

Maternal Warmth and Early Adolescents' Internalizing Symptoms and Externalizing Behavior: Mediation Via Emotional Insecurity

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Abstract

This study examines the relation between maternal warmth and the internalizing and externalizing problems of early adolescents, and the potential mediation of this relation by emotional insecurity. The hypotheses for the study derive from Cummings and Davies' theory of emotional security. The current study extends the theory to security processes within the parent-adolescent relationship. A total of 203 early adolescents drawn from school samples in Spain participated in the study along with their mothers and their classroom teachers. The results supported the hypothesis. Emotional insecurity mediated the relationship between maternal warmth and adolescent internalizing and externalizing problems. Higher maternal warmth was linked to greater emotional security, which in turn was linked to fewer internalizing and externalizing problems. The findings extend the tenets of Emotional Security Theory and imply strategies for prevention and intervention.

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warmth, emotional insecurity, internalizing symptoms, externalizing behavior, maternal warmth

Although the precise mechanisms of influence remain unclear, prior research has firmly established the role of warmth as supporting favorable early adolescent adjustment (Rakow et al., 2009; Scaramella, Conger, & Simons, 1999). Maternal warmth is identified as a critically important contribution to development (Parmar & Rohner, 2005). Warmth includes behaviors such as acceptance, demonstration of affection and love, interest in children's activities and friends, involvement in children's lives and activities, and enthusiasm for children's endeavors and accomplishments (Amato, 1990; Rohner, 2004). In contrast, the lack of warmth, characterized by low nurturance, negative affective behavior, and rejection, has been linked to internalizing and externalizing problems (Campo & Rohner, 1992; Conger et al., 2002; Pffiffer, McBurnett, Rathouz, & Judice, 2005), norm-breaking and depressive behavior (Kakihara, Tilton-Weaver, Kerr, & Stattin, 2010), and psychological distress (Gillespie, Zhu, Neale, Heath, & Martin, 2003).

Emotional Security Theory

A promising explanation of the salutary effects of maternal warmth derives from Emotional Security Theory by Davies and Cummings (1994), which identifies emotional security as a key mediator in interpersonal relationships. Emotional insecurity is a state of general unease triggered by situations or events that lead to feelings of vulnerability or threat (Cummings & Davies, 1995; Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006). The theory proposes that children and adolescents appraise relationships in terms of security or insecurity. In the presence of insecurity, two processes occur: (a) emotions and behaviors become activated in response to the situation and (b) internal mental representations form about the causes and consequences of the threat. The responses and mental representations of emotional security function as a regulatory system in maintaining predictability and homeostasis. Although these regulatory processes can be adaptive in the short term, when triggered continuously, they deplete the adolescent's resources needed for other interactions and relationships. Frequently triggered insecure reactions and mental representations increase the risk for internalizing and externalizing adjustment problems (Cummings & Davies, 1995). Because of this compromised functioning, Davies and Cummings

(1994) hypothesized that “emotional insecurity . . . promotes less effective coping and greater emotional and behavioral dysregulation” (p. 389).

To date, research based upon the Emotional Security Theory (Cummings & Davies, 1995) has focused on the interparental marital relationship. Prior studies have documented associations between interparental marital conflict and adolescents’ emotional insecurity (Cummings & Davies, 1995; Davies & Cummings, 1994, 1998; Davies & Forman, 2002) and between interparental marital conflict and youth problems (Cummings & Davies, 1995; Schacht, Cummings, & Davies, 2009). Despite this singular focus, Cummings and Davies (1996) have proposed that the interparental relationship is only one source of security or insecurity. In addition, they have identified the parent-child relationship itself as a source of security or threat.

Applied to the parent-child context, the model suggests that maternal warmth helps adolescents to feel secure, while coldness and lack of support from parents when an adolescent is in distress leads to insecurity and generates strong emotions and behavioral reactions (Davies & Cummings, 1994). Confirming this model of relations, Sturge-Apple, Davies, Winter, Cummings, and Schermerhorn (2008) found that parental warmth and availability were related to security ratings of children’s responses to three story stems. Also, parental rejection and negativity has shown links to children’s experience of fear (Buss & Kiel, 2011), distress (Nelson & Coyne, 2009), and sadness and anger (Atzaba-Poria & Pike, 2008). These emotions may result in behaviors such as over-vigilance for rejection, excessive demands for attention, or avoidance of interaction with parents (Alegre & Benson, 2011).

