Positive parenting in ethnic minority families. Challenges and outcomes

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Citation

Emmen, R. (2014, January 28). *Positive parenting in ethnic minority families. Challenges and outcomes*. Uitgeverij BOXPress B.V., 's Hertogenbosch. Retrieved from https://hdl.handle.net/1887/23121

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The handle http://hdl.handle.net/1887/23121 holds various files of this Leiden University dissertation.

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Title: Positive parenting in ethnic minority families : challenges and outcomes
Issue Date: 2014-01-28

5

The Family Stress and Family Investment Models in ethnic minority preadolescents

ABSTRACT

The Family Stress Model (FSM) and the Family Investment Model (FIM) explain how socioeconomic status (SES) predicts child development through parenting. The goal of this study was to test family stress and investment pathways to cognitive and behavioral outcomes in ethnic minority preadolescents. The sample consisted of 72 Turkish minority mothers and their 11- to 13-year-old children. Parenting was assessed through adolescent reports and observations, and mothers reported on their stress levels, adolescent behavior problems and school attainment. Adolescent frustration inhibition was measured in a task situation. The relation between SES and adolescent behavior was mediated by maternal stress, whereas frustration inhibition was predicted by family investment processes. Our findings support both the FSM and FIM in ethnic minority preadolescents.

Keywords: positive parenting, Family Stress Model, Family Investment Model, ethnic minority, socioeconomic status.

INTRODUCTION

Adolescence is a period in which children may be particularly vulnerable for the development of positive as well as adverse outcomes (Masten, 2004). Socioeconomic status (SES), family stressors, and family processes are well-known contributors to child and adolescent development (Grant et al., 2006). Ethnic minority adolescents might be at increased risk for adverse development, since minority parents generally come from lower SES backgrounds (e.g., Skinner, MacKenzie, Haggerty, Hill, & Roberson, 2011), experience more stressors (e.g., Yaman, Mesman, Van IJzendoorn, & Bakermans-Kranenburg, 2010) and have been found to show less positive parenting practices compared to majority families (e.g., Mesman, Van IJzendoorn, & Bakermans-Kranenburg, 2012; Skinner et al., 2011). The Family Stress Model (FSM) and Family Investment Model (FIM; Conger & Donnellan, 2007) provide explanations for the relation between SES and child development by proposing family stress (FSM) and family investment processes (FIM) as results of low SES, which in turn negatively affect parenting behavior, leading to unfavorable child outcomes. Family stress processes are mostly related to behavioral outcomes, whereas family investment processes are mostly related to cognitive outcomes (e.g., Linver, Brooks-Gunn, & Kohen, 2002). However, these processes have rarely been tested in ethnic minority samples, and often rely only on questionnaire data. The primary goal of the present study was to test the Family Stress Model and Family Investment Model in ethnic minority families with preadolescents using both observed and adolescent-reported positive parenting in relation to cognitive and behavioral adolescent outcomes.

Children in the early adolescence period might be extra vulnerable to the development of adverse outcomes, such as psychopathology, due to the biological, psychological, and social changes that occur during this transitional period (Masten, 2004). Contextual and family factors also contribute to adolescent development (Grant et al., 2006; Masten, 2004; Steinberg & Morris, 2001). Across cultures, SES has been found to be related to positive (e.g., school success) and negative (e.g., problem behaviors) adolescent development (Conger et al., 2002; Crosnoe, Mistry, & Elder, 2002; Shek, 2008). Two possible explanations for the relation between SES and adolescent development are provided by the FSM and FIM (Conger & Donnellan, 2007). According to the FSM, stressors such as socioeconomic strains lead to family stress (e.g., maternal depression and family dysfunction), which in turn leads to non-optimal parenting (e.g., lack of warmth and support) and negative child development (Conger, Conger, & Martin, 2010). The second perspective, the Family Investment Model (FIM), proposes that SES is related to the investments parents make in their children's development. These investments include sev-

eral domains, such as parental stimulation of learning through support and tutoring. Parental investments are in turn related to positive child development (Conger et al., 2010).

In the FSM and FIM literature two main types of child outcomes can be distinguished, namely behavioral and cognitive outcomes. Behavioral outcomes include internalizing and externalizing problem behaviors and temperamental effortful control. Cognitive outcomes include school performance and language ability. In young children, family stress processes have been found to be better predictors of behavioral outcomes, whereas parental investments are better predictors of cognitive outcomes (Linver et al., 2002; Yeung, Linver, & Brooks-Gunn, 2002). In line with these findings, family stress processes have mostly been examined in relation to behavioral outcomes in studies with adolescent samples (e.g., Burt et al., 2005; Conger et al., 2002). For example, in African American families with preadolescents, low income and negative financial events have been found to be related to economic pressure, which in turn predicted parental depression. Parental depression was in turn related to more conflict between caregivers, which was related to less positive parenting leading to less positive child adjustment (i.e., persistence in difficult tasks, school behaviors, and positive affect) and more internalizing and externalizing behavior problems (Conger et al., 2002). Parental investment processes have mostly been studied in relation to cognitive outcomes in adolescents (Crosnoe et al., 2002; Melby, Conger, Fang, Wickrama, & Conger, 2008; Sohr-Preston et al., 2013). For example, in an ethnically diverse U.S. sample, economic disadvantage was found to be related to lower adolescent school enrollment through less optimistic parental ideas about adolescent educational chances and less proactive parenting to promote school enrollment (Crosnoe et al., 2002). To our knowledge, there are no studies testing both the FSM and FIM looking at behavioral as well as cognitive outcomes in adolescents. In addition, some child outcomes can be considered to cut across the behavioral and cognitive domains because they refer to cognitive abilities that are shown on the behavioral level. An example of such a cognitive-behavioral outcome is frustration-induced inhibitory control.

