations between predictors and profile membership at each time point, as well as between predictors and latent transition probabilities, covariates were included in the LTA models. Because fitting multiple predictors in one model inflates the Type II error rate, models were first fitted for each predictor separately. Next, all significant predictors were fitted in one model to address possible confounding between predictors.

All LTA models including predictors were fitted using a stepwise approach (Asparouhov & Muthén, 2021). In this procedure, the LTA model is first estimated without the predictors. Next, all parameters are fixed to their first step estimates and predictors are added to the model (Asparouhov & Muthén, 2021). This approach ensures that latent profile formation is not affected by the predictors.

Missing Data

We had substantial missing data on all latent profile indicators at each wave (16.8% at Wave 1, 25.8% at Wave 2, and 27.0% at Wave 3). Additionally, missing data on predictors ranged from 3.3% to 22.1% ($M = 13.0\%$, $SD = 5.6\%$). Little's MCAR test (Little, 1988)

demonstrated missing data on the latent profile indicators and predictors were completely at random ($\chi^2 = 1{,}533.228$, $df = 1{,}464$, $p = .102$). Missing data on covariates cannot be dealt with by full information maximum likelihood estimation (Ji et al., 2018). To handle missing values on latent profile indicators and predictors, we therefore generated 15 imputed data sets using Bayesian analysis (Rubin, 1987; Schafer, 1997). To this end, we used information on the latent profile indicators, all predictors, children's and mothers' age at each wave, and child gender. Each of the imputed data sets is analyzed. Parameter estimates are then averaged over the imputed data sets, and standard errors are calculated using the average over the imputed data sets and between analysis parameter estimate variation (Muthén & Muthén, 2017). The number of imputed data sets was based on the fraction of missing information (Von Hippel, 2020).[1]

Results

Descriptive statistics are reported in Table S2 in the online supplemental materials. Standardized kurtosis and skewness values (i.e., kurtosis/skewness values divided by their standard error) of parenting variables ranged from −1.5 to 2.6 and −4.8 to −1.6, respectively. Predictor variables showed standardized kurtosis and skewness values between −1.0 and 36.3 and between −14.4 and 17.3, respectively, with particularly highly skewed distributions for perceived parental competence and stressful life events.

Number of Parenting Profiles at Each Wave

Table 2 shows the fit indices of the regular LTA versus RI-LTA models. The RI-LTA models all showed a better fit than their regular LTA equivalent. The three-profile RI-LTA model yielded a better fit than the two-profile model and the four-profile model, although entropy was marginally below the cutoff of .8. In addition, the four-profile RI-LTA model included a profile with less than 5% of the total sample size ($n = 11$). We therefore selected the three-profile RI-LTA model as the best model.

Next, we conducted cross-sectional LPAs for each wave separately to examine whether the LPAs would also indicate a three-profile solution as the most optimal model at each wave. Results indeed indicated that a three-profile solution at each wave provided the most parsimonious, well-fitting, and conceptually meaningful solution (for fit indices of the cross-sectional LPAs, see Table S3 in the online supplemental materials).

Table 2
Model Selection Indices for Regular Versus Random-Intercept Latent Transition Models

Estimated model	BIC	Entropy	*n* of smallest profile
LTA: two-profile model	6776.053	0.789	78
RI-LTA: two-profile model	6507.700	0.754	68
LTA: three-profile model	6599.020	0.828	16
RI-LTA: three-profile model	6484.133	0.791	16
RI-LTA: three-profile model-modified	**6473.858**	**0.769**	**19**
LTA: four-profile model	6570.953	0.872	9
RI-LTA: four-profile model	6535.094	0.800	11

Note. The model in bold provided the best solution. Profile sizes were based on the estimated model. BIC = Bayesian information criterion; LTA = latent transition analyses; RI-LTA = random-intercept LTA.

In sum, both the LTA and cross-sectional LPA models indicated that a three-profile solution at each wave provided the most optimal model, with the three-profile RI-LTA model yielding a better model fit than its regular LTA equivalent. We, therefore, selected the three-profile RI-LTA model as the best model.