Maternal warmth also helps adolescents to develop internal positive mental representations of the relationship with their parents, while coldness leads to adolescents’ negative mental representations. Providing support for this theory, adolescents experiencing parental warmth develop a sense of availability of others when needed (Mikulincer, Shaver, & Pereg, 2003) and worthiness of the self for such care and love (Park, Crocker, & Mickelson, 2004). In contrast, when exposed to parental coldness, early adolescents show patterns of self-hatred and self-criticism (Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006; Thompson & Zuroff, 1999). When such insecure mental representations transfer to other relationships, they also influence the adolescent’s ability to adapt to developmental challenges (Cummings, Schermerhorn, Keller, & Davies, 2008; Pielage, Gerlsma, & Schaap, 2000).

Insecure reactions render adolescents less able to regulate emotional and behavioral responses, while insecure representations influence subsequent perceptions of danger or concern about maternal coldness. Together, they lead to increased vulnerability to internalizing or externalizing problems (Cummings & Davies, 1995; Davies & Cummings, 1994). Therefore, according to this

theory, emotional insecurity mediates the relationship between maternal warmth and adolescents' internalizing and externalizing adjustment problems.

Two studies provide indirect support for this contention. In a study of fathers, parenting predicted emotional insecurity and internalizing and externalizing among 8- and 9-year-old children (Schacht et al., 2009). Although specific mediational tests were not conducted in the research, positive parenting was related to emotional security (.18), which in turn was related to both children's externalizing problems and internalizing problems (.16, .23). The current study adds two features that might be expected to yield higher effects sizes. First, the prior research assessed emotional security as a function of the parent's marital context. The current study, however, examines a more proximal context, the parent-child relationship itself. Second, the prior study sampled fathers only, but the current study examines mothers.

In a second study, Alegre and Benson (2011) studied 329 college students who answered questionnaires about their parents' warmth, their personal feelings of insecurity, and their own internalizing and externalizing problems. They found that perceived parental warmth related to late adolescents' emotional security, internalizing symptoms, and externalizing behavior. Moreover, using regression mediation testing (Baron & Kenny, 1986), they found evidence of emotional insecurity mediating between parental warmth and late adolescents' internalizing and externalizing problems. The current study improves on the research through the sample, method, and analysis. Instead of the retrospective reports from college students, the current study samples early adolescents. Regarding the method, the current sample uses multiple informants in measuring family relations and adolescent problems. Third, the current study uses structural equation modeling (SEM) to test for mediation, providing a robust analytical approach. These additional features that improve upon prior studies are designed to investigate a potential path in explaining the link between maternal warmth and adolescent problems including internalizing symptoms and externalizing behaviors.

The question that this study intends to answer is what is the process that connects maternal warmth to early adolescents' internalizing and externalizing problems? We propose that emotional insecurity mediates the relationship between maternal warmth and adolescent internalizing and externalizing problems.

Method

Participants and Procedures

Participants were from four different schools in a city in Spain. A total of 203 early adolescents and 203 mothers participated. In addition, all adolescents'

homeroom teachers participated as well. Adolescent ages ranged from 10 to 13 years, with a mean of 11.3 years of age. Adolescent participants were 49.2% male and 50.8% female. Mothers were primarily of Spanish nationality (84.9%), with the rest being of South and Central American (10.9%), European (0.8%), or African origin (3.4%). Families were of the following socioeconomic status: 10.2% high, 81.4% medium, and 8.5% low.

Adolescents responded to questionnaires about their parents, their own emotional security, and their internalizing and externalizing adjustment problems. Mothers provided information about their child rearing behaviors and the internalizing and externalizing adjustment problems of their adolescent. Teachers provided information about their students' internalizing and externalizing problems.

Measures

Maternal warmth. To measure maternal warmth, mothers and preadolescents answered the Spanish version of the Warmth/Affection subscale of the maternal Acceptance/Rejection Questionnaire (PARQ; Rohner, 1990). This subscale assesses parent-child relationships with regard to support, closeness, care, love, and affection. It includes 20 items with response choices that included *almost never true* (1) *rarely true* (2), *sometimes true* (3), *almost always true* (4). Examples of items are "My parents say nice things about me" or "My parents talk to me about our plans and listen to what I have to say." The reliability reported for the original sample was $\alpha = .95$ (Rohner, 1990). Prior research documents concurrent validity with high correlations observed between the PARQ and the acceptance subscale of the Child's Report of Parent Behavior Inventory (Schaefer, 1965), $r = .90, p < .001$. The Spanish version of the questionnaire has been validated in prior research (García & Gracia, 2009; Lila & Gracia, 2005; Lila, García, & Gracia, 2007). In the current study, reliability assessed with Cronbach's alpha was .82 for children's responses and .78 for mothers' responses.