Frustration-induced inhibitory control can be seen as a 'hot' executive function (EF; Huijbregts, Warren, Sonneville, & Swaab-Barneveld, 2008). EF refers to cognitive self-regulatory processes that we use in planning, problem solving and goal-directed action via inhibitory control, cognitive flexibility, and working memory (Zelazo & Carlson, 2012). Inhibitory control is considered to be used in all tasks requiring EF and has a hot and cool variant (Huijbregts et al., 2008). When inhibitory control operates in a motivationally or emotionally significant situation, it is classified as a hot EF process, whereas in a neutral context it is classified as cool EF (Zelazo & Carlson, 2012). Thus, when cognitive

processes (i.e., EF) involve emotion, affect, or motivation, they are considered to be hot forms of EF. There are some studies that suggest that the development of hot EF lags behind compared to cool EF. Rapid improvements in cool EF have been observed in young children, whereas improvements in hot EF occur more gradually into the adolescence period (Hooper, Luciana, Conklin, & Yarger, 2004; Prencipe et al., 2011). Early adolescence, the transitional period into adolescence, may be a particularly relevant period to study socioeconomic context and parenting factors that contribute to the development of hot EF (Zelazo & Carlson, 2012). Very few studies tested the relation between parenting and hot EF in adolescence. Adolescent-reported parenting has been found to be positively related to adolescent-reported self-control (i.e., ability to control impulses, alter emotions and thoughts, and interrupt undesired behavioral tendencies and refrain from acting on them; Finkenauer, Engels, & Baumeister, 2005). More studies are needed to investigate whether (observed) parenting relates to hot EF in adolescence and whether family stress or family investment processes play a role.

Most studies on parenting behaviors towards adolescents use maternal- or adolescent-reported parenting and this is especially true for studies with ethnic minority families (McLoyd, Cauce, Takeuchi, & Wilson, 2000). However, observations are considered to be the gold standard for measuring interactions (McLoyd et al., 2000; Skinner et al., 2011), because they provide a more objective perspective on the parent-child relationship. Independence of measures might be extra important in the measurement of psychological stress and psychopathology, because it is plausible that psychopathology of the respondent (e.g., depressive symptoms) colors their reports about parenting and child behavior (Treutler & Epkins, 2003). There is indeed evidence for a significant role of shared method variance when the information about maternal depression, maternal parenting, and child outcome comes from the same informant (Burt et al., 2005), showing that independent informants are important.

Only very few studies used observational ratings of parent-child interactions in minority families. Studies that did include observational methods found that minority parents show less positive parenting towards their children compared to parents in majority families (e.g., Skinner et al., 2011). These findings are consistent with the FSM and FIM, as ethnic minority families are overrepresented in the lower SES groups (e.g., CBS, 2012; Skinner et al., 2011), and have been found to experience more family stress than majority families (Stefanek, Strohmeier, Fandrem, & Spiel, 2012; Yaman et al., 2010). In addition, their children have been found to show more psychopathology (Stevens et al., 2003) and lower school performance (e.g., CBS, 2012; Mandara, Varner, Greene, & Richman, 2009). There is some evidence for both the FSM (e.g., Benner & Kim, 2010; Conger

et al., 2002; Parke et al., 2004) and the FIM (e.g., Crosnoe et al., 2002) in minority groups in adolescence, but studies with minority samples are rare compared to those with majority samples and all have been performed in the U.S.

In the Netherlands, the Turkish represent the largest ethnic minority group and their population is still increasing, which is mostly due to the increase of the second generation (CBS, 2012). Turkish minority families have lower SES backgrounds compared to Dutch majority families (CBS, 2012). Turkish mothers with young children in the Netherlands have been found to behave less sensitively than Dutch majority mothers (Leseman & Van den Boom, 1999; Yaman, Mesman, Van IJzendoorn, Bakermans-Kranenburg, et al., 2010), although it is important to note that maternal age and education partially accounted for the difference in parenting between these groups (Yaman, Mesman, Van IJzendoorn, Bakermans-Kranenburg, et al., 2010). To our knowledge, there is no study that measured observed parenting behaviors of Turkish minority mothers towards adolescents in the Netherlands. A study using adolescent-reported parenting and child-outcomes, found that a negative parent-child relationship was related to more adolescent behavior problems (Wissink, Dekovic, & Meijer, 2006). Turkish minority adolescents have been found to show more internalizing behavior problems compared to Dutch majority and Moroccan minority adolescents (both adolescent-reported as well as parent-reported) and Turkish minority parents report more externalizing behavior problems compared to Moroccan minority parents (Stevens et al., 2003). No group differences in adolescent-reported externalizing behavior problems have been found (Stevens et al., 2003; Wissink, Dekovic, Yagmur, Stams, & de Haan, 2008). Turkish minority adolescents have a lower school attainment compared to Dutch majority adolescents (CBS, 2012).

