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ABSTRACT

During the past two decades, a large body of research focused on the family stress model that examined family-based pathways through which financial stress is associated with negative child outcome. These studies have shown that through elevated levels of parental and interparental distress, financial stress is associated with fewer positive parenting behaviours, which -in turn- are associated with child and adolescent externalizing problem behaviour.

In this paper, we draw on the family stress model and applied its tenets to Belgian families. We expand previous studies on family stress processes by including data from both parents and a child, and explored pathways within (actor) and between (partner) parents. Data from 340 families were analyzed, with both parents rating their financial stress, depressive symptoms and marital conflicts, and parents and children rating positive parenting behaviours and children's externalizing problem behaviours.

The results revealed that the association between financial stress and children's problem behaviour was mediated by depressive symptoms, marital conflicts, and positive parenting. We found that financial stress had direct and indirect effects on interparental conflicts. Furthermore, fathers' positive parenting was more affected by financial stress than that of mothers. Although actor effects were more prominent, we found also evidence for partner effects. Our results underscore the importance of including multiple family members in studies on family stress processes.

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1. Introduction

During the past two decades, a large body of research focused on the family stress model (Conger, Conger, & Martin, 2010) that examined family-based pathways through which financial stress is associated with negative child outcome. These studies have shown that worries and insecurities about the family financial situation often generate psychological distress and may contribute to marital conflicts, problems in parenting and increased children's emotional and behavioural problems (Falconier & Epstein, 2010, 2011; Parke et al., 2004). Most research on the relationship between financial stress, parenting and child development focused on mothers (Barnett, 2008). Fathers become however more and more involved in the *lives of their children* (Lamb & Lewis, 2010). Further research taking into account the interdependence and mutual influence between mothers and fathers may therefore contribute towards a better understanding of family-based pathways through which financial stress impacts the adjustment of children.

In the current study, we take the family stress model by Conger and colleagues (Conger & Conger, 2002; Conger et al., 2010) as our point of departure, but expand previous studies on family stress processes by including data from both parents and an adolescent, and studying separated paths through which financial stress experienced by parents might impact the own and the partner's psychological distress, marital experience, and parenting, which -in turn- might influence adolescent's behavioural adjustment. To test our theoretical model, shown in Figure 1, we used an Actor Partner Interdependence Model (APIM) approach (Kenny, Kashy, & Cook, 2006). The APIM approach to the examination of family functioning is relatively recent and was designed to estimate the impact of the independent variables of individuals on their own dependent variables (actor effects), as well as on the dependent variables of their partner (partner effects). It implies that the two members of the dyad influence each other in the form of partner effects, which creates interdependence between members (Ledermann & Macho, 2009).

2. The economic context of Belgium

Our study is conducted in the Dutch-speaking part of Belgium (Flanders) approximately three years after the onset of the financial crisis (i.e. in January-March 2012) and has to be seen in this context. The financial crisis has hit Belgium from mid-2008 onwards, when two of the country's largest banks started to face severe problems. The value of their stocks plummeted and infected the stock prices of other Belgian banks and companies. By the end of September 2008, both banks were bailed out by the Belgian government (Eichler & Hielscher, 2012). Shortly after the relatively costly and unpopular bank rescues, the Belgian government had

to tackle the economy. The impact of the financial crisis on the economy, the labour market and on the families was serious (Kickert, 2012). In December 2008, the Belgian government took several economic recovery measures, which turned out to be effective (Kickert, 2012). The economic recovery in 2010 was faster and stronger than expected, partly due to the unexpectedly strong rebound in German exports (Lebrun, 2011).

The steady performance of the Belgian economy contrasts however with the subjective evaluation of the financial crisis by its citizens. The Eurobarometer, a cross-nationally comparative survey containing data from 27 European Union Member states, revealed that in November 2011 only 30% of the Belgian citizens judged the situation of the national economy to be good, compared to around 80% or more of the people -in for example- Sweden, Luxembourg and Germany. Approximately 49% of the participants expected that the economic situation of Belgium would be worse in the next twelve months, and only 23% of the Belgian people believed that the impact of the economic crisis on the job market had reached its peaks (EC, 2011). These findings are interesting from a family stress perspective, because previous studies have suggested that more than the objective experience of being poor, the subjective experience of economic disadvantage might affect the lives of parents and children (Barnett, 2008; Conger & Donnellan, 2007; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004).

3. The family *stress* model

Conger and his colleagues developed the family stress model to study the effects of the 1980s farm economic crisis in the United States (Conger & Conger, 2002; Conger, Ge, Elder, Lorenz, & Simons, 1994). The model suggests that the perception of financial strain mediates the relationship between income and parents' psychological distress. The model further predicts that when financial strain or distress is high, individuals are at increased risk for psychological distress, like depression or anxiety, which increases the likelihood of marital conflicts. Rather than assuming a direct negative effect of financial strain on marital relationship, the model suggests that financial stress only has an indirect effect on relationship satisfaction through the psychological distress that it elicits in the parents. Although several studies supported this supposition both in the United States (e.g. Conger & Conger, 2002; Parke et al., 2004) and in other countries (Aytac & Rankin, 2009; Kinnunen & Feldt, 2004; Kwon, Rueter, Lee, Koh, & Ok, 2003), there is some evidence that financial stress is more likely to have a direct effect as well as a mediated impact on marital relationships outside the United States. This finding may relate to different cultural and/or economic traditions and merits further investigation (Conger et al., 2010; Kwon et al., 2003).