Warmth has been conceptualized as a relational process influenced by interactions and perceptions (Rohner, Khaleque, & Cournoyer, 2005). In the current study, factor analysis of the full set of mother and youth items revealed only one factor, i.e., eigenvalue > 1 . Items with factor loading above .30 were selected, resulting in one scale with 31 items, 19 items from the adolescents' report and 12 items from the mothers' report. The observed Cronbach's alpha, $\alpha = .87$, further confirmed the internal consistency across items on this first factor. According to multi-informant factor theory (Kraemer et al., 2003), the first factor to emerge in multi-informant item analyses is the underlying trait (T), which is "largely free of effects of place or informant and less affected by error than single informant scores",

(p. 1571). Thus, this first common factor across mother and youth items reflected a unitary warmth construct that was used in this study. Prior research has followed the approach of using the first factor across respondents as an indicator of the underlying construct (De Pauw et al., 2009; Manders, Scholte, Janssens, & De Bruyn, 2006).

Emotional insecurity. To measure emotional insecurity, adolescents completed the Security in the Parent-Child Subsystem measure (SPCS; Alegre & Benson, 2011). This questionnaire is an adaptation of the Security in the Interparental Subsystem questionnaire (SIS; Davies, Forman, Rasi, & Stevens, 2002). The SIS measures the insecurity that children and adolescents feel when they observe conflict in the *marital relationship of the parents*. The SPCS parallels this earlier questionnaire and focuses on the *parent-child relationship* itself as a source of security or insecurity. It measures the insecurity that children and adolescents feel when their parents are not available to their needs, do not express warmth, or when they use negative control techniques. The scale consists of items with response choices that range from *almost never true in my case* (1) to *often true in my case* (4).

In their study Alegre and Benson (2011) identified two scales. The first scale, *insecure reactions*, included 17 items that measured the emotional and behavioral reactions of insecurity from adolescents in response to parental unavailability and negative control. Reactions involve emotional arousal, temporally losing control of emotions, and overregulation of exposure to a threatening situation. All items in this scale are preceded by a prompt that asks adolescents about the times when parents have been unavailable to their requests for attention or support, or they have used negative control behaviors. Examples of the items in this scale are “After the incident (of unavailability or negative control), I still can’t seem to shake off my bad feelings” and “After the incident, I try to get away from my parents.” The second scale, *insecure representations*, included 19 items that assessed the mental representations of insecurity in response to parental unavailability and negative control. Examples of the items in this scale are “After the incident, I still think they are going to be looking for other reasons to punish me,” and “I know, I will never get them to listen to me.”

In prior research with an English-speaking sample, the scale has shown sound reliability for both the emotional/behavioral insecure reactions scale, $\alpha = .90$, and for the insecure mental representation scale, $\alpha = .93$ (Alegre & Benson, 2011). In the same study, validity of the scale was supported by evidence of negative associations with maternal warmth and availability and positive associations with harsh parenting, internalizing problems, and externalizing problems.

In this study, with a Spanish sample, analysis of scree-plots and eigenvalues confirmed the two-factor solution. The *insecure reactions* scale showed a reliability of $\alpha = .86$. The *insecure representations* scale showed a reliability of $\alpha = .91$. To assure the accuracy of the Spanish version of the questionnaire, a procedure of translation to Spanish and back translation to English was used.

Internalizing and externalizing problems. To measure the early adolescents' internalizing problems, we used the anxious/depressed and withdrawn subscales from the Spanish versions of the Achenbach battery (1991). The battery includes the Youth Self-Report (YSR), the Child Behavior Checklist (CBCL), and the Teacher Report Form (TRF). The three questionnaires are parallel with nearly identical items. For example, the item "I refused to talk" in the adolescent questionnaire, changes to "My son/daughter refuses to talk" in the mother questionnaire, and to "This student refuses to talk" in the teacher questionnaire. To measure the adolescents' externalizing problems, we used the aggressive and delinquent behavior subscales from the same three measures.

In this study, the anxious/depressed and withdrawn subscales were used to construct a measure of internalizing symptoms. The reliability of the internalizing scale was $\alpha = .82$ for the adolescents' responses, $\alpha = .81$ for the mothers' responses, and $\alpha = .81$ for the teachers' responses. Examples of items in this scale are "I (or my child, or the student) would rather be alone than with others" and "I (or my child, or the student) am (or is) unhappy, sad, or depressed." The delinquent and aggressive subscales were used to construct a measure of externalizing behaviors. The reliability of this scale was $\alpha = .85$ for adolescents' responses, $\alpha = .85$ for mothers' responses, and $\alpha = .91$ for teachers' responses. Examples of items in this scale from the mother are "My child steals from our house" or from the teacher "This student doesn't feel guilty after doing something he/she shouldn't." The Spanish version of the questionnaire has been validated in previous studies (de Paúl & Arruabarrena, 1995; Lila et al., 2007).