Model Modifications

To examine whether model modifications were required, we first tested for local independence. Two out of nine indicator pairs correlated beyond profile membership (i.e., structure and limit-setting with quality of instruction, both at Wave 1 and Wave 2) and therefore their residual correlations were added to the RI-LTA model. In addition, we checked for cross-class equality of the indicator variances. Wald tests showed that the variances of structure and limit-setting at Wave 2 and Wave 3 were not equal across profiles. We, therefore, allowed for unequal variances across profiles for these indicators. Next, this modified RI-LTA model was compared to the restricted RI-LTA model based on BIC. The modified RI-LTA model showed to fit the data better than the restricted RI-LTA model. Therefore, the modified RI-LTA model was selected as the best model and used in the subsequent analyses.

Profile Structure at Each Wave and Stability of Profile Structure

Figures 1–3 include a visual presentation of the three-profile solution at each wave. Across all waves, we found the expected competent profile, characterized by high scores on supportive presence, structure and limit-setting, and quality of instruction. This profile was relatively large: it was the largest profile at Wave 2 ($n = 139$) and the second largest at Wave 1 ($n = 97$) and Wave 3 ($n = 70$). Wald tests showed that scores for each parenting behavior did not statistically differ across waves (for Wald test results on the stability of profile structure across waves, see Table S4 in the online supplemental materials).

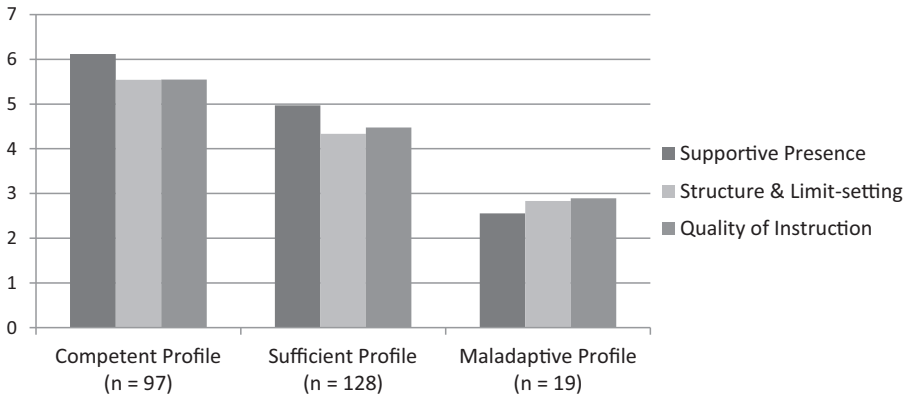
The expected sufficient profile, characterized by moderate scores on all three parenting behaviors, was also found at each wave. In addition, Wald tests showed that the sufficient profile scored significantly higher on structure and limit-setting at Wave 3 compared to Wave 2 ($p = .032$). The sufficient profiles were also relatively large: it was the largest profile at Wave 1 ($n = 128$) and Wave 3 ($n = 127$) and the second largest profile at Wave 2 ($n = 86$).

The expected maladaptive profile, characterized by a low score on supportive presence from 5 months onward, a low score on structure and limit-setting from 10 months onward, and a low score on quality of instruction at 36 months, showed a different pattern across time. We found a maladaptive profile with low scores on all three parenting behaviors at Wave 1. At Wave 2, the score for quality of instruction was moderate instead of low, but this difference was not statistically significant ($p = .772$), At Wave 3, the maladaptive profile scored moderate on supportive presence instead of low, and this difference was statistically significant ($p < .001$). For structure and limit-setting and quality of instruction, the maladaptive profile

[1] The syntax and output of the analyses are available through the Open Science Framework (https://osf.io/6yq7b/). The data that support the findings of this study are available on request (https://www.uu.nl/en/research/youth-cohort-study/data-access). Note: Our statistical approach changed during the revision process and therefore is different from the approach described in our preregistration.

Figure 1

Parenting Profiles at 5 Months



scored just within the moderate range at Wave 3, but not significantly higher than at Wave 2. Hence, this profile could be considered a "sufficient-maladaptive profile" at Wave 3. At all waves, the maladaptive profiles were the smallest profiles.

In sum, only the competent parenting profile was found to have a stable structure across all three waves, both conceptually and statistically. The sufficient profile remained conceptually relatively stable, with moderate scores on each parenting behavior across waves, but improved significantly in structure and limit-setting from Wave 2 to 3. The maladaptive profile showed to be the least stable. Conceptually, this profile only showed low scores on each parenting behavior at Wave 1, while it improved significantly in supportive presence from Wave 2 to Wave 3.