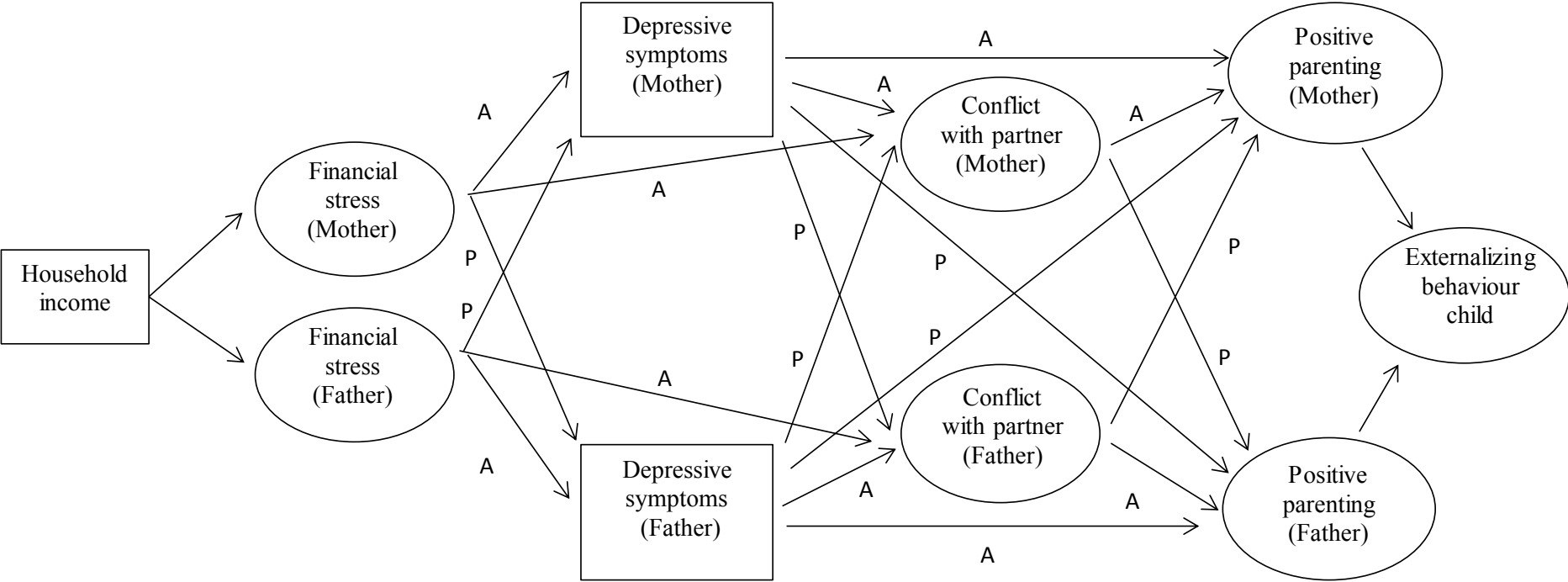
In its expanded form, the family stress model predicts that financial strain or stress influences the development of children primarily through the experiences of parents (Conger et al., 2010). As such, psychological distress caused by financial stress influences interparental conflict and problems in parenting, and disruptive parenting in turn mediates or explains the influence of parental distress and interparental conflicts on child and adolescent outcomes, like externalizing problem behaviour (see Figure 1). During the past decade, an increasing number of studies provided support for these predictions (Benner & Kim, 2010; Linver, Brooks-Gunn, & Kohen, 2002; Mistry et al., 2004; Solantaus, Leinonen, & Punamaki, 2004), albeit there is also evidence that interparental conflict has a direct effect on child maladjustment (Parke et al., 2004).

There are however some limitations to the current understanding of family stress processes (Barnett, 2008; Conger et al., 2010; Falconier, 2010). Firstly, most studies applying the family stress model to couples used aggregated constructs indicating financial stress, psychological distress, marital relationship and parenting (Leinonen, Solantaus, & Punamaki, 2002). These studies failed to model the interdependence of both parents and the mutual influence between them. In other words, they focus exclusively on actor effects. To the best of our knowledge, only six studies examined the association between both partner's financial stress and relationship satisfaction through the own and the partner's psychological distress (Dew & Yorgason, 2010; Falconier, 2010; Falconier & Epstein, 2010, 2011; Kinnunen & Feldt, 2004; Leinonen et al., 2002). In these studies, evidence of partner effects was found between financial stress and psychological distress (Falconier & Epstein, 2010, 2011) and between psychological distress and marital conflicts (e.g., Falconier & Epstein, 2011; Kinnunen & Feldt, 2004; Leinonen et al., 2002). Although some studies found direct actor effects between economic stress and marital conflict (e.g., Kinnunen & Feldt, 2004), none of the studies provided evidence for direct partner effects between financial stress and marital conflicts. Our review of prior research on extended family stress models (in other words, studies including parenting as well as child outcome as study variables) further revealed that these studies treated at least one of the study variables as a couple experience. Even in a more broader context than financial stress, only a few studies used an APIM approach to investigate the impact of parental psychological stress on parenting (Ponnet et al., 2012). This study helps to fill this gap by discriminating between mothers' and fathers' responses. By focusing on effects within and between partners, we can differentiate between a personal and relational component. In addition to the effects of his or her own level of stress, the parenting of one partner is likely to be affected by the other partner's level of stress as well.

Another limitation in the current literature is that little attention has been paid to possible gender differences in the pathways from stress to parenting (Barnett, 2008; Ponnet et al., 2012). This stems from the fact

that early parenting research focused almost exclusively on mothers, partly due to the common assumption of the central role of mothers in child development (Adamsons & Buehler, 2007). A growing body of literature supports the idea that the father-child relationship can be considered at least as important as the mother-child relationship and child-rearing appears to gradually become a common enterprise (Lamb & Lewis, 2010). Mothers' and fathers' parenting are interdependent. In addition to the effects of his or her own level of stress, the parenting of one partner also is likely to be affected by the other partner's level of stress as well. Moreover, the nature of the relationship between stress and parenting may vary for mothers and fathers (Barnett, Deng, Mills-Koonce, Willoughby, & Cox, 2008). According to the fathering-vulnerability hypothesis (Cummings, Goeke-Morey, & Raymond, 2004), fathering and father-child relationships might be more vulnerable to stress than is the case with mothering and mother-child relationships. One possible explanation for the increased vulnerability of fathering is that the roles of fathers are less clearly defined by social conventions than the roles of mothers, thus making fathering more sensitive to external influences (Coiro & Emery, 1998). Still, findings of the few APIM studies on determinants of parenting were inconclusive about parent gender differences. Whereas Nelson et al. (2009) found some gender specific pathways, APIM studies by Malmberg and Flouri (2011) and Ponnet et al. (2012) provide no evidence for gender differences, thus not supporting the fathering-vulnerability hypothesis and underlining the need for further research (Ponnet et al., 2012). To provide better insight into the way how mothers and fathers respond differently on financial stress, we therefore explicitly tested all pathways within and between partners for gender differences.

Figure 1. The proposed financial stress model



Note: A = Actor effect; P = Partner effect

4. Aims of the study

As shown in Figure 1, we propose an APIM approach to improve our understanding on family stress processes in Belgian families. We have three aims.

