

Is maternal depression related to mother and adolescent reports of family functioning?

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Is maternal depression related to mother and adolescent reports of family functioning?

Depression is a mental illness with a high international prevalence (Marcus, Yasamy, Ommeren, Chisholm, & Saxena, 2012). In Chile, 25.7% of women reported depressive symptoms in a national health survey (MINSAL, 2009–2010). This percentage was 27.9% in the 25–45 age group and 30.1% in the 45–64 age group. It is likely that women belonging to these age groups are mothers of adolescent children.

De los Reyes and Kazdin (2005) have shown that depressed mothers have a negative bias in the perception of their children's emotional status and behavior, overestimating their adjustment problems. Similarly, Goodman (2007) suggested that depressed mothers have a negative vision of themselves in their maternal role. In line with these findings, the "Depression-distortion" hypothesis (DDH) states that depressed mothers overestimate their children's symptomatology (see Richters, 1992 for a review). However, it has been claimed that the DDH lacks empirical support owing to methodological deficiencies in the studies that have been developed to prove it (see Richter, 1992). Richters (1992) suggested that there is an association between maternal depression and mental health problems in children, rather than a distorted perception held by mothers about their children's mental health. In line with this suggestion, a meta-analysis (Goodman, Rouse, Connell, Broth, Hall, & Heyward, 2011) indicated that maternal depression is associated with higher levels of internalization, externalization, and general psychopathology in children and adolescents, although to a small magnitude.

Family functioning has been highlighted as a plausible mediating mechanism in the relationship between maternal depression and maladjustment in children and adolescents (Goodman, 2007; Van Loom, Van de Ven, Doesum, Witteman, & Hosman, 2014; Yeh, Huang, &

Liu, 2016). However, it is necessary to further our understanding of the influence of maternal depression on family functioning by considering multiple informants.

The aim of this study was to explore the relationship between maternal depressive symptoms and family-functioning perceptions based on adolescent and adult points of view, considering the agreement between them.

Depression

Depression is characterized by a depressed mood or a loss of interest/pleasure in daily activities for more than two weeks; this mood represents a change from the person's normal functioning and is accompanied by an impairment in functioning in social, occupational, or educational settings.

Depression is a highly prevalent disorder and a significant contributor to the global burden of disease (Marcus et al., 2012; Whiteford, Ferrari, Degenhardt, Feigin, & Vos, 2015). Today, depression is estimated to affect more than 350 million people in communities all across the world (Marcus et al., 2012). In the World Mental Health Survey (WMHS) carried out in 18 countries, the 12-month prevalence estimates for major depressive episode varied from 2.2% in Japan to 8.3% in the US and 10.4% in Brazil (Bromet et al., 2011). Additionally, the prevalence rates ranged from 3.0% to 5.9% in European countries (Italy, Spain, Germany, Netherlands, Belgium, and France) and from 4.0% to 10.4% in Latin American countries (México, Colombia, and Brazil) (Bromet et al., 2011).

Andrade and colleagues (2003) conducted a face-to-face assessment of depression with the World Health Organization Composite International Diagnostic Interview in 10 countries in North America (Canada and the US), Latin America (Brazil, Chile, and Mexico), Europe (Czech Republic, Germany, the Netherlands, and Turkey), and Asia (Japan). Lifetime prevalence varied from 3% in Japan to 16.9% in the US, with the majority of the countries in the range of 8% to 12%.

In Chile, lifetime prevalence was 9.0%. The 12-month prevalence varied from 1.2% in Japan to 10% in the US. In Chile, the rate was 5.6%.

In a Chilean nationally representative sample, 18.4% of adults had depression in the last 12 months. This is an unusually high prevalence of depression compared to the other countries in the region. Female gender, younger age, and lower education were associated with higher risk for depression in Chile (Markkula, Zitko, Peña, Margozzini, & Retamal, 2017).

Depression is not only common, but it often starts at a young age, thereby reducing people's functioning. It has been estimated that nearly 1 in 10 adolescents (8.2%) has had a major depressive disorder during the last year (Kessler et al., 2012). This prevalence increases in lower and middle-income countries (Alyahri, & Goodman, 2008; Ruchkin, Sukhodolsky, Vermeiren, Kuposov, & Schwas-Stone, 2006). Also, depression is often a recurring condition (Klerman & Weissman, 1992). For these reasons, depression is the leading cause of disability worldwide, as measured by total years of life lost due to disability (Murray et al., 2013).