The present study will test both family stress and family investment pathways with behavioral (problem behavior) and cognitive (school attainment) outcomes in ethnic minority families. In addition, a cognitive-behavioral (frustration-induced inhibitory control) outcome is included. The present study is unique in its focus on both adolescent-reported and observed maternal parenting (rather than self-reports) with ethnic minority adolescents and in testing both the FSM and FIM from SES to child outcome in ethnic minority families. We expect that family stress processes play a role in adolescent behavioral problems, whereas family investment processes play a role in adolescent cognitive development.

METHOD

Sample and procedure

The sample consisted of 72 Turkish minority mothers in the Netherlands and their 11- to 13-year-old children. To ensure the homogeneity of the immigrant sample and to make sure that all mothers had at least some years of education in the Netherlands, only second-generation immigrant mothers born in the Netherlands (with at least one of their parents born in Turkey) and first-generation immigrant mothers who migrated to the Netherlands before the age of 11 were included. All children were in the 8th year of Dutch primary school (which corresponds to the 6th grade in the U.S.) at the time of the home visit. The mothers were recruited from municipal registers of several cities and towns in the western and middle region of the Netherlands. In total, 454 families were reached of whom 72 (16%) agreed to participate. A subgroup of mothers who did not want to participate (n = 116) provided some general information about their families by filling out a form. These families did not differ significantly from the participating families in age of father, mother, and child, child gender, country of birth of both parents, mother's marital status, and family situation (*ps* .33 to .97).

All participating mothers gave written consent for their families' participation. Both parents and the adolescents first completed a questionnaire that they received by regular mail. Then, mother and child participated in a two-hour home visit by two trained (under)graduate students, which included another questionnaire for mother, an interview with mother, child testing and questionnaire, and videotaping mother-child interactions. The home visit was conducted in Dutch, but instruction cards for the video observation and the questionnaires for the parents were available in both Dutch and Turkish. Most mothers indicated that they understood Dutch very well (86%) and evaluated their own spoken Dutch language ability as very good (85%). Questionnaires for which no Dutch or Turkish versions were available, were translated from English into Dutch and Turkish and back-translated to ensure correct wording. Most mothers (83%) chose to complete the Dutch version of the questionnaire. The children had a mean age of 12.35 years (SD = 0.44) at the time of the home visit. Forty-nine percent of the sample consisted of boys. The mothers' average age was 37 years (SD = 4.02, *range* = 30-46). Fifty-eight percent of the mothers were born in Turkey and migrated to the Netherlands at a mean age of 6.01 years (SD = 3.71). Most children lived in two-parent families with both their biological parents (85%). Most of the children had one sibling (49%), and 44% had two or more siblings. Fifty-six percent of the children were firstborns.

Measures

Socioeconomic status (SES)

Family SES was based on gross annual family income and the highest completed educational level of both parents. Gross annual family income was measured on a 7-point scale ranging from (1) *no income* to (7) *50,000 euro or more*. Parents' highest completed educational level was measured on a 7-point scale from (1) *no qualification* to (7) *university level degree*. Because this study is part of a larger international study, the educational categories were recoded into the International Standard Classification of Education (ISCED; UNESCO, 2011). Factor analysis showed that gross annual family income and maternal and paternal education loaded on one single factor and explained 59% of the total variance (loadings of respectively .78, .72, and .80). SES was computed as the mean of the standardized scores of income and educational level of both parents. For single mother families (*n* = 11), mother's educational level was counted twice to fill in the missing paternal educational level.

Maternal stress

Maternal stress was a composite measure including self-reports on daily hassles, depressive symptoms, life dissatisfaction, and acculturation stress. The experience of hassles in daily life was measured with thirteen items from the Daily Hassles questionnaire (Kanner, Coyne, Schaefer, & Lazarus, 1981). These 13 items were selected based on the outcome of a Principal Component Analyses (PCA) and reliability analyses in a Turkish-Dutch immigrant sample (Yaman et al., 2010). Mothers were asked to rate the intensity of their hassles, such as house cleaning or maintenance, on a 5-point scale from (1) *no hassle* to (5) *big hassle*. If mothers indicated that they did not experience the hassle, the item was coded as 0. The average of ratings on 13 items was computed. The internal consistency of the scale was good (Cronbach's alpha = .85).

Maternal depressive symptoms were measured using a Dutch translation of the 10-item short form of the Center for Epidemiologic Studies Depression Scale (CES-D; Andresen, Malmgren, Carter, & Patrick, 1994; Hanewald, 1987; Radloff, 1977). Mothers were asked to indicate for each statement (e.g., *"I felt depressed"*) how often they felt or behaved that way during the past week from (1) *rarely or none of the time (less than 1 day)* to (4) *all of the time (5-7 days)*. The total score consisted of the average of ratings on 10 items. The internal consistency of the scale was adequate (Cronbach's alpha = .77).

To measure maternal life dissatisfaction we used reversed scores of a Dutch translation of the Satisfaction With Life Scale (SWLS; Arrindell, Heesink, & Feij, 1999; Diener, Emmons, Larsen, & Griffin, 1985). The SWLS consists of five statements which

are rated on a scale from (1) *strongly disagree* to (7) *strongly agree*. An example of a statement is *"In most ways my life is close to my ideal"*. The total score on life dissatisfaction consisted of the average of ratings on five items. The internal consistency of the scale was good (Cronbach's alpha = .86).