Stability in Profile Membership

Next, we estimated transition probabilities (see Table 3; for the number and proportion of mothers per profile transition, see Table S5 in the online supplemental materials).

As predicted, transitions out of the maladaptive profile and sufficient profile at Wave 1 were more frequent than transitions out of the competent profile. Mothers with a competent profile at Wave 1 were most likely to remain in the competent profile at Wave 2 (74.1%). Mothers with a sufficient profile at Wave 1 were most likely to transition into the competent profile at Wave 2 (50.4%), but also relatively likely to remain in the sufficient profile (40.1%). Mothers with a maladaptive profile at Wave 1 were most likely to transition into the sufficient profile at Wave 2 (46.4%). Transitions into the maladaptive profile at Wave 2 were most rare.

Unexpectedly, transitions out of the maladaptive profile and sufficient profile at Wave 2 were not more frequent than transitions out of the competent profile. Mothers with a competent profile at Wave 2 were most likely to transition into the sufficient profile at Wave 3 (46.5%) while mothers with a sufficient profile at Wave 2 were most likely to remain in the sufficient profile at Wave 3 (61.0%). Mothers with a maladaptive profile at Wave 2 were most likely to transition into the sufficient profile at Wave 3 (55.0%). Transitions into the sufficient-maladaptive profile at Wave 3 were most rare.

Predictors of Latent Profile Membership

Table 4 presents associations between maternal, child-specific, and contextual factors and profile membership at each wave. Mothers who are more agreeable were more likely to show a competent profile than a sufficient profile at Wave 1. Those mothers were also more likely to show a competent profile than a maladaptive profile at Wave 3. Mothers with a higher educational level were more likely to be in the competent profile and sufficient profile than in the maladaptive profile at Wave 1. Maternal neuroticism and conscientiousness perceived parental competence, number of stressful life events, child negative

Figure 2

Parenting Profiles at 10 Months

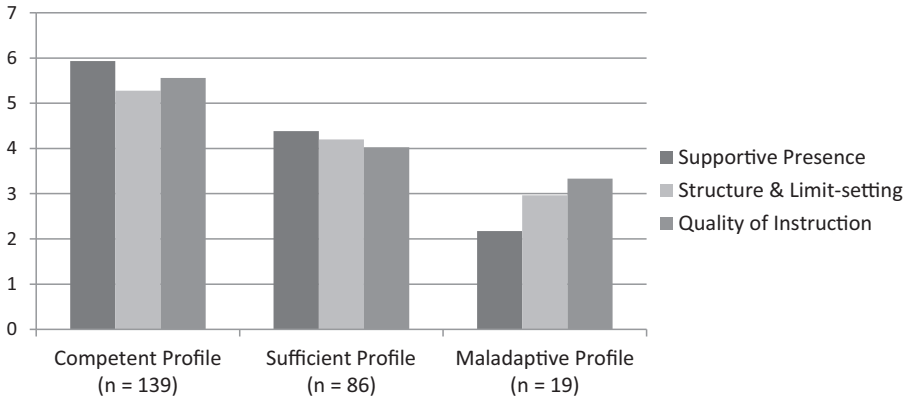
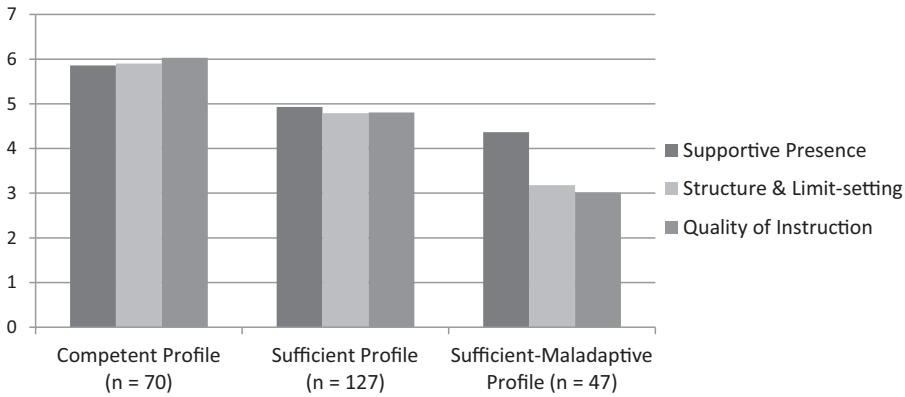


Figure 3
Parenting Profiles at 3 Years



emotionality, and child self-regulation were not associated with profile membership across the three waves. Next, significant predictors were fitted in a single model to address possible confounding among predictors. Results did not change, showing these predictors have a unique effect on profile membership.