Maternal depression and adolescent adjustment

Women of childbearing age are particularly at risk for depression, and many of them experience high levels of social morbidity and depressive symptoms that are often unrecognized and untreated (Marcus & Heringhausen, 2009). Early mother-child interaction problems and inadequate caregiving and safety practices can be some of the consequences of maternal depression, and can have important implications for child development (Field, 2010). Ongoing maternal depression during early childhood can also have a negative influence on the offspring's physical health and social functioning during young adulthood (Raposa, Hammen, Brennan, & Najman, 2014).

Although depression during infancy and childhood is an important problem, depression can also appear during the adolescent stage of offspring (Beardslee, Versage, & Gladstone, 1998). It has

been shown that adolescent offspring of depressed parents have a significantly higher risk for developing depression than adolescent offspring of non-depressed parents (Weissman et al., 2016). In an early study, Beardslee, Keller, Lavori, Klerman, Dorer, and Samuelson (1988) examined families with children between the ages of 6 and 19 years of age. At initial assessment, 30% of the children/adolescents with an affectively ill parent had at least one episode of an affective disorder compared with 2% in the control group. After four years, the affective disorder rates were 26% and 10%, respectively. However, offspring of affectively ill parents had earlier onset, longer episodes, and a greater number of comorbid diagnoses (Beardslee, Keller, Lavori, Staley, & Sacks, 1993). Later, Weitzman, Rosenthal, and Liu (2011) found that in a large dataset of 22,000 children aged 5 to 17 years, maternal mental health problems were related to a 50–350% higher risk of presenting with emotional or behavioral problems than children of parents who reported no mental health issues. Similarly, in a recent study using a retrospective design, Jacobs, Talati, Wickramaratne, and Warner (2015) used data from a multigenerational cohort that was followed for 25 years and found that offspring of depressed parents had higher rates of major depressive disorder and anxiety than offspring of non-depressed parents. Interestingly, maternal depression was associated with lower overall functioning, unlike paternal depression.

Several studies have addressed the mechanism by which parental mental illness influences adolescent mental health. Bouma, Ormel, Verhulst, and Oldehinkel (2008) suggest that parental depression can amplify the negative influence of stressful events on adolescents' emotional wellbeing. The authors argued that adolescents whose parents have had a depressive episode are more sensitive to stress than adolescents whose parents report no mental health problems; thus, when exposed to stressful events, stress-sensitive adolescents are at a higher risk for developing depressive symptoms.

From a complementary perspective, it has been suggested that family functioning and characteristics of the **family environment may contribute** to the association between parental depression and adolescent mental health (Van Loom et al., 2014; Yeh et al., 2016). Maternal depression not only affects individuals; it has a wide impact on family members and can have a negative impact on the family environment if it leads to marital distress, family conflict, loss of income, and child psychopathology (Burke, 2003).

Early studies have demonstrated that, compared to non-depressed mothers, the interactions between depressed mothers and their children were more negative and problematic (Cummings & Davies, 1994; Goodman & Gotlib, 1999; Kaslow, Deering, & Racusin, 1994). Later, Nelson, Hammen, Brennan, and Ulman (2003) found that expressed emotion criticism was an intervening variable between maternal depression and adolescent mental health problems and/or dysfunction, and that both criticism and degree of maternal depression separately predicted child externalizing and internalizing symptoms.

Recent studies have observed that families with a mentally ill parent showed less family cohesion, experienced greater conflict, and did not promote the expression of emotions and opinions (Van Loon et al., 2014). Depressed parents have also been described as providing less monitoring and support to their adolescents, which was associated with externalizing problems (Van Loon et al., 2014). In view of these findings, maternal depression appears as a significant risk factor for impaired family functioning and adolescent emotional wellbeing.

Circumplex model of family functioning

There are different conceptual models that account for family functioning and the quality of mother-child interactions. **In this study, we evaluated cohesion and adaptability according to the Circumplex Model (Olson & Gorrall, 2003).** Family cohesion is understood as “the emotional bonding that couple and family members have towards one another” (Olson & Gorall, 2003, p.