The *first aim* is to understand how financial stress is related to children's externalizing problem behaviours (i.e. aggressive or rule-breaking behaviours) through both parents' depressive symptoms, feelings of marital conflict and positive parenting behaviour. Our model discriminates between mothers' and fathers' responses, which enables us to explore for actor and partner effects. Based on the findings of other family stress studies (e.g., Conger et al., 1994; Conger et al., 2002), we expect actor effects of financial stress on depressive symptoms, with more financial stress associated with higher levels of depressive symptoms. Furthermore, we expect positive actor effects between depressive symptoms and interparental conflict and negative actor effects between interparental conflicts and positive parenting. With regard to partner effects, our hypotheses are based on the findings of studies using a dyadic approach to investigate the association between financial stress and marital relationship (e.g., Falconier & Epstein, 2010; Kinnunen & Feldt, 2004) and on the scarce APIM studies about determinants of parenting (e.g., Nelson, O'Brien, Blankson, Calkins, & Keane, 2009; Ponnet et al., 2012). We expect that increased levels of financial stress experienced by one parent have positive effects on the other parent's depressive symptoms (see Falconier & Epstein, 2010, 2011) and that -in turn- depressive symptoms are associated with the other parent's relationship adjustment (see Falconier, 2010; Falconier & Epstein, 2011; Kinnunen & Feldt, 2004; Leinonen et al., 2002). Furthermore, we expect partner effects from interparental conflicts to positive parenting (e.g., Ponnet et al., 2012).

The *second aim* is to examine gender differences in the actor and partner pathways. Given the inconclusive findings of studies examining the association between financial stress and marital functioning, we make no specific hypothesis about possible gender differences in these pathways. Based on prior APIM studies with parenting behaviour and parent-child relationship as outcome variables (Nelson et al., 2009; Ponnet et al., 2012), we expect no gender differences in the pathways to positive parenting.

The *third aim* is to formally test evidence of mediation. Consistent with findings of other studies on family stress processes outside the United States (e.g., Aytac & Rankin, 2009; Kinnunen & Feldt, 2004; Kwon et al., 2003), we hypothesize that financial stress experienced by mothers and fathers has direct as well as indirect effects on interparental conflicts. Given that prior research on family processes provided little evidence of direct effects of financial stress on children's externalizing problem

behaviour (Conger et al., 2010), we expect depressive feelings, interparental conflicts and positive parenting to mediate this relationship.

METHOD

This study is part of the "Relationships between mothers, fathers and children" (RMFC) project conducted by the Department of Sociology and Communication Studies of Antwerp University (UA) and the Higher Institute for Family Sciences of HUBrussel.

5. Sample

The sample for these analyses included 340 two-parent families with a target child in secondary school (i.e. between 11 and 17 years old). Families were recruited from the Dutch speaking part of Belgium using a snowball sampling procedure. Undergraduate bachelor students ($n = 38$) asked family members, neighbors and casual acquaintances to participate, and these participants in turn were asked to help identify other two-parent families with a target child in secondary school. The students were instructed only to recruit non-divorced parents and received a course credit for the recruitment. Families were sent a letter explaining the research purpose and were subsequently contacted and asked to participate. A total of 456 packages of envelopes and questionnaires were distributed of which 359 (78.9%) were returned by mail in February/March 2012. Target participants were instructed to fill out the booklets individually and not to discuss the content of the questionnaire with one another. The booklets were returned to the first author in a closed envelope. Mothers and fathers were also asked to sign a written consent.

Only families where both fathers and mothers as well as the child provided questionnaires were included. Twelve families were excluded because parents reported that their child had a pervasive developmental disorder and lived only during the weekend at home. Seven additional families were excluded because one of the family members failed to adequately complete the questionnaire. As such, the sample for these analyses consists of 340 families (1,020 individuals), with 93.8% ($n = 319$) married and 6.2% ($n = 21$) cohabiting couples. The average ages of the fathers and mothers were 46.78 ($SD = 4.74$, range = 29) and 44.68 ($SD = 4.12$, range = 23) years respectively. A paired t -test revealed a significant higher mean age of the fathers than of the mothers, $t(339) = -12.12$, $p < .001$. Education was measured as the highest level of education achieved. The educational level of fathers was significantly different from that of mothers: $\chi^2(9) = 140.85$, $p < .001$. Within our sample, 13.7% of the fathers and 8.5% of the mothers had completed less than nine years of

education (lower secondary), 29.2 % of the fathers and 25.2% of the mothers had completed secondary education, 22.8% of the fathers and 38.3 % of the mothers had completed at least three years of higher education, and 34.3% of the fathers and 28% of the mothers had completed more than three years of higher education. 12.1% of the sample was a three-person household, 41.2% a four-person household, 32.6% a five-person household, 10.3% a six-person household and 3.9% a household of seven or more persons. 97% of the fathers ($n = 327$) and 87% of the mothers ($n = 295$) worked either full-time or part-time. As for country of origin, 7.1% of the mothers and 8.8% of the fathers were born in a foreign country. The average age of the target children was 14.24 years ($SD = 1.80$, range = 6), with 40.1 % boys ($n = 137$) and 59.9 % girls ($n = 203$). Univariate analysis of variance (ANOVA) revealed no between-group differences for age, $F(1, 339) < 1$.

6. Measures

6.1. Household income

Respondents were asked to report the monthly net income of the household (including wages, interests, child support, supplemental income, etc.) ranging from 1 (less than 249€) to 16 (9,000€ or more). We transformed the categorical variable into a continuous variable according to the midpoint of the categories (with 9,000€ as the midpoint of the last category). Since mothers' and fathers' ratings did not differ, $t(315) = .20$, *ns*, we used the average of both ratings in our analyses. The average net household income per month was 4,170.73€ ($SD = 1,518.67$).

Using the *modified OECD equivalence scale*, the average household income of our sample ($M = 1,655.22€$, $SD = 649.92$) was almost identical to the average household income of the Dutch-speaking part of Belgian households with a child between 11 and 17 years old ($M = 1,672.88€$, $SD = 749.90$, own calculations based on EU-SILC 2010 UDB). In the present sample, 10.32% of the households had an equivalised income below 1,000€ (8.87% in the population), 67.85% between 1,000€ and 2,000€ (58.19% in the population), 17.70% between 2,000€ and 3,000€, (28.61% in the population) and 4.13% above 3,000€ (6.03% in the population), which suggests that in this sample the middle-income families are slightly overrepresented and the higher-income families slightly underrepresented.