Predictors of Latent Transition Probabilities

Results showed no associations between the variables of interest and latent transition probabilities (see Table S6 in the online supplemental materials). In addition, some transitions could not be (reliably) predicted because of a too small number of mothers making this transition (i.e., transitions including the maladaptive profiles).

Discussion

The present study was the first to distinguish parenting profiles at three time points during infancy and toddlerhood (i.e., 5, 10, and 36 months) based on mothers' supportive presence, structure and limit-setting, and quality of instruction, as well as to examine the stability of profile structure and profile membership across time. Improved understanding of such profiles could help tailor parenting interventions to the needs of individual parents. We found three parenting profiles at each wave. Regarding the stability of profile structure, only the competent profile was found to have a stable structure across all three waves, while the maladaptive profiles showed the most change in profile structure. Regarding the stability of profile membership, from 5 to 10 months profile membership was most stable for the competent profile, while from 10 to 36 months profile membership was most stable for the sufficient profile. Results also showed that maternal agreeableness and a higher educational level increased the likelihood to exhibit a more competent parenting profile.

Table 3
Latent Transition Probabilities

	Wave 2		
Wave 1	CP	SP	MP
CP	0.741	0.236	0.023
SP	0.504	0.401	0.095
MP	0.315	0.464	0.221
	Wave 3		
Wave 2	CP	SP	SMP
CP	0.361	0.465	0.174
SP	0.210	0.610	0.180
MP	0.077	0.550	0.373

Note. CP = competent profile; SP = sufficient profile; SMP = sufficient-maladaptive profile; MP = maladaptive profile.

Stability in Profile Structure

To scrutinize the stability of profile structure, we examined how parenting behaviors within each profile differed across time. As expected, we found a competent parenting profile at each wave. This was the only profile to have a stable structure across all three waves. Competent mothers scored high on supportive presence, structure and limit-setting, and quality of instruction at each time point. This reflects that mothers who were competent at supportive presence, structure and limit-setting, and quality of instruction when their child was 5 months old remained so when their child's exploratory tendencies and language comprehension abilities had increased at 10 and 36 months. This finding corresponds with previous person-centered research using distinct parenting dimensions that found the structure of competent profiles to remain the most stable across early childhood (Cook et al., 2012; Paschall & Mastergeorge, 2018). An explanation for these findings may be that there is bidirectional relation between mothers' parenting and their children's behavior (Combs-Ronto et al., 2009; Newton et al., 2014). Mothers who are competent from the very beginning might evoke more positive behaviors in their child, making it more easy to deal with their child's changing developmental needs. Conversely, mothers who struggle early on might evoke more negative behaviors in their child, making it more difficult to deal with their child's changing developmental needs. To explore this idea, we performed additional exploratory analyses (not preregistered) (for details, see Table S7 in the online supplemental materials). We found parenting profiles to be predictive of both children's self-regulation and negative emotionality. Indeed, mothers with a competent profile at 5 months had children with better self-regulation capacities at 10 months than mothers with a sufficient profile. Surprisingly, mothers with a maladaptive profile at 5 months had children with less negative emotionality at 10 months than mothers with a competent profile and sufficient profile. This finding aligns with earlier work that found that infants of less sensitive mothers displayed less negative affect over time (Spinrad &

Table 4
Odds Ratios (ORs) and 95% Confidence Intervals (CI) for Associations Between Latent Profile Membership and Predictors