516). Adaptability is conceptualized as “the amount of change in leadership, role relationships, and relationship rules” (Olson & Gorall, 2003, p. 519). These family dimensions are indicative of the degree to which family members adapt and are attached to their family.

The Circumplex Model distinguishes four levels of family cohesion from low to high levels, namely disengaged, separated, connected, and enmeshed. In addition, this model differentiates between four levels of family adaptability: rigid, structured, flexible, and chaotic. The two central levels (separated and connected in the case of cohesion, and structured and flexible in the case of adaptability) are considered the balanced levels of family functioning and the two extreme levels are considered the unbalanced levels (Olson, 2000). This model assumes that intermediate levels of cohesion and adaptability tend to reflect more healthy family functioning, while unbalanced levels of cohesion and adaptability (very low or very high levels) tend to reflect more problematic family functioning (Olson, 2000). **However, studies do not support this curvilinear association between intermediate cohesion, adaptability, and adolescent wellbeing (Green, Harris, Forte, & Robinson, 1991).**

For instance, Cruz, Narciso, Muñoz, Pereira, and Sampaio (2013) reported that low family cohesion increases the likelihood that adolescents will present self-destructive ideas and behaviors. On the other hand, Joh, Kim, Park, and Kim (2013) indicated that adolescents with high adaptability and high cohesion showed low problematic behaviors. Low emotional cohesion, poor parenting practices, and low structure were found to mediate the association between chronic, everyday stressors and internalizing problems in adolescents from urban, high-risk areas, thus suggesting that poor family functioning increases the risk for developing symptoms of depression and anxiety during adolescence (Sheidow, Henry, Tolan, & Strachan, 2013). Similarly, family cohesion, understood as a perceived sense of togetherness and support, was described as preventing binge drinking in late adolescents (Soloski, Kale Monk, & Durtschi, 2016).

Disagreement between parent and adolescent report of family functioning

Early studies have indicated that a relevant issue when measuring family functioning is which family member reports it. For example, in an early study, Alexander, Johnson, and Carter (1984) showed that correlations between reports of different family members about cohesion were generally small. In the case of family adaptability, the correlations were generally non-significant.

Different studies suggest that parents and their children often disagree when reporting on a number of parenting behaviors (De los Reyes & Ohannessian, 2016), including aspects like parental acceptance, support, control, rejection (Gaylord, Kitzmann, & Coleman 2003; Gonzales, Cauce, & Mason, 1996; Korelitz & Garber, 2016; Tein, Roosa, & Michaels, 1994), family functioning (Noller & Callan, 1986; Ohannessian & De Los Reyes, 2014; Ohannessian, Lerner, Lerner, & von Eye, 1995, 2000), and mother-adolescent relationship (Pelton & Forehand, 2001; Pelton et al., 2001).

In general, parents view themselves in a more favorable way than their children view them (De los Reyes & Ohannessian, 2016; Korelitz & Garber, 2016; Ohannessian & De Los Reyes, 2014; Tein et al., 1994). For example, they report being more accepting and/or less controlling than their children report, or perceiving a more cohesive family unit than their adolescent children.

Most of the research on this topic seeks to account for the impact of parent-adolescent divergences (or convergences) on children's or adolescents' psychosocial functioning (De Los Reyes, 2011; De Los Reyes & Ohannessian, 2016; Maurizi, Gershoff, & Aber, 2012). Recently, the impact of parent-adolescent divergences on adult wellbeing has been studied (Ohannessian, Laird, & De Los Reyes, 2016).

Adults' and/or adolescents' characteristics that underlie parent-adolescent discrepancies about family functioning have been less analyzed, with existing studies focusing mostly on socio-demographic variables. Interestingly, some studies indicate that parent-adolescent disagreement on family functioning may depend on adolescents' and parents' characteristics and social conditions.