Maternal acculturation stress was measured with six items from the Ingroup and Outgroup Acculturation Hassles Scale that was developed for the Youth, Culture, and Competence (YCC) study (Oppedal, 2006). In the development of the scale the items from two acculturation hassles scales (Lay & Nguyen, 1998; Vinokurov, Trickett, & Birman, 2002) were discussed in focus groups with immigrant and refugee mothers and secondary school students with different national origins, addressing problems associated with the acculturation process both within the cultural context of the majority society and within the heritage cultural context. The final version of the scale comprised of items that most participants agreed upon that they occurred frequently, were stressful, and they themselves or somebody they were close to had experienced. Mothers were asked to rate how much of a burden the stated events had been during the last 12 months. Examples of items are *"You have been frustrated because you don't understand Dutch ways of thinking and behaving"*, *"Your child behaves too much like Dutch children and adolescents"*, and *"You miss friends and family living in Turkey"*. Answer categories ranged from (1) *not a burden* to (4) *very much a burden*. If mothers indicated they did not experience the event, the item was coded as 1. The average of ratings on six items was computed. The internal consistency of the scale was adequate (Cronbach's alpha = .75). Maternal daily hassles, depressive symptoms, dissatisfaction with life, and acculturation stress loaded on a single factor and explained 47% of the total variance (factor loadings ranged from .56 to .76). Maternal stress was computed as the mean of the standardized scores of these four variables. The total internal consistency of the composite scale was good (Cronbach's alpha = .87).

Positive parenting (observed)

The fourth edition of the Emotional Availability Scales (EA Scales; Biringen, 2008) was used to measure positive parenting of mothers towards their child during a seven minute problem-solving task. The mother and child were asked to use a set of wooden blocks to copy two different structures (a bird and a dog) from example pictures. The two structures were somewhat too difficult considering the age of the child. The mother was instructed to help her child as she would normally do. The adult dimensions sensitivity, structuring, and nonintrusiveness were coded. Sensitivity reflects the amount of positive affect and appropriate responsiveness of the mother towards the child. Structuring measures the

extent to which the mother provides helpful guidance and suggestions according to the needs of the child. Nonintrusiveness refers to the mother's ability to refrain from intrusions on the child's autonomy. Each dimension is divided into seven subscales, of which the first two subscales are coded on a 7-point Likert scale and the other subscales on a 3-point Likert scale. The third author, who is an experienced coder of parent-child interactions, completed the online training provided by Zeynep Biringen and then trained a team of coders. During this training, some subscales led to persistent interpretation problems resulting in adjustments to improve intercoder agreement. Three types of adjustments were made: (1) subjective criteria were removed, (2) scorings of some subscales were changed to make them more linear, and (3) overlap between the dimensions was removed to improve their independence. The corresponding author can be contacted for more details about the adjustments that were made.

To investigate the factor structure of the EA Scales, a Principal Component Analysis (PCA) with promax (oblique) rotation was performed on all subscales from the original adult scales, excluding four subscales because of little variance (subscales 5 and 7 of sensitivity and subscales 4 and 5 of structuring), and another two subscales because they actually measure child behavior instead of parental behavior (subscale 2 of structuring and subscale 7 of nonintrusiveness). The PCA revealed three clear components, explaining 68.5% of the total variance. Component 1 (labeled as sensitivity) consisted of four subscales (1, 2, 4, and 6) of the original sensitivity dimension. Component 2 (labeled as structuring) consisted of four subscales (1, 3, 6, and 7) of the original structuring dimension and subscale 3 of the original sensitivity dimension. The last component (labeled as nonintrusiveness) consisted of the first six original nonintrusiveness subscales. Cronbach's alphas of the new sensitivity, structuring, and nonintrusiveness scales were .82, .83, and .83, respectively. Positive parenting was computed as the mean of the standardized scores of the three EA dimensions. Sensitivity was significantly related to structuring, $r(70) = .70$, $p < .001$, and nonintrusiveness, $r(70) = .28$, $p < .05$. Structuring and nonintrusiveness were unrelated, $r(70) = .19$, $p > .05$. Factor analysis showed that sensitivity, structuring, and nonintrusiveness loaded on one single factor and explained 62% of the total variance (loadings of .91, .88, and .51 respectively).

A team of four coders (who did not visit the mother during data collection) rated the videotapes on the EA dimensions. All coders successfully completed a reliability set of 27 videotapes. For the original emotional availability dimensions the intraclass correlation coefficients (absolute agreement) ranged from .74 to .85 ($M = .81$) for sensitivity, from .70 to .91 ($M = .82$) for structuring, and from .75 to .88 ($M = .81$) for nonintrusiveness. For the new scales the intraclass correlation coefficients ranged from .75 to .85 (M

= .79) for sensitivity, from .67 to .85 (*M* = .76) for structuring, and from .73 to .88 (*M* = .81) for nonintrusiveness.

Positive parenting (adolescent-reported)

Adolescent-reported maternal positive parenting was measured with the subscales rejection (reversed) and emotional warmth of the 24-item short form of the EMBU (Egna Minnen Beträffande Uppfostran; Aluja, Del Barrio, & García, 2006; Arrindell, Emmelkamp, Brilman, & Monsma, 1983). Both subscales were measured with eight items on a scale from (1) *never* to (4) *almost always*. An example of an item from the subscale rejection is *"My mother treated me in such a way that I felt ashamed"* and from the subscale emotional warmth *"I felt that warmth and tenderness existed between me and my mother"*. Rejection was reversed into the absence of rejection. The internal consistencies of the absence of rejection and emotional warmth were good (Cronbach's alphas of .80 en .83 respectively). Absence of rejection and emotional warmth were moderately correlated, $r(70) = .46$, $p <$ .001. Positive parenting was computed as the mean of the standardized values of absence of rejection and emotional warmth. The internal consistency of positive parenting was good (Cronbach's alpha = .88).