6.2. Financial stress

The financial stress construct consisted of three measures: financial need, financial insecurity and financial burden. *Financial need* was measured using a 3-item scale developed for this study. Two items were adapted from a study by Blau (1994): "It is difficult to afford much more than the basics with our current income" and "I feel that our current income allows me to maintain a desirable standard of living" (reverse-scored). The third item was "With our current income, it is difficult to make the ends meet". Both mothers and fathers were asked to rate the items along a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. As shown in Table 1, mothers perceived more financial need than fathers. Principal component analyses (PCA) revealed high factor loadings for mothers (ranging from .82 to .88, $R^2 = 74.34$) and fathers (ranging from .82 to .86, $R^2 = 71.18$). For *financial insecurity*, mothers and fathers rated the following self-constructed items: "I am worried that I will not be able to pay my bills in the near future", "I think that I will have to scale down my living standards in the following months", "I am often worried about our financial situation, and "I am frightened that I or my partner will lose the job". All of the items were scored along a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. A paired *t*-test revealed no differences between mothers and fathers (see Table 1). Factor loadings (PCA) ranged from .63 to .88, $R^2 = 60.99$ for mothers and from .74 to .84, $R^2 = 63.43$, for fathers. The *financial burden* items were adapted from the EU-Statistics on Income and Living Conditions (EU-SILC, Eurostat, 2008). Parents rated to what extent five sources of costs are a financial burden or struggle for the household (medical; car/fuel; child related costs like child care, studies or pocket money; house related costs; repayment of mortgages, loans, etc.). The items were scored along a 4-point Likert scale ranging from 1 = *not a burden/struggle* to 4 = *a heavy burden/struggle*. No significant differences between mothers and fathers were found (see Table 1). PCA revealed high factor loadings for mothers (ranging from .69 to .88, $R^2 = 64.26$) and fathers (ranging from .74 to .88, $R^2 = 67.91$).

6.3. Depressive feelings

To measure depressive feelings, the short-form 11-item version CES-D was administered (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). Respondents were asked to think about the past week and to indicate how often they felt or behaved in a certain way (e.g., felt depressed, or felt that everything was an effort). All of the items were scored along a four-point Likert scale ranging from 1 = *rarely or none of the time* to 4 = *most or all of the time*. As shown in Table 1, mothers reported more depressive feelings than fathers. PCA revealed high factor loadings for mothers

(ranging from .42 to .79, $R^2 = 37.44$) and fathers (ranging from .46 to .81, $R^2 = 42.14$).

Table 1. Descriptives of the Study Variables

	Mother			Father			paired <i>t</i> -test	
	<i>M</i>	<i>SD</i>	alpha	<i>M</i>	<i>SD</i>	alpha	<i>df</i>	value
Financial stress								
Financial need	2.71	1.30	.83	2.56	1.21	.80	335	2.50 *
Financial insecurity	3.05	1.18	.77	2.96	1.19	.80	335	1.29
Financial burden	1.85	.71	.85	1.81	.72	.88	336	1.28
Depressive symptoms	1.57	.32	.70	1.51	.31	.72	336	2.70 **
Conflict with partner								
Overt hostility	1.86	.50	.82	1.81	.53	.82	338	1.94
Verbal aggression	2.06	.63	.90	1.92	.58	.89	335	4.60 ***
Marital stress	2.09	.78	.91	1.94	.71	.91	332	3.65 ***
Positive parenting								
Parent report	4.09	.50	.83	3.72	.61	.87	337	10.22 ***
Child report	3.50	.79	.87	3.13	.85	.90	337	9.97 ***

Note.

Alpha = Cronbach's alpha; * $p < .05$; ** $p < .01$; *** $p < .001$

6.4. Interparental conflict

The interparental conflict construct included three measures: overt hostility, verbal aggression and stress within the relationship. *Overt hostility* was measured using the O'Leary-Porter scale (OPS, Johnson & O'Leary, 1987; Porter & O'Leary, 1980). The OPS is a widely used scale designed to assess the amount that parents openly argue in presence of their children. The scale contains 10 items that have to be scored along a 5-point Likert scale ranging from 1 = *never* to 5 = *very often*. All items are scored positively, except the 10th item, regarding displays of affection, is keyed negatively. An example item is "How often do you complain to your spouse about his/her personal habits in front of your child?". Higher scores on the OPS indicate more overt hostility. As shown in Table 1, no differences between mothers and fathers were found. PCA revealed adequate factor loadings (ranging from .37 to .68 for mothers and from .36 to .77 for fathers), with the exception of the negatively worded item (.18 for mothers and .20 for fathers). Therefore, the latter item was omitted. R^2 was 42.33 for mothers and 42.72 for fathers.

A 10-item inventory of *verbal aggressive acts* -similar to the verbal aggression subscale of the Conflicts and Problem Solving Strategies questionnaire (Kerig, 1996)- was administered. The items involving yelling, accusing, insulting, cursing, raising voice, interrupting and so on.

Items were scored using a 5-point Likert scale, ranging from 1 = *never* to 5 = *very often*. Mothers reported more verbal aggression than fathers (see Table 1). PCA revealed high factor loadings for mothers (ranging from .58 to .83, $R^2 = 52.94$) and fathers (ranging from .51 to .80, $R^2 = 52.21$).

To assess the perceived stress within the relationship, we used the Multidimensional Stress Questionnaire for Couples (MSFP, Bodenmann, Ledermann, & Bradbury, 2007). Mothers and fathers were asked to assess on a 5-point Likert scale how stressful/straining 10 situations are within the relationship, during the past 12 months (e.g., disturbing habits of the partner, different attitudes concerning relationship and life, and so on). As shown in Table 1, mothers perceived more stress than fathers. Principal component analyses (PCA) revealed high factor loadings for mothers (ranging from .67 to .81, $R^2 = 55.36$) and fathers (ranging from .67 to .79, $R^2 = 56.08$).

6.5. Positive parenting

Positive parenting behaviour was assessed by the positive parenting subscale of the VSOG (Van Leeuwen, Vermulst, Kroes, De Meyer, & Veerman, 2011). This scale is based on previous studies by Van Leeuwen and Vermulst (2004) and Patterson (1982) and contains 8 items in the form of affirmatives, for example: "I make time to listen to my child, when he/she wants to tell me something". The items were scored along a four-point Likert scale ranging from 1 = *never* to 5 = *always*. As shown in Table 1, mothers perceived their parenting with their child significantly more positive than fathers. PCA indicated high factor loadings for mothers (ranging from .59 to .80, $R^2 = 47.34$) and fathers (ranging from .61 to .81, $R^2 = 53.92$). Similarly, children perceived the parenting of the mother significantly more positive than that of the father (see Table 1). PCA indicated high factor loadings on the child-reported mother-child (ranging from .60 to .80, $R^2 = 54.05$) and father-child (ranging from .72 to .83, $R^2 = 60.29$) positive parenting.