In line with this argument, Korelitz and Garber (2016) conducted a meta-analysis including 85 studies that focused on the degree of agreement (operationalized as correlations) and discrepancy (measured as mean differences) in parent-child reports of the most widely used parenting behaviors, namely acceptance, psychological control, and behavioral control. Their results showed that child-mother congruence on these family dimensions depended on adolescents' age, family intactness, race, and clinical status. According to the meta-analysis, mother-child convergence over acceptance was larger in older children and in non-clinical samples. When mother-adolescent acceptance differences were estimated, children over 11 years old reported less acceptance than their mothers. Similarly, mother-child convergence over behavioral control was larger in older children and in intact families, with lower convergence on this dimension observed in African American and Hispanic families. Additionally, children belonging to non-intact families reported lower levels of behavioral control than their mothers.

These findings suggest that beyond socio-demographic variables, the presence of mental health problems—both in children and adults—is a relevant variable for parent-adolescent agreement regarding family functioning and parenting practices. However, some studies on this topic are inconsistent. For example, Bonne, Lahat, Kfir, Berry, Katz, and Bachar (2003) found that in a bulimic clinical sample, the perception of family functioning was significantly more derogatory in adolescent patients than in their parents, while in a non-clinical sample the perceptions of adolescents and their parents were largely congruent. In contrast, parental depression has been associated with parent-adolescent discrepancies over different aspects of family functioning, such as parent-adolescent interaction, parental monitoring, and conflict. For instance, Ehrlich, Cassidy, Lejuez, and Daughters (2013) found that as parental depressive symptoms increased, parents reported more negative responses to their adolescents' distress than did their children. Wang and Zhou (2015) reported that mothers' depression was positively correlated with the partner's

discrepancies about family cohesion and adaptability. On the other hand, De Los Reyes, Goodman, Kliewer, and Reid-Quiñones (2008) indicated that as maternal depressive symptoms increased, lower levels of parental knowledge relative to their children were reported.

Finally, Chi and Hinshaw (2002) reported that maternal depressive symptoms were positively associated with maternal reports of negative discipline (i.e., using inconsistent discipline or corporal punishment with their children), but not with mother-child interactions in a laboratory setting (observed by a third person). The authors also indicated that depressive symptoms negatively biased mothers' perceptions of their own parenting behaviors, in comparison with their children's report of maternal disciplinary practices. These results suggest that depressed mothers overestimate their own inadequate behavior.

Previous findings have indicated that, in general, parents view themselves in a more favorable way than their children view them, but this parental overestimation of parenting practices may not be present when mothers are depressed. Yet, there are some studies that do not support this general conclusion when family cohesion and adaptability are considered. For instance, Kaslow, Warner, John, and Brown (1992) found more dysfunction in family adaptability and cohesiveness in families of adolescents characterized as "depressed families" (i.e., an adolescent and one parent diagnosed with depression) than in families whose members had not been given a diagnosis of depression (i.e., non-depressed families). However, there were no significant differences in the levels of agreement between informants from both types of families. The authors concluded that differential reports of family functioning were attributable to variations in perception of functioning rather than to different levels of agreement in reporting across raters in depressed and non-depressed groups.

The present study

The purpose of this study was to evaluate the relationship between maternal depressive symptoms and perceptions of family-functioning, considering both the adolescents' and their mothers' points of view, as well as the agreement between them.

Previous research supports the following: (a) maternal depression is a significant risk factor for impaired family functioning, especially when family cohesion is considered; (b) family members' mental health is a relevant predictor of mother-adolescent concordance of acceptance; and (c) cultural aspects are relevant when considering mother-adolescent concordance of behavioral control. With regard to this last point, Rescorla (2016) highlighted that most of the studies focusing on parent-adolescent discrepancies over family functioning included European-American/Caucasian families, and emphasized the need to develop studies that include families of different cultures.

In line with this need, Chilean families constitute a focus of attention due to the high rates of depression reported, some of the highest in the Region. In Chile, higher rates of depression were found in women of working age, with low education, and low socioeconomic status (Markkula, 2017). Some authors have emphasized the different cultural factors that may affect rates of depression in different cultures and the factors affecting its particular manifestation (Fabrega, 1993). The literature on cross cultural-psychiatry is replete with studies that have addressed differences in the rates of depression across cultures (Carta, Coppo, Reda, Hardoy, & Carpiello, 2001); however, most of these are inconclusive. In view of this, the present study responds to the need highlighted by Rescorla to study parent-adolescent agreement from different cultural perspectives.