Adolescent positive behavior (mother-reported)

Positive adolescent behavior was a composite variable consisting of measures of prosocial behavior, behavior problems (reversed), temperamental effortful control, and frustration (reversed). Prosocial behavior and behavior problems were measured with the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) that was completed by the mother. Mothers were asked to rate 24 items, a total of five subscales, on a scale from (0) *not true* to (2) *certainly true*. All subscales consisted of five items, except conduct problems which consisted of four items. According to the manual of the SDQ, the subscales emotional symptoms (e.g., *"Often unhappy, down-hearted or tearful"*), conduct problems (e.g., *"Often fights with other children or bullies them"*), hyperactivity/inattention (e.g., *"Easily distracted, concentration wanders"*), and peer problems (e.g., *"Rather solitary, tends to play alone"*) were used to compute a total difficulties score (behavior problems). Factor analysis showed that the four subscales loaded on one single factor (factor loadings ranged from .55 to .83). The total difficulties score was reversed into the absence of problem behaviors so that a higher score reflected fewer difficulties. The subscale prosocial behavior (e.g., *"Shares readily with other children, for example toys, food"*) was kept separately. The internal consistencies of the absence of problem behavior and prosocial behavior were adequate (Cronbach's alphas of respectively .73 and .67).

Chapter 5

Adolescent's temperamental effortful control and frustration were measured by mothers' ratings on four subscales of the Early Adolescent Temperament Questionnaire-Revised (EATQ-R; Capaldi & Rothbart, 1992). The four subscales were measured with a total of 24 items measured on a scale from (1) *almost always untrue* to (5) *almost always true*. The subscales activation control (7 items), inhibitory control (5 items), and attentional focusing (6 items) were used to measure effortful control. The subscale activation control assessed the children's ability to perform an action despite an impulse to avoid it (e.g., *"Usually puts off working on a project until it is due"*). The inhibitory control subscale tapped into the children's capacity to suppress inappropriate responses (e.g., *"Has a hard time waiting his/her turn to speak when excited"*). The attentional focusing subscale measured children's capacity to sustain attention (e.g., *"When interrupted or distracted, forgets what s/he was about to say"*). Factor analysis showed that the scores of the three subscales loaded on one factor (loadings .79 - .89). The internal consistency of the three scales was high (Cronbach's alpha = .82). The subscale frustration (6 items) was kept separately and measured negative affect related to interruption of ongoing tasks or goal blocking (e.g., *"Gets irritated when s/he has to stop doing something s/he is enjoying"*). The total score on frustration was reversed into the absence of frustration so that a higher score reflected less frustration. The internal consistency of the absence of frustration subscale was adequate (Cronbach's alpha = .73).

Prosocial behavior, the absence of problem behavior, temperamental effortful control, and the absence of frustration loaded on a single factor and explained 56% of the total variance (factor loadings ranged from .62 to .84). Adolescent positive behavior was computed as the mean of the standardized scores of these four variables. The total internal consistency of the composite scale was good (Cronbach's alpha = .87).

Adolescent frustration inhibition

The Delay Frustration Task (DeFT; Bitsakou, Antrop, Wiersema, & Sonuga-Barke, 2006; Huijbregts et al., 2008) was used to measure adolescent frustration inhibition (i.e., frustration-induced inhibitory control). The DeFT is a task in which the adolescents were presented with simple math questions (only additions below 10) on a computer screen. For each question, four possible answers were provided on the screen and the adolescents were asked to select the correct answer by pressing one of four keys on the computer keyboard. The response keys were covered by stickers with the letters A, B, C, and D, corresponding to the answer options above the key on the screen. The next question was presented as soon as a response was recorded, but on 16 out of the total 55 trials there was a delay in the transition to the next question. There were 8 transitions with a short

delay (2-10 s) and 8 with a long delay (20 s). Before the task started, the children were told that the computer showed signs of malfunctioning and might show delays. They were also instructed to finish the task as soon as possible. The task started with 8 practice trials. During the long delay period the number of presses on either of the four response buttons was recorded as an index of the adolescent's frustration. This is based on the notion that the ability to refrain from constantly pressing the response key during a delay is indicative of frustration tolerance and inhibitory control. Scores were reversed so that a high score indicated more frustration inhibition.

Adolescent school attainment

During the interview, mothers were asked to report the track advice provided by the primary school that their children received for secondary school as well as the score their children obtained on the national achievement exam (CITO) that they take at the end of primary school. The advice for the secondary school is predominantly based on the score that children obtain on the CITO that assesses children's language, math performance, interpretation abilities (i.e., graphs, tables and maps), and world knowledge (i.e., geography, history, biology). In addition to this exam score, the primary school administration takes into account the parents' and child's ideas about which school track fits his or her interests and capacities (Luyten, Bosker, Dekkers, & Derks, 2003). Academically least promising children usually continue to lower vocational education (LWOO). Most of the children move on to one of the tracks within vocational education track (VMBO). The group that is evaluated higher than this group follows the track of higher or professional education (HAVO). Academically most promising students enter the track of advanced scientific education (VWO + gymnasium). For eighteen children, the advice was not known at the time of the home visit. Mothers of these children were contacted by telephone when children started secondary school to obtain the information about their children's track. Twelve of these mothers were reached. For another six children, the secondary school tracks were estimated based on their CITO scores, because these were highly correlated with their children's attainment in the secondary school education track, $r(50) = .83$, $p < .01$. The tracks of the secondary school education were rated on a 10-point scale from (1) *lower vocational (LWOO)* to (10) *advanced scientific education (VWO + gymnasium)*.