Missing Data

Missing data were less than 5% of data. We conducted the Missing Completely at Random Test (R. J. A. Little, 1988), which evidenced that the data were missing completely at random, $\chi^2(17, 163) = 14230, p = 1.0$. To complete the database, the expectation-maximization algorithm was used (Huang, Kothamasu, & Rapur, 2007). This type of data imputation is considered to be more accurate than other more commonly used imputation methods such as regression, item-mean substitution, and listwise deletion (Bernaards & Sijtsma, 1999).

Multiple Informants and the SEM Model

Prior research has emphasized multiple-informant methods to enhance validity and reduce single-informant bias (Granero, Ezpeleta, Domenech, & de la Osa, 2008; Tackett, Waldman, & Lahey, 2009). In family research, however, low levels of informant agreement commonly occur (de los Reyes & Kazdin, 2005), requiring researchers to evaluate the informant perspective. In the current study, we evaluated the informant perspective and scores using a three-step procedure for each construct measured by multiple informants: externalizing, internalizing, and warmth.

Step 1: If correlations across informant ratings met the medium effect size threshold, $r \geq .30$ (Cohen, 1992), then informant scores indicated the latent variable. Informant scores for externalizing problems met this test. Teachers' and mothers' scores ($r = .30$) were indicators of the outsider report and the adolescent scores on delinquency and aggression ($r = .52$) were indicators of insider report. Together, the insider and outsider reports ($r = .36$) indicated the latent variable of externalizing problems.

Step 2: If only two informant roles showed agreement, the patterns across informants were examined closely. This pattern occurred for internalizing scores. Parent and youth agreement was high, $r = .44$, but the teacher agreement was nonsignificant, $r = .02, .10$. We reasoned that youth and parents have access to youth internalizing symptoms, but teachers have less access and could underestimate such symptoms. The current data confirmed this reasoning; teacher reports of the frequency of student internalizing symptoms were significantly lower than student or parent reports, $p < .05$. Based on the conceptual reasoning and the empirical findings, we relied on parent and student reports of internalizing symptoms, which is a method that has been used in prior research (Schacht et al., 2009).

Step 3: If inter-correlations among two informants fell below the medium effect size threshold and a single underlying factor was present, parceling was used. Parceling is an effective statistical technique for aggregating indicators within a factor (Matsunaga, 2008) due to its psychometric and modeling benefits (Sass & Smith, 2006). The warmth scale met both conditions to justify parceling. The youth-mother correlation for warmth was below $.30$, and subsequent factor analysis revealed the presence of a single unitary factor across mothers and youth. Following the recommended procedures (T. D. Little, Cunningham, Shahar, & Widaman, 2002), the warmth was indicated by five randomly determined parcels of items loading on this unitary, latent factor.

Table 1. Means and Standard Deviations for Primary Study Variables ($N = 203$).

Variables	<i>M</i>	<i>SD</i>	Range
Maternal warmth-Adolescent report	71.80	6.19	46-80
Maternal warmth-Mother report	74.60	4.42	60-80
Insecure reactions-Adolescent report	31.21	9.32	18-64
Insecure representations-Adolescent report	28.31	9.40	19-76
Internalizing-Adolescent report	28.21	5.75	20-47
Internalizing-Mother report	29.22	5.61	19-49
Internalizing-Teacher report	33.29	5.36	27-55
Externalizing-Adolescent report	38.50	6.65	29-73
Externalizing-Mother report	31.80	5.71	21-56
Externalizing-Teacher report	30.61	6.04	27-67

Table 2. Correlation Coefficients for Study Variables ($N = 203$).

Independent variables	1	2	3	4	5	6	7	8	9
2. Warmth ^a	.29								
3. Insecure reactions ^b	-.21	-.18							
4. Insecure representations ^b	-.40	-.19	.62						
5. Internalizing ^b	-.20	-.08	.47	.44					
6. Internalizing ^a	-.05	-.01	.08	.15	.39				
7. Internalizing ^c	.11	.02	.02	.05	.02	.10			
8. Externalizing ^b	-.39	-.03	.35	.48	.33	.12	.00		
9. Externalizing ^a	-.12	-.03	.20	.29	.22	.51	.02	.47	
10. Externalizing ^c	-.06	-.09	.02	.08	-.08	.02	.31	.23	.30

Note. 1 = warmth, adolescent report. Thresholds for correlation coefficient significance are .14, $p < .05$, and .19, $p < .01$.

^aMother report.