Considering the theoretical background of parent-adolescent agreement, the hypotheses of the present study were the following: (a) maternal depression would be associated with both maternal and adolescent reports of lower family cohesion; (b) although some mother-adolescent disagreements (or divergences) would be expected in the their perceptions of family functioning

(usually parents view themselves in a more favorable way than their children view them), when mothers show high depression, we expected a higher discrepancy in mothers' and adolescents' views on family functioning. Specifically, adolescents would have a more favorable view of their family functioning compared to their depressed mothers.

Method

Participants

Adolescents in Grade 7 to Grade 11 participated in the study: 14% were 7th Grade, 19% 8th Grade, 25% 9th Grade, 26% 10th Grade, and 16% were 11th Grade. The sample included 943 dyads formed by adolescents ($M = 14.43$ years old, $SD = 1.41$, age range 12–18 years old) and their mothers ($M = 43.20$ years old, $SD = 6.49$).

Mother-daughter dyads ($n = 648$, 69%) were more frequent than mother-son dyads. These dyads were comparable in terms of mothers' age (mother-daughter: $M = 43.27$, $SD = 6.52$; mother-son: $M = 43.04$, $SD = 6.26$), $t(883) = -.47$, $p = .638$, but not adolescents' age, $t(505) = 2.40$, $p = .017$, with sons being older ($M = 14.60$, $SD = 1.54$) than daughters ($M = 14.35$, $SD = 1.34$).

Of the families, 67.3% were nuclear, 25% were single-mother families, and 8% consisted of mothers and their partner. Ten percent ($n = 92$) of the sample were single children at the time of the study, 43% had one sibling, 30% had two siblings, and 17% had three or more siblings (range was 3 to 8 siblings).

Most mothers (92%) had completed primary and secondary education (12 years). Most of the mothers (77%) did not have depressive symptoms, 17% of them had low depressive symptoms, and 6% had moderate to severe depressive symptoms.

Regarding socioeconomic status, 23.5% of the dyads were from a high-SES background; this includes dyads whose adolescent children attended schools that the Ministry of Education of

Chile (MINEDUC) identifies as high-SES (independent of the type of school) and those students attending middle-high SES schools if they attended private, non-subsidized schools. Another 38.1% of the dyads were from a middle-SES background. These adolescents attended medium-high SES schools based on the MINEDUC categories and if their families paid a percentage of the education costs in private, subsidized schools. The remaining 38.4% of the dyads were from a low-SES background and included adolescents attending municipal schools, independent of the type of school.

There were no differences in the composition of dyad subgroups based on severity of depressive symptoms when considering adolescent age, $F(2, 940) = 1.07$, mother's age, $F(2, 882) = .70$, $p = .50$, adolescent gender, $X^2(2, N = 943) = 4.70$, $p = .10$, family structure, $X^2(4, N = 942) = 5.85$, $p = .21$, or number of siblings, $X^2(6, N = 943) = 4.71$, $p = .58$. On the other hand, there were differences with respect to socioeconomic status, $X^2(4, N = 943) = 10.94$, $p = .03$, with depressive symptoms being more frequent in mothers of low and middle socioeconomic status.

[INSERT TABLE 1]

Procedures

Participants were recruited from schools in Santiago, Chile. Written parental consent and adolescent assent were required for participation. Mothers and adolescents completed questionnaires separately. Firstly, the mothers completed the assessment in their homes, and later the adolescents completed the questionnaire at school. The dyads received a small compensation (i.e., two movie tickets) for their participation. Ethical approval for the study was obtained from the Ethics Committee of Universidad del Desarrollo.

Measures

The Family Adaptability and Cohesion Scales (FACES-III; Olson, Porter, & Lavee, 1985).

This paper-and-pencil scale includes 20 perceived and 20 ideal family items. It was designed to

measure family cohesion and adaptability as well as both perceived and ideal family functioning. Cohesion is defined as the emotional bonding of individuals within the family (e.g., family members ask each other for help). Adaptability is concerned with the family's ability to change in a variety of areas including relationship rules and roles as well as power structures (e.g., different people act as leaders in the family).