6.6. Externalizing child behaviour

Mothers, fathers and children independently rated the child's externalizing problems using the Externalizing Problems scale of the Child Behaviour Checklist Parent-Report and Youth Self-Report (CBCL, Achenbach, 1991). The CBCL is a widely used questionnaire that consists of a series of statements that might describe the youth during the previous 6 months. The response format is not true (0), somewhat or sometimes true (1), and very true or often true (2). Examples of items are "I lie or cheat (youth report)/My child lies or cheats (parent report)" and "I disobey at school

(youth report)/ My child disobeys at school (parent report)". Items were summed and divided by the number of items. α 's were .87, .87, .81 for mothers, fathers and children respectively. Children reported more externalizing behaviour ($M = .28, SD = .18$) than mothers ($M = .18, SD = .16$), paired- $t(336) = 9.42, p < .001$, and fathers ($M = .18, SD = .16$), paired- $t(334) = 9.31, p < .001$.

6.7. Control variables

Covariates of interest were child's gender and age, mother's and father's education and age. Furthermore, mothers were asked on a 5-point Likert scale "In the household, who pays the bills or does the financial administration?", with answers ranging from "0 = *always I*" to "5 = *always my partner*".

RESULTS

7. Analytic strategy

Our analyses begin with a discussion of the intercorrelations among the key study variables. If no bivariate relation exists between two variables in a mediation model, it is not possible to test for mediating effects (Baron & Kenny, 1986). We then conducted structural equation modeling (SEM) using Mplus (Muthén & Muthén, 2010) with maximum likelihood estimation to examine the relationships among household income, financial stress, parental depressive symptoms, interparental conflict, parenting, and externalizing child behaviour. Missing values on endogenous, exogenous and control variables were excluded from the analyses using listwise deletion. The analyses were carried out in the following way. Firstly, we built a measurement model and investigated the fit. The latent constructs financial stress, interparental conflict and positive parenting were created using the factor scores of the measures (see method section). The latent construct externalizing behaviour was created with the standardized scores of mother, father and the child. Given that the adolescents had to rated twice the same parenting behaviour of each parent, correlated error terms were allowed across both constructs in order to partial out response bias (see also Lavee, McCubbin, & Olson, 1987; Leinonen et al., 2002). Secondly, we examined the relationship between the demographic covariates and our study variables. Then, we conducted structural equation models with depressive symptoms, interparental conflict and positive parenting as mediators between financial stress and children's problem behaviour and explored for actor and partner pathways between the study variables. To test for gender differences, we generated nested models by constraining paths to be equal and compared the these models with the baseline (unconstrained)

models. Finally, we formally tested evidence of mediation, with depressive symptoms, interparental conflict and positive parenting as mediators.

8. Bivariate correlations

The correlations among the path model variables are presented in Table 2. As expected, significant correlations were found between household income and mothers' and fathers' financial stress. No significant associations were found between household income and the other variables, with the exception of a significant association between income and mother's depressive symptoms. On the actor level, financial stress was significantly associated with mothers' and fathers' depressive symptoms, both parents' feelings of interparental conflict, and fathers' positive parenting. On the partner level, significant associations were found between financial stress and mothers' depressive symptoms, and mothers' and fathers' interparental conflict. With regard to the association between financial stress and externalizing behaviour, 9 out of the 18 correlations were significant. Furthermore, although depressive symptoms were significantly associated with own and other's experiences of interparental conflict, nearly no significant associations were found between depressive symptoms and positive parenting. Finally, significant actor and partner associations were found between interparental conflict, positive parenting and externalizing behaviour of the child.

Table 2. Correlations among the Study Variables

<i>Variables</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1 Household income																						
2 Financial need MR	-.46**																					
3 Financial insecurity MR	-.31**	.68**																				
4 Financial burden MR	-.36**	.64**	.61**																			
5 Financial need FR	-.51**	.63**	.44**	.46**																		
6 Financial insecurity FR	-.33**	.46**	.52**	.48**	.60**																	
7 Financial burden FR	-.39**	.53**	.45**	.55**	.64**	.61**																
8 Depression MR	-.12*	.22**	.29**	.18**	.18**	.22**	.17**															
9 Depression FR	-.05	.07	.09	.10	.11*	.27**	.19**	.22**														
10 Verbal aggression MR	-.01	.18**	.20**	.18**	.11*	.19**	.08	.26**	.16**													
11 Overt hostility MR	-.02	.16**	.18**	.15**	.08	.17**	.08	.23**	.17**	.73**												
12 Relationship stress MR	-.07	.19**	.16**	.17**	.09	.18**	.09	.41**	.31**	.46**	.52**											
13 Verbal aggression FR	.06	.04	.05	.03	.09	.16**	.06	.12*	.28**	.60**	.47**	.34**										
14 Overt hostility FR	.02	.14*	.10	.11*	.10	.19**	.09	.20**	.35**	.57**	.58**	.48**	.68**									
15 Relationship stress FR	-.03	.16**	.17**	.15**	.21**	.28**	.20**	.31**	.43**	.32**	.32**	.51**	.48**	.55**								
16 Positive mothering CR	-.04	.04	.06	.08	-.01	.03	.00	.00	-.07	-.11	-.12*	-.13*	-.01	-.09	-.01							
17 Positive mothering MR	.04	.01	.04	.13*	.04	.05	-.01	.03	-.07	-.15**	-.14**	-.06	-.08	-.06	-.04	.42**						
18 Positive fathering CR	-.02	-.03	-.02	-.07	-.12*	-.15**	-.16**	.04	-.09	-.13*	-.19**	-.19**	-.07	-.12*	-.09	.66**	.27**					
19 Positive fathering FR	.06	-.03	.04	.01	-.16**	-.15**	-.11*	.06	-.17**	-.13*	-.14*	-.17**	-.14**	-.12*	-.12*	.25**	.29**	.46**				
20 Externalizing MR	-.09	.15**	.09	.11*	.12*	.06	.09	.12*	.05	.30**	.22**	.18**	.20**	.16**	.15**	-.14**	-.15**	-.13*	-.11*			
21 Externalizing PR	-.02	.06	.03	.05	.131*	.12*	.15**	.05	.06	.26**	.11*	.10	.28**	.14*	.14**	-.12*	-.15**	-.11	-.18**	.67**		
22 Externalizing CR	-.01	.09	.08	.10	.19**	.14*	.19**	.03	.09	.15**	.05	.05	.14**	.09	.15**	-.23**	-.13*	-.18**	-.14*	.35**	.31**	

Note.