^bAdolescent report.

^cTeacher report.

Results

Means and standard deviations for the raw scores of the study variables are shown in Table 1. Correlations for the multi-informant, multi-item measures are shown in Table 2. All correlation coefficients were in the expected directions for all variables. A moderately high correlation was observed between the two insecurity measures, mental representations and insecure reactions, $r = .62$, $p < .001$. Mothers' internalizing and externalizing problems scores

were related, $r = .51, p < .001$, suggesting potential correlated errors for mother ratings. Although adolescent and mother reports of internalizing symptoms were significantly related, $r = .39, p < .001$, the teacher reports of internalizing symptoms were not significantly related to adolescent or mother reports. These findings informed the subsequent model design. The core analyses testing the study hypotheses were conducted using AMOS 16.0 (Arbuckle, 2007).

Mediation Analysis

The model created using the three steps explained in the method section was submitted to SEM analytical procedures (Jöreskog, 1993). Complete factor loadings of the structural paths can be seen in Table 3. Inspection of the modification indices revealed improved fit by relaxing two equality constraints. The improved model freed the mother parameters for the residual terms of internalizing symptoms and externalizing behaviors and the error terms of withdrawal and delinquency. The correlated errors are consistent with maternal monitoring research, which has shown that maternal knowledge of externalizing behavior shares the common underlying influence of adolescent disclosure (Stattin & Kerr, 2000). The resulting model showed good fit, $\chi^2(113) = 187.261$, root mean square error of approximation (RMSEA) = .056, comparative fit index (CFI) = .95, and Tucker-Lewis index (TLI) = .93, in meeting or exceeding standard thresholds for SEM interpretation (Arbuckle & Wothke, 1999; Browne & Cudeck, 1993; Hu & Bentler, 1999).

To test mediation, we followed the three steps recommended by Holmbeck (1997) for examining relationships among latent variables that include predictor (A), mediator (B), and outcome (C). Step 1 examines the direct effect between the predictor and the outcome, $A \rightarrow C$. Step 2 assesses the fit for both the $A \rightarrow B$ and $B \rightarrow C$ component paths. In Step 3, the overall mediation model, $A \rightarrow B \rightarrow C$, is tested. If all the above paths are significant and model fits are adequate, then the mediation model with the $A \rightarrow C$ path constrained to zero is compared to the model with that path freed. If the fit for the freed model is not significantly different from the zero path model and the above conditions are met, then mediation is inferred.

The findings from this study confirmed the central hypothesis. Emotional security mediated between maternal warmth and adolescent problems, as evidenced by the analysis steps and the threshold criteria for testing mediation (Holmbeck, 1997). Table 4 shows the model fits for each step. As expected, Step 1 showed a good model fit between the predictor and the outcomes. Maternal warmth was related to their adolescents' less frequent internalizing

Table 3. Unstandardized and Standardized Coefficients for Full Mediation Model in SEM Analysis ($N = 203$).

Parameter estimate	Unstandardized	Standardized	p
Measurement model			
Maternal warmth $\rightarrow P_1$	1.00	.84	NA
Maternal warmth $\rightarrow P_2$	1.03 (.08)	.77	.00
Maternal warmth $\rightarrow P_3$	1.01 (.08)	.78	.00
Maternal warmth $\rightarrow P_4$	0.90 (.07)	.78	.00
Maternal warmth $\rightarrow P_5$	0.96 (.08)	.74	.00
Emotional insecurity \rightarrow Representations	1.26 (.14)	.89	.00
Emotional insecurity \rightarrow Reactions	1.00	.71	NA
Internalizing \rightarrow Youth internalizing R	1.00	.88	NA
Internalizing \rightarrow Mother internalizing R	0.86 (.17)	.51	.00
Youth internalizing R. \rightarrow Youth anxiety R	1.23 (.15)	.75	.00
Youth internalizing R. \rightarrow Youth withdrawal R	1.00	.83	NA
Mother internalizing R. \rightarrow Mother anxiety R	1.00	.86	NA
Mother internalizing R. \rightarrow Mother withdrawal R	0.38 (.07)	.55	.00
Externalizing \rightarrow Youth externalizing R	1.00	.80	NA
Externalizing \rightarrow Outsider externalizing R	2.11 (.40)	.75	.00
Youth externalizing R. \rightarrow Youth aggression R	2.66 (.35)	.82	.00
Youth externalizing R. \rightarrow Youth delinquent R	1.00	.70	.00
Outsider externalizing R. \rightarrow Mother externalizing R	1.00	.91	.00
Outsider externalizing R. \rightarrow Teacher externalizing R	0.11 (.04)	.33	.07
Mother externalizing R. \rightarrow Mother aggression R	1.00	.97	.00
Mother externalizing R. \rightarrow Mother delinquent R	0.24 (.04)	.47	.00
Teacher externalizing R. \rightarrow Teacher aggression R	1.00	.97	.00
Teacher externalizing R. \rightarrow Teacher delinquent R	3.39 (.25)	.71	.00