In the present study, mothers and their adolescent children answered only the items about their actual family (called perceived family functioning). The respondents indicated how frequently the described behavior occurred in their families on a Likert scale from 1 (*almost never*) to 5 (*almost always*). The total scores for cohesion and adaptability range from 10 to 50 points each. The Spanish version developed by Polaino-Lorente and Martínez-Cano (1995) was used. The study's internal consistency (Cronbach's alpha) was .76 (mothers) and .75 (adolescents) for cohesion, and .58 for adaptability (mothers and adolescents).

The Beck Depression Inventory (BDI-IA; Beck, Ward, Mendelson, Mock & Erbaugh, 1961; Sanz & Vázquez, 1998). This is a self-administered questionnaire that measures depressive symptoms in adults. It has 21 questions (items) with four possible responses, ranging from low to high intensity (e.g., 0 points = *I do not feel sad*, 1 point = *I feel sad*, 2 points = *I am sad all the time and I can't snap out of it*, and 3 points = *I am so sad and unhappy that I can't stand it*). In each of the questions, the participants must choose the severity of the symptoms they experienced during the past week. This questionnaire has been previously used in Chile (e.g., Alvarado, Vega, Sanhueza & Muñoz, 2005; Santander, Romero, Hirschfeld, & Zamora, 2011), and Valdes et al. (2017) indicated that in this country, a one-factor solution represents the most adequate factor solution of the scale, with an internal consistency of $\alpha = .92$. In the present study, the internal consistency (Cronbach's alpha) was .87 (mothers).

Socioeconomic Status (SES). Three SES levels (low, middle, and high) were established based on Chilean types of schools and the Ministry of Education of Chile's SES school categorization (MINEDUC, 2011). The former distinguishes between municipal (or public, without costs); subsidized, private; and non-subsidized, private schools based on education costs. The latter distinguishes between high, middle-high, middle, low-middle, and low based on parental education, self-reported family income, and percentage of school students in conditions of social vulnerability (additional information was included in the sample description).

Data Analysis

Means, standard deviations, and correlations were calculated to describe the data. Linear regression analysis was used to evaluate the association of maternal depression with family cohesion and adaptability, as they were reported by adolescents and mothers. Four independent models were estimated. In each model, adolescent age and gender, mothers' age, and SES were entered first as control variables. Interactions between age, adolescent gender, and SES and maternal depression were explored following the suggestions of Aiken and West (1991) and Hayes (2013). Continuous variables were centered to do more interpretable conditional effects (Hayes, 2013). The control variables and main effects were entered first and the interaction components were entered afterwards. Only significant interaction terms were retained and reported in the final results. The unstandardized conditional effects of predictors on criterion variables at values of the moderator were estimated using the Johnson-Neyman technique through SPSS-PROCESS macro-syntax (Hayes, 2013).

Mother-adolescent agreement indexes (based on discrepancy scores) were estimated for each of the family functioning dimensions (i.e., cohesion and adaptability). Mother-adolescent discrepancies were measured using standardized difference scores (SDS), consistent with De Los Reyes and Kazdin (2004, 2006) and Ehrlich and colleagues' (2011) recommendations. Specifically,

SDS were created by first converting each adolescent's ratings and their mother's ratings of each family dimension subscale into z scores, and then subtracting the adolescent's z score for each subscale from the mother's z score on that same subscale. Negative scores indicate that adolescents reported higher levels of family functioning relative to their mothers. Positive scores indicate that mothers reported higher levels of family functioning relative to their adolescents.

Multiple regression analysis was used to evaluate the association between maternal depressive symptoms and mother-adolescent difference scores for family cohesion and adaptability. Following the same procedure indicated above, two independent models were estimated.

Results

Descriptive analysis

The data indicated that mothers perceived their family as more cohesive, $t(938) = 19.12, p < .001$, and more adaptable than their adolescents, $t(938) = 4.00, p < .001$ (Table 2).

In the case of adolescent reports, family adaptability was related to sociodemographic variables: higher adaptability was reported by males, older adolescents, and in high-SES dyads. Family cohesion was related to SES, with adolescents reporting lower levels of cohesion when they belonged to high-SES rather than low-SES families.

With regard to mothers, their age and dyadic-SES were not related to their reports of family functioning. In contrast, depressive symptoms in mothers were associated with lower levels of family cohesion as reported by adolescents ($r = -.14, p < .001$) and mothers ($r = -.22, p < .001$). In contrast, maternal depressive symptoms were not associated with family adaptability reported by adolescents ($r = -.05, p > .05$) and mothers ($r = .00, p < .05$). Both adolescent and maternal reports of cohesion were positively associated with adaptability.