	Profile at Wave 1		
Predictor	CP vs. MP	SP vs. MP	CP vs. SP
Neuroticism	1.54 [0.36, 6.62]	1.35 [0.31, 5.90]	1.14 [0.56, 2.33]
Agreeableness	5.40 [0.69, 42.57]	1.42 [0.19, 10.53]	**3.81 [1.22, 11.93]**
Conscientiousness	0.45 [0.07, 2.80]	0.80 [0.11, 5.83]	0.56 [0.20, 1.56]
Perceived parental competence	0.42 [0.06, 2.93]	0.41 [0.05, 3.12]	1.02 [0.54, 1.95]
Educational level	**4.07 [1.46, 11.32]**	**2.81 [1.04, 7.58]**	1.45 [0.82, 2.55]
Stressful life events	0.99 [0.55, 1.78]	1.02 [0.55, 1.89]	0.97 [0.72, 1.30]
Child negative emotionality	3.00 [0.52, 17.37]	3.91 [0.55, 27.60]	0.77 [0.36, 1.64]
Child self-regulation	1.02 [0.24, 4.41]	0.59 [0.13, 2.77]	1.73 [0.63, 4.72]
	Profile at Wave 2		
Predictor	CP vs. MP	SP vs. MP	CP vs. SP
Neuroticism	1.19 [0.34, 4.10]	0.68 [0.19, 2.37]	1.75 [0.87, 3.54]
Agreeableness	2.04 [0.44, 9.52]	2.40 [0.48, 11.98]	0.85 [0.25, 2.89]
Conscientiousness	2.46 [0.53, 11.29]	1.79 [0.38, 8.45]	1.38 [0.53, 3.54]
Perceived parental competence	2.07 [0.88, 4.89]	1.60 [0.63, 4.04]	1.29 [0.73, 2.30]
Educational level	1.03 [0.51, 2.11]	1.11 [0.50, 2.45]	0.93 [0.57, 1.52]
Stressful life events	0.99 [0.79, 1.23]	0.87 [0.63, 1.21]	1.13 [0.86, 1.49]
Child negative emotionality	0.69 [0.14, 3.33]	0.65 [0.14, 2.97]	1.07 [0.44, 2.60]
Child self-regulation	1.76 [0.41, 7.55]	0.89 [0.20, 3.87]	1.98 (0.88, 4.46]
	Profile at Wave 3		
Predictor	CP vs. SMP	CP vs. SMP	CP vs. SP
Neuroticism	0.58 [0.24, 1.43]	0.84 [0.38, 1.85]	0.69 [0.27, 1.75]
Agreeableness	**4.82 [1.01, 22.86]**	1.76 [0.59, 5.29]	2.74 [0.58, 13.02]
Conscientiousness	2.62 [0.68, 10.01]	1.13 [0.37, 3.42]	2.32 [0.77, 6.97]
Perceived parental competence	1.04 [0.56, 1.94]	1.16 [0.64, 2.08]	0.90 [0.47, 1.69]
Educational level	0.99 [0.55, 1.76]	0.97 [0.57, 1.65]	1.02 [0.62, 1.67]
Stressful life events	1.12 [0.87, 1.44]	1.08 [0.86, 1.35]	1.04 [0.84, 1.28]
Child negative emotionality	1.21 [0.39, 3.77]	1.06 [0.42, 2.69]	1.14 [0.43, 3.02]
Child self-regulation	0.78 [0.30. 2.03]	1.05 [0.45, 2.45]	0.74 [0.36, 1.55]

Note. CP = competent profile; SP = sufficient profile; SMP = sufficient-maladaptive profile; MP = maladaptive profile. Results in bold represent significant ORs (i.e., the 95% CI does not include one). Maternal educational level was included as a continuous predictor. As child's negative emotionality was only assessed at Wave 1 and Wave 2, profile membership at Wave 3 was regressed on child's negative emotionality at Wave 2.

Stifter, 2002). The authors proposed that these infants may have learned through experience not to share their distress with their caregiver.

Unexpectedly, the structure of the sufficient profile was not entirely stable across waves. Although the sufficient profile remained conceptually relatively stable, with moderate scores on each parenting behavior across waves, it improved significantly in structure and limit-setting from 10 to 36 months. An explanation for this finding may be that at 36 months children have shown a large increase in their sense of autonomy. From a developmental perspective, it thus becomes more important for parents to adequately structure their child's rapidly expanding world and to set firm and consistent limits to their child's behavior. It may therefore be that mothers with a sufficient profile adjusted their level of structure and limit-setting to their child's developmental needs and so increased their structure and limit-setting from 10 to 36 months. An alternative explanation, however, can be found in that the sufficient profile at 36 months for the largest part included mothers with a competent profile at 10 months (51.2%). Hence, competent mothers at 10 months started to struggle more strongly with the parenting challenges that arise during toddlerhood, making them most likely to show a sufficient profile at 36 months, and thereby contributing to a moderate score on structure and limit-setting for the sufficient profile that was higher than at 10 months.