Note. SEM = structural equation modeling; R = report; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation. Standard errors in parentheses. $\chi^2(113) = 187.261, p < .01$; TLI = .93; CFI = .95; RMSEA = .06.

symptoms and externalizing symptoms, $\beta = -.30, \beta = -.28$. In Step 2a, a good fit between the predictor and mediator was found as shown in the statistics in Table 4. Maternal warmth predicted emotional insecurity, $\beta = -.44$ (see Figure 1). For Step 2b, the modification indices suggested an improved fit by correlating errors between adolescent reports of aggression and depression, which has previously evidenced comorbidity (Fuller, 1992; McCloskey & Lichter, 2003). As seen in Table 4, the resulting model showed a good fit to the data. Emotional insecurity was related robustly to internalizing symptoms and externalizing behavior, $\beta = .63, \beta = .60$ (see Figure 1). Also, consistent with the Step 3 criterion, the statistics in Table 4 show a good model fit for the remaining, full mediation model, $A \rightarrow B \rightarrow C$.

Table 4. SEM Mediation Analyses (N = 203).

Model	χ^2	df	χ^2/df	TLI	CFI	RMSEA
Step 1 warmth → Internalizing/externalizing	150.331	85	1.77	.929	.942	.061
Step 2a warmth → insecurity	22.506	14	1.61	.980	.987	.054
Step 2b insecurity → Internalizing/externalizing	93.506	47	1.99	.917	.941	.069
Step 3a warmth → Insecurity → Inter/externalizing	187.261	113	1.66	.934	.945	.056
Step 3b warmth → Insecurity → Inter/externalizing	187.121	111	1.69	.931	.943	.058

Note. SEM = structural equation modeling; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation. In Step 3a, the paths between warmth and the two problems (internalizing symptoms and externalizing behaviors) were constrained to zero. When these paths were freed in 3b, the chi-square difference test showed no significant change in fit, $\chi^2 \text{ diff.}(2) = .14, p = .93$ (ns).

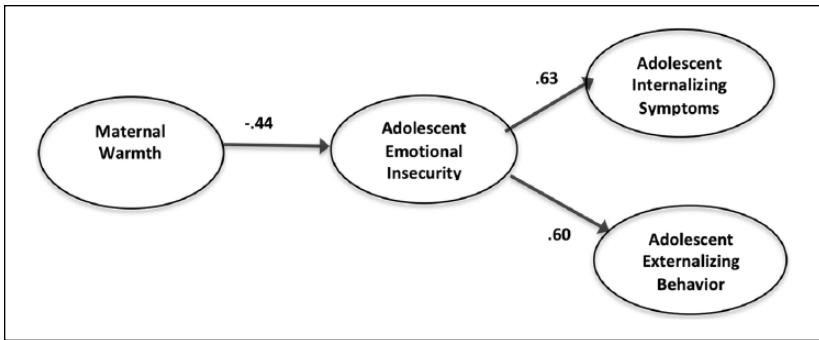


Figure 1. Specification of the mediational findings.

Note. The model graphically represents the confirmation of the mediational hypothesis of the Emotional Security Theory (Davies & Cummings, 1994) as it applies to the parent-child relationship context. Ellipses represent latent variables from the structural equation modeling analysis (see Table 3 for factor loadings). Standardized parameter estimates for the structural paths are included.

In the final comparison, the freed A → C path model was not significantly different from the zero model as detailed in the Table 4 note. The sharp reduction in the magnitudes of coefficients between maternal warmth and adolescent problems further illustrates the robust mediation process. With mediation introduced, the structural path from maternal warmth to internalizing

symptoms reduced from $-.30$ to $-.01$. Similarly, the structural path from maternal warmth to externalizing symptoms fell from $.28$ to $-.03$. In summary, the test results provided evidence that emotional insecurity mediates the relationship between maternal warmth and early adolescent internalizing and externalizing problems.

Multi-group analysis tests of the full mediation model were conducted for the three background variables of gender, socioeconomic status (SES; high/low), and nationality (Spanish/other). For each background variable, model fitting was compared with the structural paths freed vs. constrained to equality. The results showed no significant differences due to gender, SES, or nationality, $\chi^2 \text{ diff.}(3) = 5.36, p = .15 (ns)$, $\chi^2 \text{ diff.}(3) = 7.60, p = .06 (ns)$, and $\chi^2 \text{ diff.}(3) = .66, p = .88 (ns)$, respectively. The findings suggest that emotional insecurity functions similarly as a mediator for both female and male adolescents, across low- and high-income families, and across Spanish or foreign nationality.