[INSERT TABLE 2]

Depressive symptoms in mothers and its association with family cohesion and adaptability

A linear regression analysis was used to evaluate the association of maternal depression with family cohesion and adaptability, as reported by adolescents and mothers (see Table 3).

[INSERT TABLE 3]

The results indicated that, when controlling for sociodemographic variables, family cohesion reported both by mothers ($\beta = -.22, p < .01$) and adolescents ($\beta = -.17, p < .001$) was related to maternal depressive symptoms. However, in both cases this association was moderated by adolescent demographic characteristics. In the case of maternal reports, this relationship depended on adolescent age. Conversely, the association between cohesion and maternal depression depended on adolescent gender in the case of adolescents' reports.

In the first model, seven percent of the variance in the dependent variable (i.e., maternal reports of cohesion) was accounted for by the regression model. Adolescent age, the interaction between adolescent age and mothers' age, and the interaction between maternal depressive symptoms and adolescent age were statistically significant predictors of maternal reports of cohesion. The last interaction term indicated that the negative association between maternal depressive symptoms and maternal reports of family cohesion was significant only in adolescents who were 16 years old or younger (Johnson-Neyman significance region cutoff point = 16.34, 93% cases below, effects $-.29 > \beta > -.10; p < .05$) and the correlation size decreased in older adolescents. For example, when adolescents were 12 years old, the non-standardized conditional effect of maternal depressive symptoms on cohesion reported by mothers was $\beta = -.29 (SE = .05, p < .001)$. This value decreased to $\beta = -.20 (SE = .03, p < .001)$ when adolescents were 14 years old, and to $\beta = -.16 (SE = .03, p < .001)$ at 15 years of age.

Finally, the negative association between adolescent age and maternal reports of family cohesion was moderated by mother's age. Therefore, this negative association was significant only

when mothers were younger than 48 years old (Johnson-Neyman significance region cutoff point = 47.61, 74% cases below, effects $-1.13 > \beta > -.38$; $p < .05$). The correlation size decreased in older mothers. For instance, when mothers were 37 years old, the non-standardized conditional effect of adolescent age on cohesion reported by mothers was $\beta = -.79$ ($SE = .22$, $p < .001$). This value decreased to $\beta = -.55$ ($SE = .18$, $p < .001$) in 43 year-old mothers, and to $\beta = -.44$ ($SE = .18$, $p < .05$) in 46 year-old mothers.

In the second model, 3% of cohesion reported by adolescents was accounted for by the regression model. In this model, the negative association between maternal depressive symptoms and family cohesion was marginally moderated by adolescent gender ($p = .052$). This suggests that this relationship was present only when adolescents were female (conditional non-standardized effect for females was $\beta = -.21$, $SE = .05$, $p < .001$, and for males was $\beta = -.03$, $SE = .08$, $p = .70$).

[INSERT FIGURE 1]

Family adaptation was not associated with maternal depression when considering both mothers' ($\beta = .00$, $p > .05$) and adolescents' reports ($\beta = -.03$, $p > .05$).

In the third model, none of the independent variables were a statistically significant predictor of family adaptation reported by mothers (0% of the variance was explained by this model).

In the fourth model, adolescent age, adolescent gender, and high-SES significantly contributed to adolescent reports of family adaptation, which suggests that higher family adaptability was reported by older, male adolescents and adolescents of high-SES. This model explained 6% of the variance in the dependent variable (i.e., adolescent reports of family adaptation).

Depression and its association with family functioning: Mother-adolescent difference scores for family cohesion and adaptability

Regression analysis was used to evaluate the association of maternal depressive symptoms with mother-adolescent difference scores for family cohesion (model 5) and family adaptability (model 6, Table 4).

The fifth model indicated that adolescent age, the interaction between adolescent age and maternal age, and maternal depressive symptoms ($\beta = -.08, p < .05$) significantly contributed to mother-adolescent difference scores for family cohesion. Two percent of the variance in the dependent variable was accounted for by the regression model. These results indicate that mother-adolescent difference scores decreased by .08 points as maternal depression increased by one point, indicating that adolescents reported a more favorable view of family cohesion than their mothers as maternal depressive symptoms increased.