Values in rectangles refer to partner effects.

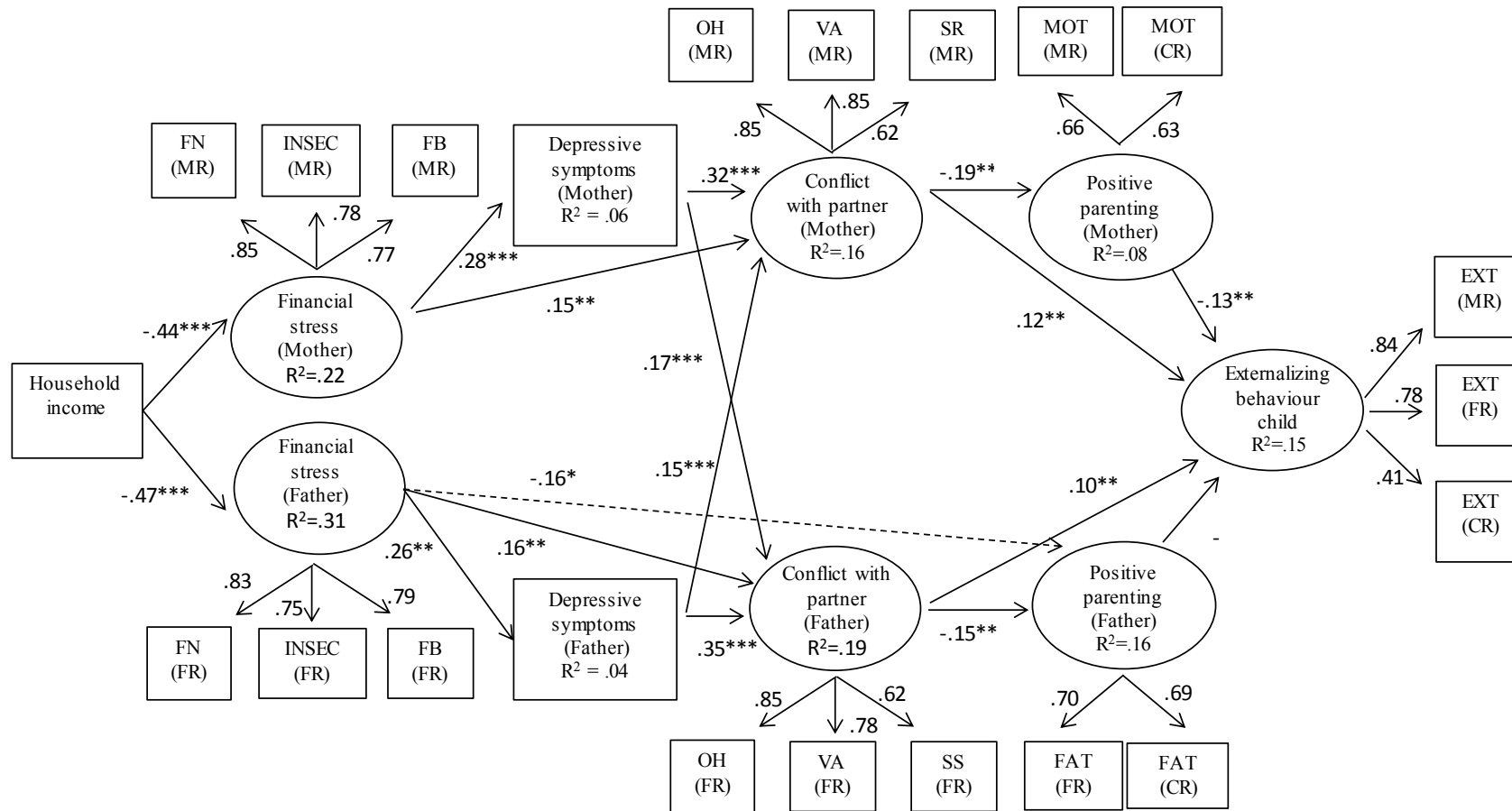
MR = Mother report; FR = Father Report; CR = Child Report; * p < .05; **p < .01

9. Measurement models

The initial measurement model provided a good fit to the data, $\chi^2(130) = 321.125$, $p < .001$; $\chi^2/df = 2.47$, CFI = .93, RMSEA = .066 (CI: .057 - .075), SRMR = .046. All factor loadings were above .41. Interdependencies were found between mother's and father's financial stress ($r = .79$, $p < .001$), feelings of interparental conflicts ($r = .79$, $p < .001$) and positive parenting ($r = .60$, $p < .001$). Because the objectives of our research require the inclusion of separated scores for mothers' and fathers' latent constructs, we conducted for each construct a test to specify whether such a distinction was warranted. We compared models in which maternal and paternal constructs are modeled separately to produce a model in which both constructs are combined into a single latent construct. The χ^2 difference tests indicated that combining the constructs decreased the fit significantly, with $\chi^2(1) = 81.52$, $p < .001$ for financial stress, $\chi^2(1) = 123.96$, $p < .001$ for interparental conflicts and, $\chi^2(1) = 28.98$, $p < .001$ for positive parenting. As such, all latent constructs were modeled separately in our analyses.

Then, we included the socio-demographic variables as covariates in the analyses and examined the relationships between child's age and gender, mother's and father's education, age, financial responsibility and all latent variables. Among all the variables considered, child's age was significantly associated with parenting of the mother ($\beta = -.17$, $S.E = .07$, $p < .05$) and father ($\beta = -.25$, $S.E = .06$, $p < .001$). Furthermore, father's education was significantly associated with his financial stress ($\beta = -.30$, $S.E = .05$, $p < .001$). In addition, we found that financial responsibility was associated with mother's financial stress ($\beta = -.14$, $S.E = .06$, $p < .05$).

Figure 2. Financial stress relating to problem behaviours via depressive symptoms, marital conflicts and positive parenting



Note.