Discussion

The current study tests a central hypothesized question of Emotional Security Theory (Davies & Cummings, 1994): does emotional security mediate between maternal warmth and adolescent problems? Overall, the study findings confirm emotional security as a mediator of the link between maternal warmth and adolescent problems. Support for the mediating role of emotional security holds for both internalizing symptoms and externalizing behaviors. In the following sections, we examine the construct linkages that comprise these mediational findings. We then consider the findings within respect to three key contexts: parent-child relationships, developmental status, and intervention approaches. The discussion closes with an analysis of study limitations and a summary of study contributions.

Maternal Warmth and Adolescent Emotional Security

The first hypothesized link between maternal warmth and adolescent emotional security was confirmed. In addition to marital conflict as a source of emotional insecurity (Cummings & Davies, 1995; Cummings et al., 2006; Davies & Cummings, 1994, 1998), the current study shows that the parent-child relationship itself also relates to emotional insecurity. In related prior research, overall father parenting has been shown to relate to adolescent emotional security (Schacht et al., 2009). The current study adds specificity in identifying one parenting dimension, warmth, as key for adolescent emotional security.

According to Emotional Security Theory, experiences in the family influence the child's mental representations of safety, stability, and predictability (Davies & Cummings, 1994). By extension, maternal warmth experiences provide a foundation for adolescents' secure mental representations. Warm family experiences also limit the need for over-activated emotional and behavioral reactions. As shown in prior research, mother warmth is associated with less emotional dysregulation by their adolescents (Walton & Flouri, 2010). Overall, the findings highlight maternal warmth as a climate that advances secure mental representations and limits negative emotional/behavioral reactions.

Adolescent Emotional Security With Internalizing and Externalizing Problems

The findings also confirm the link between emotional insecurity and adolescent internalizing symptoms. Our findings drawn from SEM confirm prior regression research, which shows that both parenting and security relate to less psychological problems (Scott, Briskman, & Woolgar, 2011). Following the theoretical tenets (Cummings & Davies, 1995; Davies & Cummings, 1994), the findings here suggest that emotional insecurity influences subjective feeling states and cognitive appraisals, which have implications for adolescent internalizing.

In a parallel fashion, the findings confirm the link between emotional insecurity and adolescent externalizing behaviors. Theoretically, insecurity prompts emotional and behavioral reactions in service of recovering security (Harold, Shelton, Goeke-Morey, & Cummings, 2004). Secure or insecure reactions require cognitive resources to prevent externalizing behaviors. Lacking such capacities, patients with injury at emotion control locations in the brain show multiple externalizing behaviors (Santos, Caeiro, Ferro, Albuquerque, & Figueira, 2006). Even with capacities for stifling externalizing behaviors, however, the cumulative demands of continual or prolonged operation of the emotional security system requires considerable expenditure of psychobiological resources (Cummings, George, McCoy, & Davies, 2012). Adolescents who are depleted of their cognitive and emotional resources are at an increased risk of delinquent or aggressive behaviors.

Mediational Role of Emotional Insecurity

In addition to the findings explained above about specific links, the formal mediation tests in the current study confirmed a pivotal role of emotional

security. As found here, maternal warmth links to adolescent emotional security, which in turn relates to less internalizing symptoms and less externalizing behaviors. The SEM and the use of multiple informants expand confidence in the findings, and the observed magnitudes of association suggest robust mediational process.

The explanation of the mediational process in this study begins with maternal warmth. As shown here, maternal warmth links to positive mental representations. Positive representations promote appraisals that foster hopefulness and undermine helplessness (Seligman, 1996). Warmth also relates to favorable emotional and behavioral reactions. Positive mental representations and learned regulation of emotions militate against internalizing symptoms. Internalizing problems can be understood as mental overreactions to situations due to overly pessimistic appraisals of threat, self-blame, and coping ability (Gerard, Buehler, Franck, & Anderson, 2005). The findings here show that emotional security relates to less internalizing symptoms. In contrast, insecure representations of negative experiences serve as maladaptive guides that result in parallel failures in different relationships or settings (Harold et al., 2004), which confirm self-defeating, internalizing thoughts.

The findings also show that emotional insecurity relates to externalizing behaviors. Negative mental representations and emotional reactions predispose youth to interpersonal difficulties. As shown in prior research, children who have negative representations of their peers tend to behave more aggressively (Bengtsson & Persson, 2007). Resources devoted to addressing emotional insecurity further divert energies for limiting externalizing behaviors.