Analyses

Subscales were combined into a total score if at least half of the subscale scores (rounded down) were available. Missing data were estimated with multiple (10-fold) imputations

based on predictive mean matching. The imputation model was based on background variables (adolescent's gender and age and maternal age) and all the variables included in the present study. The percentage of missing data for the final sample ranged from 0% (Positive child behavior) to 15% (EA Scales). Based on pooled bivariate correlations it was decided whether a FSM or FIM should be tested with observed and child-reported positive parenting. Structural equation modeling (SEM) with EQS 6.2 (Bentler, 2001) was used to test the FSM and FIM. Pooled *p*-values were calculated for path coefficients according to Rubin (1987). Standardized coefficients and fit-indices were averaged across imputed data sets. Model fit was considered to be satisfactory when the chi-square statistic was not significant at *p* < .05, fit indices (NFI and CFI) were > .95, and RMSEA was < .10 (Schermelleh-Engel, Moosbrugger, & Müller, 2003).

RESULTS

Preliminary analyses

Descriptive statistics of the main variables of the original dataset (before multiple imputation) are presented in Table 1. All variables were inspected for possible outliers that were defined as values larger than 3.29 *SD* above or below the mean. There were outliers on maternal emotional warmth (1 outlier) and rejection (2 outliers) and adolescent's frustration (2 outliers) which were winsorized to be higher or lower than the next highest or lowest value that was not yet an outlier (Tabach-

Table 1. *Descriptive statistics before multiple imputation*

	N	*Range*	*M*	*(SD)*
Family SES	69	-1.51 – 1.99	0.00	(0.74)
Maternal stress	71	-1.29 – 1.28	0.00	(0.68)
Maternal positive parenting O	61	-1.72 – 1.57	0.00	(0.78)
Sensitivity	61	7.00 – 20.00	13.79	(3.01)
Structuring	61	5.00 – 19.00	14.02	(3.13)
Nonintrusiveness	61	11.00 – 26.00	19.95	(3.85)
Maternal positive parenting A	68	-2.64 – 1.28	0.00	(0.85)
Adolescent positive behavior	72	-1.90 – 2.03	0.66	(0.79)
Adolescent frustration inhibition	69	0.13 – 30.75	25.99	(6.27)
Adolescent school attainment	70	1.00 – 10.00	5.64	(2.45)

Note. O = Observed; A = Adolescent-reported.

nick & Fidell, 2001). Maternal rejection and adolescent's frustration were skewed and were therefore transformed with a base-10 logarithmic transformation.

Table 2 presents the pooled bivariate correlations between the main variables of the ten imputed datasets. Significant relations are discussed. Lower SES was related to more stress, less observed positive parenting, less positive adolescent behavior, and lower school attainment. More maternal stress was related to less adolescent-reported positive parenting and less positive adolescent behavior. More observed positive parenting was related to more frustration inhibition and higher school attainment. More adolescent-reported positive parenting was related to more positive adolescent behavior. Positive adolescent behavior was significantly related to higher school attainment.

Table 2. *Correlations between SES, maternal stress, parenting, and adolescent behavior (pooled results of 10 imputed datasets)*

	1.	2.	3.	4.	5.	6.
1. Family SES	-					
2. Maternal stress	-.37**	-				
3. Maternal positive parenting O	.38**	-.07	-			
4. Maternal positive parenting A	.23	-.26*	.12	-		
5. Adolescent positive behavior	.26*	-.33**	.19	.45***	-	
6. Adolescent frustration inhibition	.16	-.10	.28*	.18	.13	-
7. Adolescent school attainment	.41***	-.09	.26*	.24	.36**	.13

Note. O = Observed; A = Adolescent-reported.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Testing the Family Stress Model

The bivariate correlations showed that maternal stress was only related to adolescent-reported parenting and not to observed parenting. Maternal stress and adolescent-reported parenting were only related to positive adolescent behavior and not to adolescent frustration and school attainment, thus we only tested the FSM with adolescent-reported parenting and adolescent behavior. SEM was used to test the Family Stress Model with adolescent-reported positive parenting and mother-reported positive adolescent behavior. The model is presented in Figure 1. SEM analysis showed that the model fitted the data well (χ^2 (1) = 1.74, p = .19, NFI = .95, CFI = .98, RMSEA = .010). Lower SES was related to more maternal stress, which was in turn related to less positive parenting (adolescent-reported). Less positive parenting was related to less positive adolescent behavior. The direct paths from SES and maternal stress to positive adolescent behavior were not

significant. When one or two of the nonsignificant direct paths were removed from the model, the model showed a poorer fit to the data.
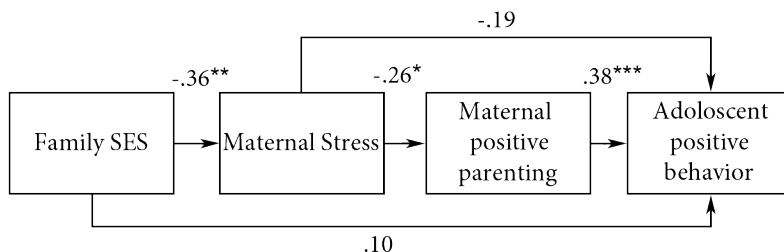

Figure 1. Family Stress Model with adolescent-reported positive parenting (*N* = 72).