FN = Financial need; INSEC = Financial insecurity; FB = Financial burden; OH = Overt hostility; VA = Verbal aggression; SR = Stress in relationship ; MOT = Positive parenting mother; FAT = Positive parenting father; EXT = Externalizing behavior of child; MR = Mother report; FR = Father report; CR = Child report. All reported coefficients are standardized values, adjusted for the influence of covariates. Non significant paths are not shown. Dashed lines represent gender different pathways. * $p < .05$; ** $p < .01$; *** $p < .001$

10. Structural model: Financial stress relating to externalizing problem behaviours via parental depressive symptoms, interparental conflict and positive parenting

Figure 2 presents the results of the structural model, adjusted for the influence of the covariates. The results of the fit statistics indicate an adequate model fit, with $\chi^2(268) = 574.72$, $p < .001$, $\chi^2/df = 2.14$, CFI = .90, RMSEA = .06, SRMR = .06. Our tested model was consistent with the family stress model, in that -within each parent- depressive symptoms, interparental conflict and positive parenting were found to be mediators between parent's financial stress and adolescent's externalizing problem behaviour. Specifically, financial stress was positively related to depressive symptoms and to interparental conflicts, and interparental conflicts -in turn- was negatively associated with positive parenting and positively associated with externalizing problem behaviour of the child. As expected, positive parenting was negatively associated with adolescent's externalizing behaviour (see Figure 2). Contrary to our expectations, no significant partner effects were found between financial stress and depressive feelings, nor between interparental conflicts and positive parenting. However, actor as well as partner effects from depressive symptoms to interparental conflicts were significant.

One by one comparisons of the constrained model with the baseline model revealed a gender difference in the actor effects from financial stress to positive parenting ($\chi^2(1) = 10.85$, $p < .001$), indicating that father's financial stress had a negative effect on the positive parenting ($\beta = -.16$, $p < .05$), whereas the actor effect between mother's financial stress and mother's positive parenting was not significant ($\beta = .08$, *ns*). No other gender differences were found in the actor and partner pathways.

To formally test evidence of mediation, we used the INDIRECT command in Mplus to estimate the value and significance of the product of the indirect pathways by which financial stress influence children's behaviour. Only the significant pathways, shown in Figure 2, were included in our analyses. Firstly, we tested the pathways between financial stress and interparental conflict. The indirect effect of financial stress on interparental conflict was significant (indirect $\beta = .07$, $p < .001$). As such, the results provide evidence that depressive symptoms partially mediate the relationship between financial stress and interparental conflicts. Secondly, we tested the indirect pathway between interparental conflict to adolescent's problem behaviour through parenting, which was significant (indirect $\beta = .03$, $p < .05$). Thirdly, we tested the mediation pathways between financial stress and positive parenting. As expected, the indirect effect from mother's financial stress to mother's positive parenting through depressive symptoms and interparental conflict was significant (indirect $\beta = -.04$, $p < .05$). Furthermore, the indirect pathway from father's financial stress to father's parenting through father's depressive

feelings and interparental adjustment (indirect $\beta = -.01, p < .05$) as well as the indirect pathway through interparental adjustment only (indirect $\beta = -.02, p < .05$) was significant (see Figure 2). Finally, our analyses revealed that the total indirect effects from mother's financial stress to children's problem behaviour (indirect $\beta = -.04, p < .01$) and from father's financial stress to children's problem behaviour (indirect $\beta = -.06, p < .001$) were significant. The various indirect pathways, shown in Table 3, provided evidence for the proposed family stress model.

Table 3. Indirect Effects of Financial Stress on Child Outcomes

	Std. Est.	S.E.	
Financial stress MR to child outcome			
Total indirect	.037	.011	**
Fin. stress MR → conflict MR → child outcome	.017	.008	*
Fin. stress MR → depression MR → conflict MR → child outcome	.009	.003	**
Fin. stress MR → depression MR → conflict FR → child outcome	.004	.002	*
Fin. stress MR → conflict MR → parenting MR → child outcome	.003	.002	*
Fin. stress MR → depression MR → conflict MR → parenting MR → child outcome	.002	.001	*
Fin. stress MR → depression MR → conflict FR → parenting FR → child outcome	.001	.000	†
Financial stress FR to child outcome			
Total indirect	.064	.016	***
Fin. stress FR → conflict FR → child outcome	.016	.007	*
Fin. stress FR → parenting FR → child outcome	.030	.013	*
Fin. stress FR → depression FR → conflict MR → child outcome	.004	.002	*
Fin. stress FR → depression FR → conflict FR → child outcome	.009	.003	**
Fin. stress FR → conflict FR → parenting FR → child outcome	.003	.002	†
Fin. stress FR → depression FR → conflict MR → parenting MR → child outcome	.001	.000	†
Fin. stress FR → depression FR → conflict FR → parenting FR → child outcome	.002	.002	*

FR: Father; MR: mother; † $p < .1$; * $p < .05$; ** $p < .01$; *** $p < .001$

DISCUSSION

In this study, we examined family stress processes through which financial stress experienced by Belgian couples is associated with children's externalizing problem behaviour. We draw on the family stress model proposed by Conger and colleagues (Conger et al., 2002), and expanded this model by including data from both parents within the same family. The aims of the current study were threefold. First, we examined how parents' financial stress impacts the externalizing problem behaviour of children, through the lives of parents, and explored for pathways within and between mothers and fathers. Second, we examined whether the pathways differed between both parents. Third, we tested evidence of mediation in a more formal manner.

With respect to the first aim, the results support the stress model by Conger and colleagues (Conger et al., 1994; Conger et al., 2002) and add to findings from previous studies (e.g., Falconier, 2010; Leinonen et al., 2002) indicating that when parents are stressed about their current and future financial situation, the effects of this stress are related to increased depressive symptoms, which -in turn- increase interparental conflict. The results further indicate that parenting partially mediates the association between interparental conflicts and children's problem behaviour. Consistent with previous findings (e.g., Parke et al., 2004), relationship adjustment of mothers and fathers also had direct effects on child adjustment.