Parent-Child

The current study extends the testing of Emotional Security Theory by examining mental representations and emotional reactions in the context of parent-child dyads rather than the interparental relationship. Prior research using the theory has focused almost exclusively on children's insecure representations and reactions in the context of the marital or interparental conflict (Davies & Cummings, 1998; Davies, Cummings, & Winter, 2004; Davies, Harold, Goeke-Morey, & Cummings, 2002; Forman & Davies, 2003). However, according to the theory, the assessment of emotional security is context specific, and sources of insecurity draw from different relationship contexts. In examining the parent-child dyad, the current study tests the generalization of mediational findings from marital conflict studies in testing hypothesis regarding parent-child conflict itself.

Developmental Context

In addition to theory and practice implications, the study findings contribute to understanding early adolescence, which involves dramatic biological, cognitive, and socialization change. In families, early adolescents develop autonomy from parents, yet rely on connectedness to them (Lieberman, Doyle, & Markiewicz, 1999). Early adolescents also tend to engage in more externalizing problems compared to earlier or later stages (Achenbach & Rescorla, 2001), and their internalizing problems may remain undetected (Horwitz, Leal, Leventhal, Forsyth, & Speechley, 1992). The current study findings suggest that early adolescent emotional security about their relationships with parents have bearing on these developmentally critical processes of internalizing and externalizing problems. Mental representations and emotional reactions represent a key mediator in the developmental processes of the expanding social environment of early adolescence.

Implications for Intervention

The current study findings imply strategies for prevention and intervention. Because problems with internalizing symptoms and externalizing behavior are not uncommon during adolescence (Achenbach, 1991; Lila et al., 2007), prevention remains an important societal goal. The links in this study between maternal warmth and lower internalizing symptoms and externalizing behaviors substantiate the need for including listening, encouragement, and communication in public health campaigns to educate parents about adolescence (Steinberg, 2001). The findings also suggest intervention approaches even when warmth is absent. Cognitive approaches can interrupt developmental problems by realistically evaluating parental warmth and redefining relationships with other adults and peers. Simulations that rework negative emotional and behavioral reactions in the family of origin and other relationships also have potential for limiting subsequent problems.

Limitations

Such practice implications and the current findings are best understood in the context of several study limitations. First, the cross-sectional design offers only a snapshot of these ongoing processes in families. Conceivably an outcome in this study, adolescent externalizing could elicit parent frustration or anger. And anger could lead to less parental warmth, as found in previous research (Schuetze, Eiden, & Dombkowski, 2006). Future research

that includes longitudinal assessment of parental emotional responses to adolescent problems could provide a broader portrait of the transaction patterns in families. Second, the sample is drawn from a Spanish population and results require additional confirmation with other populations. However, while problem expression may be influenced by cultural contexts, parental warmth functions similarly across international samples (Gonzales et al., 2011; Pfiffner et al., 2005). Therefore, the findings provide a valuable benchmark for designing and interpreting studies in other cultural contexts. Third, in comparison to this community sample, clinical samples would be expected to yield a wider range of externalizing and internalizing problems. In prior comparisons with community samples, clinical populations have shown this wider range and a greater variability in problems (Leiner, Rescorla, Medina, Blanc, & Ortiz, 2010). In addition to greater variation, clinical samples may be more sensitive to family conditions. Prior research has shown, for example, that parental warmth had a particularly strong influence for adolescents whose mothers were clinically depressed (Brennan, Le Brocque, & Hammen, 2003). Fourth, the multi-informant variables are based on adolescent, teacher, and mother reports. Other collateral reports from fathers, siblings, or peers could provide additional lenses in assessing and interpreting parent warmth, internalizing symptoms, and externalizing behaviors.

Overall, the study findings extend support for the propositions of Emotional Security Theory and provide guidance for intervention. The findings demonstrate the linkage of maternal warmth with emotional security processes involving positive mental schema and adaptive reactions (Davies & Cummings, 1994). This confirmation of the theoretical linkage within a parent-adolescent dyad extends the emotional insecurity hypothesis, which previously had largely focused on the effects of marital conflict as a primary source of insecurity (Cummings & Davies, 1995; Davies et al., 2002). Interventions to reduce insecurity either by enhancing warmth in families or by helping adolescents to recognize the sources of insecurity hold potential for adolescents, families, communities, and the broader society.

Authors' Note

Any underlying research materials related to this article (for example data, samples, or models) can be accessed by contacting the main author.

Declaration of Conflicting Interests

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