Testing the Family Investment Model

The bivariate correlations showed that SES was only directly related to observed parenting and not to child-reported parenting. Observed positive parenting was only related to adolescent frustration inhibition and school attainment and not to positive adolescent behavior, thus we only tested the Family Investment Model with observed positive parenting and frustration inhibition and school attainment as outcome measures. Using SEM we tested whether there was an indirect effect of SES on adolescent frustration inhibition through observed positive parenting. The model fitted the data well (χ^2 (1) = 0.47, p = .62, NFI = .97, CFI = .99, RMSEA = .020). Lower SES was related to less positive parenting (observed), β = .38, p < .01, which was in turn related to less frustration inhibition of the adolescent, β = -.28, p < .05. We also tested whether the indirect effect of SES on frustration inhibition through positive parenting was specific for one of the three EA Scales. We modeled the relation between SES, the three parenting domains (sensitivity, structuring, and nonintrusiveness), and adolescent's frustration inhibition with covariances between the errors of the three subscales (Figure 2). The model fitted the data well (χ^2 (1) = 0.32, p = .67, NFI = 1.00, CFI = 1.00, RMSEA = .004). Lower SES was related to lower maternal sensitivity and structuring, but SES was unrelated to maternal nonintrusiveness. Lower maternal structuring was related to less frustration inhibition of the adolescent and maternal sensitivity and nonintrusiveness were unrelated to adolescent's frustration inhibition. There was only an indirect effect of SES on adolescent's frustration inhibition via maternal structuring. The total and specific indirect effects were bootstrapped using Preacher and Hayes (2008) macro package for SPSS. The bootstrap estimates were based on 5000 bootstrap samples. The results were comparable to the results in EQS and showed that only the specific indirect effect through structuring was significant.
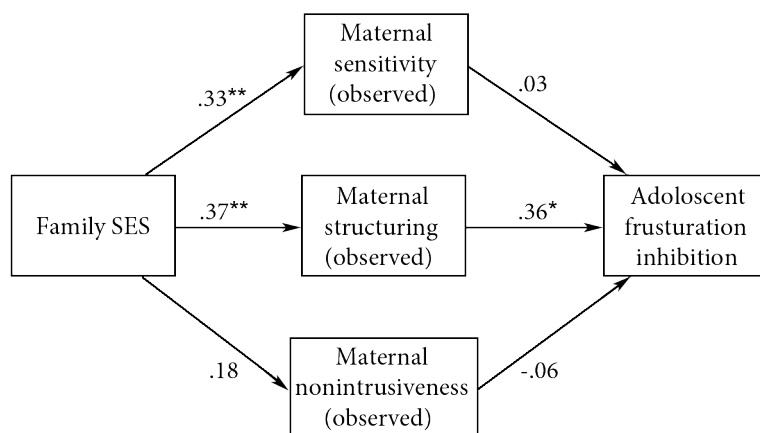
Figure 2. Family Investment Model with the three EA Scales separated ($N = 72$).

The FIM was also tested with school attainment as outcome. Multiple regression analyses were used, because SES was also directly related to school attainment and fit indices are not computed in a fully estimated model. Observed positive parenting did not mediate the relation between SES and school attainment, $\beta = .14$, $p > .05$. SES completely accounted for the effect of positive parenting on school attainment, $\beta = .40$, $p < .01$. Examining the subscales of positive parenting, none were significantly related to school attainment when SES was taken into account.

DISCUSSION

The primary goal of this study was to test the Family Stress Model and the Family Investment Model with a behavioral, cognitive-behavioral, and cognitive outcome in ethnic minority preadolescents. Confirming the FSM, lower SES was related to more maternal stress, which was in turn related to less (adolescent-reported) positive parenting. Less positive parenting was in turn related to more behavior problems. Confirming the FIM, lower SES was related to less maternal structuring, which was in turn related to less frustration inhibition.

In line with our expectation, lower SES was related to more maternal psychological distress, which was in turn related to less positive parenting (adolescent-reported). Less positive parenting was in turn related to less positive adolescent behavior. These findings support the FSM that proposes that economic strains lead to family stress,

Chapter 5

which in turn leads to less optimal parenting and negative child development (Conger et al., 2010). Several other studies found support for the relations between SES, maternal psychological distress, parenting, and adolescent problem behavior (e.g., Conger et al., 2002). For example, in African American families with preadolescents, low income and negative financial events have been found to be related to economic pressure, which predicted parental depression. Parental depression was in turn related to more conflict between caregivers, which was related to less positive parenting leading to less positive child adjustment and higher internalizing and externalizing behavior problems (Conger et al., 2002). Our results suggest that the FSM is also applicable to Turkish ethnic minority preadolescents in the Netherlands. To our knowledge, our study was the first to test the FSM in an ethnic minority sample in a European context.