By focusing on effects within and between family members, we estimated whether something relational occurred as well (Kenny et al., 2006). Although actor effects were more prominent, we found partner effects between depressive symptoms and interparental conflict, suggesting that more depressive symptoms result in more relationship adjustment of the partner. This finding is consistent with the family system approach that highlights that the family is a complex, integrated whole whereby problems in the family system, like depressive symptoms, tend to have negative effects on other family members. Our findings underscore the importance of treating parental depressive symptoms and its ramifications at the family level. Parents can have depressive symptoms existing independently from the spouse, but these depressive symptoms have implications for other family members. Therefore, clinicians should learn couples not only to cope with the own depressive symptoms, but also with those of their partner.

Contrary to our expectation, we did not find partner effects between financial stress and depressive symptoms. This initial expectation was inspired by findings from studies by Falconier and Epstein (2010, 2011), who found partner effects from financial stress to psychological distress. In the latter studies, psychological distress was however operationalized as demand/withdraw (Falconier & Epstein, 2011) and psychological aggression/positive behaviour towards the partner (Falconier & Epstein, 2010), constructs that specifically refer to the relationship. Our results agree with those obtained in previous dyadic research that have focused on depressive symptoms or anxiety as a response to financial stress (Conger & Conger, 2002; Parke, 2002), constructs that refer to individual states.

With respect to our second aim, we investigated whether the strength of the pathways differed between mothers and fathers. Our results suggest that family stress processes are to some extent gendered. Notwithstanding that mothers experienced slightly more financial stress than fathers, only the financial stress experienced by fathers had a direct impact on the parenting. In a way, this finding is consistent with the hypothesis that fathering and father-child relationships are more

vulnerable to stress than mothering and mother-child relationships (Cummings et al., 2004), albeit it is noteworthy that no gender differences were found in the relationship between interparental conflict and positive parenting. Either way, our findings demonstrate that too little attention has been paid to the role of fathers and underlines the importance of including both parents in future research on the mediational pathways between financial stress and children's problem behaviours. Given that mothers seem to cope better with financial stress than fathers, it might be interesting to investigate strategies that parents use to cope with financial stress.

Consistent with findings reported in a study of Parke et al. (2004), the effects from financial stress to depressive symptoms and marital adjustment were not gender different. Still, it may well be the case that gender differences would have occurred when we had focused on a wider range of psychological symptoms experienced by mothers and fathers. Evidence for this derives from a study by Falconier (2010), who reported in her study that men under financial strain were significantly more likely to experience depression, rather than anxiety, whereas women became equally anxious and depressed when they were experiencing financial strain. In the light of these results, it might be interesting to further examine the various natures of psychological distress experienced by men and women in the context of financial strain.

With respect to the third aim, the results of our study underscore the importance of testing for family mediators when examining the association between financial stress and children's externalizing problem behaviour. The indirect pathways suggest that the family stress model is applicable to Belgium. In line with family stress studies outside the United States (Aytac & Rankin, 2009; Kinnunen & Feldt, 2004; Kwon et al., 2003), we found that financial stress has direct as well as indirect effects on interparental conflicts, whereas family stress studies conducted in the United States provided only evidence for indirect effects. Some scholars have attributed this difference to contrasting cultural traditions, like gender role ideology. For instance, in a Turkish study by Aytac and Rankin (2009) and a Korean study by Kwon et al. (2003), the authors suggested that due to the traditional gender roles of their society, husbands might interpret financial strain as a failure to perform the male breadwinner role, which causes direct marital turmoil regardless of levels of emotional distress (Aytac & Rankin, 2010, p.763). This explanation cannot be generalized to the present sample. Findings from the large-scale European Values study (EVS, 2010) reveal that approximately 82% of the Belgians agree that men should take as much responsibility as women for the home and children, and approximately 91% of the Belgian citizens agrees that both the husband and wife should contribute to the household income. Another explanation -also suggested in a study by Kwon et al. (2003)- is that we focused on parents with an adolescent target child, whereas other studies focused on parents with younger children (e.g.,

Conger et al., 2002; Leinonen et al., 2002). The financial demands of raising and educating older children are higher than that of younger children, which may directly lead to marital friction. Furthermore, the age of the children might also explain why positive parenting only partially mediated the link between interparental conflicts and adolescent's externalizing problem behaviours. For adolescents, peers and the experience of group belonging play an important role in protecting them from externalizing problems (Newman, Lohman, & Newman, 2007), and these are even more important than parenting behaviours (Buehler, 2006). Therefore, it is assumable that positive parenting serves only partly as a protective factor for adolescent's problem behaviours. In addition, we focused on positive parenting that refers to problem solving, positive reinforcement and positive involvement (Van Leeuwen & Vermulst, 2004). When children move into the adolescent phase, the parents' role changes to become more managerial and advising. As a result, important factors within the parent-adolescent relationship are also monitoring and discipline (Reitz, Dekovic, Meijer, & Engels, 2006). Inclusion of additional parenting measures, beyond positive parenting, might therefore be useful contributions to understand the buffering mechanisms between interparental conflicts and adolescent's behavioural outcomes. Moreover, it might be interesting for future studies to examine family stress processes in families with children of varying ages.

Our findings should be interpreted in light of the study limitations. One major limitation of this study stems from the cross-sectional nature of the data: causal relationships can only be theoretically inferred. Further research employing a longitudinal design is needed to empirically establish causality. Notwithstanding, from a theoretic perspective and based on the results from the available longitudinal studies on family stress processes (Kiernan & Huerta, 2008; Linver et al., 2002; Mistry, Lowe, Benner, & Chien, 2008), we can assume that financial stress has an influence on children's outcome through the lives of the parents. A second limitation is sampling bias, which may limit the generalizability of the study findings. Only non-divorced families with at least one child in secondary school (i.e. between 11 and 17 years old) were recruited, thereby excluding single or remarried parents. Although the sample was in many respects heterogeneous, parents with low educational attainment and parents with higher household incomes were underrepresented. This underrepresentation might be a result of the recruitment procedure. Another possible explanation is that these parent groups are less likely to participate in survey research and might therefore be excluded a priori. Alternative participant recruitment and data collection strategies may be needed to minimize sampling bias in future studies.

Within these limitations, the present study demonstrated that the family stress model applies to a Belgian sample, i.e. parents' financials stress have indirect effects on adolescents' problem behaviours through the life of the parents. We expanded previous studies by examining actor and

partner effects between mothers' and father's depressing symptoms, feelings of interparental conflict and positive parenting behaviours. Although actor effects were more prominent, evidence for partner effects were found too. In addition, we found that the parenting of fathers was more affected by financial stress than that of mothers. As such, our findings underline the importance of including all family members in future studies on family stress processes.

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