In line with earlier work, the maladaptive profile exhibited substantial changes in profile structure across time (Cook et al., 2012; Paschall & Mastergeorge, 2018). The structure of the maladaptive profile, however, showed a different pattern across waves than predicted. The maladaptive profile was not characterized by a low score on each parenting dimension central to the child's specific developmental stage (i.e., supportive presence from 5 months onward, structure and limit-setting from 10 months onward, and quality of instruction at 36 months). Instead, we found a maladaptive profile with low scores on all three parenting behaviors at 5 months, while at 36 months the score for supportive presence was moderate instead of low and significantly higher than at 10 months. In addition, the scores for quality of instruction of this profile at 10 and 36 months, and structure and limit-setting at 36 months were within the moderate range, although not significantly higher than at the previous time point. This profile was therefore considered a sufficient-maladaptive profile at 36 months.

Mothers with a maladaptive profile thus already struggled with providing structure and limit-setting and quality of instruction before their child's exploratory tendencies and language comprehension had increased. Furthermore, the unexpected moderate score on the supportive presence of the maladaptive profile at 36 months may be explained by the increased complexity of parenting at 36 months.

At 36 months, parents are more strongly challenged to provide adequate structure and limit-setting and quality of instruction because of children's considerable advances in autonomy-seeking and language comprehension (Verhoeven et al., 2019). Consequently, the sufficient-maladaptive profile at 36 months included for the most part mothers that showed a competent profile (51.1%) and sufficient profile (34.0%) at 10 months. These mothers thus still provided sufficient supportive presence at 36 months, but started to struggle with providing adequate structure and limit-setting and quality of instruction, making them transition into the sufficient-maladaptive profile. Additionally, some mothers with a maladaptive profile at 10 months improved their supportive presence at 36 months (14.9%), perhaps because their child became better in communicating its needs due to increases in language abilities (Verhoeven et al., 2019).

Stability of Profile Membership

To scrutinize the stability of profile membership, we examined how likely mothers were to change profiles across time. We expected profile membership to be most stable for mothers with a competent profile, but this was only partially supported. Mothers with a competent profile at 5 months were indeed most likely to remain competent at 10 months. Competent mothers at 10 months, however, were most likely to exhibit a sufficient profile at 36 months. This contradicts previous work on high-risk mothers showing that profile transitions of competent mothers are relatively rare across early childhood (Cook et al., 2012; Paschall & Mastergeorge, 2018). Mothers in these studies, however, were enrolled in an intervention program that may have prevented them from transitioning out of the competent profile when being confronted with the parenting challenges across toddlerhood. An explanation for our study findings may again be found in the increased complexity of parenting at 36 months. During toddlerhood, parents are confronted with additional parenting challenges such as dealing with their child's increase in noncompliance (Verhoeven et al., 2019), making parenting more complicated than at 10 months. This explanation also seems to be reflected in the changes in profile sizes across time, as the size of the competent profile became considerably smaller from 10 months ($n = 139$) to 36 months ($n = 70$), while the maladaptive profile was at its largest at 36 months ($n = 47$).

Profile membership of the sufficient profile was relatively stable from 10 to 36 months but not from 5 to 10 months. Mothers with a sufficient profile at 5 months were most likely to exhibit a competent profile at 10 months, while mothers with a sufficient profile at 10 months were most likely to remain in the sufficient profile at 36 months. These findings correspond with earlier person-centered research showing that profile membership of mothers with a sufficient profile remains relatively stable from 12 to 30 months (Farkas et al., 2020). Our findings indicate that most mothers with a sufficient profile were able to improve their parenting from 5 to 10 months. This seems to make sense because across this period parents rapidly become more familiar with their child's needs through experience while their child's sense of autonomy just started to develop (Bornstein, 2019). Conversely, most mothers with a sufficient profile did not improve their parenting from 10 to 36 months, fitting our explanation related to the increased complexity of parenting at 36 months.