Maternal stress did not play a role in adolescent frustration-induced inhibitory control. Instead, observed parenting quality was important in predicting adolescent frustration regulation. Lower SES was indirectly related to lower adolescent frustration inhibition via less positive parenting. Maternal structuring was the key component of positive parenting that predicted (higher) adolescent frustration inhibition, which is in line with the FIM that proposes that SES relates to parental investments, such as stimulation of learning, which are in turn related to positive cognitive child development (Conger et al., 2010). Our measure of maternal structuring refers to scaffolding, providing guidance, and making an effort to help the child achieve the goals of the task in a way that fits the child's needs. All of these elements represent forms of investment, as they require the parent to actively engage in the child's task behavior and to support and stimulate the child to complete the task. Such maternal support has indeed been found to foster child self-regulation in previous studies (Bernier, Carlson, & Whipple, 2010) and the current study shows that these family investment processes play a role in the relation between socioeconomic status and ethnic minority hot EF development in adolescence.

In contrast to our hypothesis, positive parenting did not mediate the relation between SES and adolescent school attainment. SES completely accounted for the effect of positive parenting on school attainment. Previous studies did report a significant relation between positive parenting and school performance when SES was taken into account (e.g., Melby et al., 2008). It is likely that our observational measure of parent-child interactions did not capture more structural forms of parental investments such as a stimulating home learning environment, that might play a more important role in the relation between SES and school performance (Mandara et al., 2009). In the current study we only measured the dyadic part of the parental investment construct. It is also possible that other factors associated with minority status and SES, such as teachers'

prejudices, play a more dominant role in minority preadolescent school attainment than parental investments do. Teachers' expectations, which are generally lower for children from lower SES backgrounds and for minority children, have been found to predict lower school performance (McKown & Weinstein, 2002, 2008).

Another possible explanation may be that the problem-solving tasks did not re-quire maternal guidance for some adolescents, thus did not provide an optimal measure of parenting quality. However, even if the adolescent is able to solve the task without guidance, the mother can still regulate the adolescent's motivation, affect, and emotions during the task, all of which are coded as part of the positive parenting construct. These elements of support are particularly important in fostering self-regulation and this is con-sistent with our finding that observed parenting during the problem-solving task was related to adolescent frustration inhibition.

To our knowledge, this is the first study testing both the FSM and FIM with a behavioral, cognitive behavioral, and cognitive outcome in minority preadolescents. Our findings provide support for both the FSM and FIM in ethnic minority preadolescents and suggest that family stress processes play a role in adolescent behavioral development, whereas family investment processes play a role in adolescent self-regulatory (hot EF) development. It is important to note that the FSM was only confirmed with adolescent-reported positive parenting, whereas the FIM was only confirmed with observed positive parenting. The two measures of parenting were not related to each other, which is consis-tent with other studies showing little or no convergence between observed and reported parenting (e.g., Sheeber & Sorensen, 1998). In our study, observed positive parenting re-fers to sensitive responsiveness, structuring guidance, and providing room for the child's initiative during a seven-minute task. The advantage of this approach is its objectivity, and a disadvantage is the very brief observation period, which may not be representa-tive of all relevant dyadic interactions during daily life. Since maternal structuring was the key-component of observed parenting that was associated with adolescent frustra-tion inhibition, it appears that this measure did capture mother's ability to structure a task and provide helpful guidance according to the needs of the adolescent, which is an important dimension of maternal cognitive stimulation and investment in daily life (e.g., when helping with homework). Our adolescent-reported measure of parenting refers to maternal warmth and (lack of) rejection. Although these dimensions show some overlap with the observed parenting constructs, they capture a less broad range of parenting. In addition, the adolescents' reports may be biased by response sets and mood. However, adolescent reports do capture a longer time period than observations and may be more representative of the adolescents' experiences in daily life. These more structural experi-

Chapter 5

ences were indeed meaningfully related to maternal stress and able to predict adolescent behavior.

This study has several limitations. First, although a lot of effort was put in the recruitment of families, the response rate was low, which resulted in a rather small sample size as is the case in virtually all studies of this type. This may have resulted in limited statistical power to detect significant effects for some of the expected associations between variables. In addition, although we found no significance difference in background variables between participating and non-participating families, recruitment may have been subject to some self-selection. Higher nonresponse rates among ethnic minorities, especially families with low SES living in urbanized areas, in the Netherlands have been previously reported (Feskens, Hox, Lensvelt-Mulders, & Schmeets, 2007). The low response rate may have resulted in lower representativeness of the general Turkish population in the Netherlands. Most studies in this area use convenience samples, for which nonresponse rates can generally not be estimated. Second, due to the cross-sectional design of this study inferences about the direction of effects can not be made. However, our models do converge with findings from longitudinal studies (e.g., Linver et al., 2002; Sohr-Preston et al., 2013), suggesting that interpreting the directions consistent with the theoretical models is appropriate. Third, we only measured parenting behavior during a teaching task as a form of parental investment. Family investment is a much broader construct that for example also includes home literacy environment, doing educational activities together (e.g., visit a museum), and helping with homework. Future studies should include a more diverse and structural family investment construct.

In conclusion, our findings provide support for both the FSM and FIM in ethnic minority preadolescents and suggest that the negative effects of low SES on child adjustment are for a large part attributable to the detrimental effects of socioeconomic strains on parenting quality. The generally lower SES of ethnic minority families is a societal issue that is not easy to change. However, interventions aimed at promoting positive parenting may foster a supportive family environment for socioeconomic disadvantaged ethnic minority adolescents, which in turn may enhance their behavioral and self-regulatory competence.