Profile membership was the least stable for mothers with a maladaptive profile. Mothers with a maladaptive profile were most likely to transition into the sufficient profile at subsequent waves. These findings align with empirical work showing that transitions out of maladaptive profiles are common across early childhood (Paschall & Mastergeorge, 2018), but contradict other work showing that transitions out of maladaptive profiles are uncommon (Cook et al., 2012). Interestingly, mothers with a maladaptive profile were most likely to improve their parenting from 10 to 36 months, as opposed to mothers with a competent or sufficient profile. An explanation may be that maladaptive parenting patterns are transient in nature and derive from temporary conditions rather than from stable individual differences (Dallaire & Weinraub, 2005). Taken together, these findings indicate that mothers who are adequate at parenting at an early stage are most likely to remain so or further improve from 5 to 10 months while they seem less likely to do so across toddlerhood. Conversely, mothers who are less adequate early on are most likely to improve their parenting across time.

Our findings on the stability of profile structure and stability of profile membership across infancy and toddlerhood seem to fit with Erikson's model on psychosocial development (Erikson, 1963). This model posits that young infants' primary need is to develop a sense of safety and trust. Our findings suggest that mothers indeed prioritized fulfilling this developmental need early on, as overall the highest levels of supportive presence were found around 5 months. Subsequently, children need to develop a sense of autonomy and self-efficacy to explore the world in a confident manner without putting themselves and others in danger. We, therefore, expected that providing adequate structure and limit-setting, and quality of instruction would become more challenging over time. This seems to be reflected in our findings on the latent transition probabilities and changes in profile sizes across time. That is, mothers were more likely to transition into a less competent profile from 10 to 36 months than from 5 to 10 months, and the size of the competent profile was reduced by almost half from 10 to 36 months, while the size of the maladaptive profile became almost 2.5 times larger from 10 to 36 months.

Predictors of Membership and Transitions

A second aim of this study was to scrutinize how profile membership and profile transitions at each time point were associated with maternal, contextual, and child-specific factors. We found that more adequate profiles were associated with maternal agreeableness and a higher educational level at specific waves. Mothers who are more agreeable were more likely to show a competent profile than a sufficient profile at 5 months but not at 10 and 36 months. An explanation may be that parenting at 5 months mainly centers around being sensitive to a child's needs who has limited skills to express its wishes (Staples & Bates, 2018). It seems likely that maternal agreeableness (i.e., being empathic and attentive) facilitates this parenting challenge. In contrast, parenting seems to become more diverse with time, possibly making other traits become more important to discern mothers with a competent profile from mothers with a sufficient profile. Mothers who are more agreeable were also more likely to show a competent profile than a maladaptive profile at 36 months. The reason we did not find differences for maternal agreeableness between these profiles at 5 and 10 months seems to be a lack of power, as the maladaptive profiles only included 19 mothers at these time points and relatively limited variance in maternal agreeableness. Significant effects for maternal agreeableness align with earlier work showing that mothers who have a more cooperative and attentive personality are more likely to exhibit adequate parenting patterns

(Prinzie et al., 2009). These mothers may, for example, be more patient with their child and use more constructive ways to deal with their child's exploratory tendencies and possible disobedience. Additionally, we found that mothers with a higher educational level were more likely to show a competent profile and sufficient profile than a maladaptive profile at 5 months but not at 10 and 36 months. An explanation may be that young infants require intensive care and nurturing (Staples & Bates, 2018) and mothers with a higher educational level often have larger social networks that can provide them with advice and assistance (Cochran & Niego, 2002). From the end of the first year, however, the number of children that goes to daycare shows a large increase (Statistics Netherlands, 2016). Daycare in the Netherlands is for a large part financially covered by the government and thereby accessible for less educated mothers as well. Significant effects for maternal education correspond with previous research that showed mothers with a higher educational level to be more warm and stimulating in the parenting of their infant, perhaps because they have more access to material and social resources (Cochran & Niego, 2002; Gutman & Feinstein, 2010; Hoff et al., 2019).

Maternal neuroticism and conscientiousness, perceived parental competence, number of stressful life events, child negative emotionality, and child self-regulation were not associated with profile membership across the three waves. It is unclear whether a lack of power or true absence of associations explains these null findings. Additionally, mothers in our sample were predominantly highly educated (i.e., the most frequent highest education at each wave was university level). A higher education may function as a buffer against potentially negative effects of other factors on mothers' parenting patterns, such as a more emotionally unstable personality or having a child with an emotionally reactive temperament (Hoff et al., 2019).

We also examined whether profile transitions across time could be predicted by maternal, contextual, and child-specific factors. We did not find any significant effects of these predictors on latent transition probabilities. It is unknown whether these null findings are the result of a lack of power or true absence of associations. Nevertheless, as the maladaptive profiles were relatively small at each wave, only a limited number of mothers transitioned from and into these profiles, reducing power to detect significant effects of predictors on transitions. Additionally, limited variance on these predictors may have prevented from finding differences between the competent profiles and sufficient profiles.

Strengths and Limitations

To the best of our knowledge, our research is the first person-centered study to have examined parenting profiles at three time points during infancy and toddlerhood, which is a period that yields unique parenting challenges (Bornstein, 2019). We examined the stability of profile structure and stability of profile membership across time, allowing us to evaluate how parenting profiles change in response to children's rapidly changing needs and which profile transitions are most common across time. We further tested whether profile membership and transitions were associated with a variety of maternal, contextual, and child-specific factors, providing more insight into which parents are most likely to exhibit specific profiles across time. Another strength lies in the use of parent–child interactions to assess parenting behaviors, allowing us to observe naturally occurring parenting behaviors during tasks that resemble daily-life interactions between mothers and their child.

We acknowledge several limitations. First, the relatively small sample size of our study may have limited statistical power to detect proportionally small parenting profiles and significant effects of predictors on profile membership and transitions. Thus far, there is very limited simulation research for LTA models, while power analyses require information that is unknown beforehand (e.g., homogeneity of profiles, profile sizes, profile separation quality; Nylund-Gibson et al., 2023). Second, we included a relatively homogenous sample (i.e., mainly highly educated mothers from Dutch middle-class families), contributing to limited variance on most predictors and prohibiting from generalizing findings to other populations. Yet, our findings are generally similar to previous longitudinal person-centered research (Cook et al., 2012; Farkas et al., 2020; Paschall & Mastergeorge, 2018), despite differences in sample characteristics (e.g., educational level, income, cultural background) and instruments to assess parenting. This provides further support for the validity of our findings. Nevertheless, future work is needed to test generalization to other subgroups of parents (e.g., fathers, less educated parents, parents with other ethnic/cultural backgrounds).

Conclusion

This study was the first to examine parenting profiles at three time points during infancy and toddlerhood. Our findings advance our understanding of how parenting profiles change due to children's swiftly changing needs and inform efforts to tailor parenting interventions to individual parents. For instance, for parents with a maladaptive profile, parenting interventions may focus on improving their structure and limit-setting, and quality of instruction already before children's exploratory tendencies and language comprehension start to increase (e.g., around 5 months). Conversely, for parents with a competent profile and sufficient profile at 10 months, parenting interventions may help them to adequately manage their child's rapidly increasing exploratory tendencies and provide adequate instructions to prevent these parents from transitioning into the sufficient-maladaptive profile at 36 months.

Our findings on predictors of parenting profile membership also provide inroads for clinical practice. For mothers with a lower educational level, it seems important to receive parenting interventions early on (i.e., around 5 months). These mothers may, for instance, participate in the Home-Start Program that helps parents to cope with (parenting) stress, strengthens their social network, and provides child-rearing advice (Asscher et al., 2008; Frost et al., 2000). Furthermore, it seems important to change the systemic conditions that make less educated mothers prone to exhibit maladaptive parenting patterns. For instance, limited financial resources may cause economic stress that can make parents more easily frustrated and less patient with their child or force them to have multiple jobs that complicate providing their child with emotional support and adequate structure (Cooper & Stewart, 2021; Roubinov & Boyce, 2017). To improve parenting of less educated mothers, it seems therefore crucial to implement governmental policies that target these unfavorable systemic conditions. For mothers with a less agreeable personality, it seems beneficial to receive parenting interventions when their child is around 5 months old and when their child's exploratory tendencies and language comprehension have developed considerably (i.e., around 36 months). These mothers may, for example, be indicated for the Video-feedback

Intervention to Promote Positive Parenting and Sensitive Discipline (VIPP-SD) that helps parents to increase their parental sensitivity and to improve their disciplinary techniques (Juffer et al., 2018). We hope our findings will spur future research to delineate unique parenting profiles during infancy and toddlerhood and to examine the effects of profile-tailored parenting interventions.

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