[INSERT TABLE 4]

The sixth model indicated that only high-SES and the interaction between adolescent age and mother's age were statistically significant predictors of mother-adolescent difference scores for family adaptation. Three percent of the variance in the dependent variable was accounted for by this model.

These results indicate that adolescents reported a more favorable view of family adaptability than their mothers when both were from high-SES families. The adolescent age by mother's age interaction term means that the negative relationship between adolescent age and mother-adolescent difference scores for family adaptation was statistically significant only when mothers were younger than 39 years old (Johnson-Neyman significance region cutoff point = 38.53, 25% cases below, effects $-.17 > \beta > -.07; p < .05$). The correlation size decreases in older mothers. For example, when mothers were 28 years old, the non-standardized conditional effect of adolescent

age on mother-adolescent difference scores for adaptability was $\beta = -.17$ ($SE = .07$, $p < .05$) and was $\beta = -.10$ ($SE = .05$, $p < .05$) when mothers were 35 years old. This indicates that mother-adolescent difference scores decreased in older adolescents, thus suggesting that older adolescents reported a more favorable view of family adaptability than their mothers, but the correlation was stronger when mothers were younger.

Discussion

The purpose of this study was to evaluate the relationship between maternal depressive symptoms and family cohesion and adaptability, considering both the adolescents' and their mothers' points of view, as well as the agreement between them.

In general, the main results indicate that adolescents had a less favorable opinion of their families than their mothers. Family cohesion was negatively related to maternal depressive symptoms, based on mother and adolescent reports as well as mother-adolescent difference scores. However, this association was small. Additionally, in the case of mothers' reports, this association was moderated by adolescent age, indicating that the negative relationship between maternal depressive symptoms and family cohesion was significant when adolescents were 16 years old or younger. This correlation was stronger in younger adolescents. In the case of adolescents' reports, results indicated that the negative association between maternal depression and cohesion was present only in female adolescents. With respect to mother-adolescent difference scores, adolescents reported a more favorable view of family cohesion than their mothers as maternal depressive symptoms increased. Thirdly, maternal depressive symptoms were not related to any of the family adaptability indicators (maternal and adolescent reports and mother-adolescent difference scores). However, considering family adaptation reported by adolescents, the study results indicate that older, male adolescents and high-SES families had higher adaptability. Additionally, the interaction of adolescent age by mother's age was statistically significant when mother-adolescent

difference scores of family adaptation were analyzed. This suggests that when mothers were 39 years old or younger, older adolescents reported a more favorable view of family adaptability than their mothers, but this association was stronger in younger mothers.

Consistent with prior research (De los Reyes & Ohannessian, 2016; Korelitz & Garber, 2016; Ohannessian & De Los Reyes, 2014; Gaylord et al., 2003; Nelemans et al., 2016; Ohannessian et al., 1995, 2000), the adolescents in this study were found to have a more negative opinion of their families than their mothers. In addition, family cohesion, reported by both adolescents and their mothers, decreased as maternal depressive symptoms increased. This finding is consistent with the tenet that depressed mothers tend to have more negative and problematic interactions with their children, which affects the mother-adolescent relationship (Cummings & Davies, 1994; Goodman & Gotlib, 1999; Kaslow et al., 1994; Van Loom et al., 2014; Yeh et al., 2016). However, in the present study, family adaptability was not related to maternal depressive symptoms. One plausible explanation for this finding is the low reliability of the measure in this study used to assess this family dimension.

In this Chilean sample, the age-dependent impact of maternal depressive symptoms ~~over-on~~ family cohesion reported by mothers could be related to the higher level of conflicts that are normative in early-middle adolescence (Laursen & Collins, 1998; Smetana, Campione-Barr, & Metzger, 2006), which could be exacerbated in a society with high expectations of autonomous behavior (UNDP, 2017). For example, Martinez, Cumsille and Thibaut (2006) indicated that Chilean parents reported being less authoritarian and less prone to use power assertive practices than did their own parents. Further, Chilean parents of high-SES were more likely to express discomfort with strict rules (Martinez, Pérez, & Cumsille, 2014). Additionally, other studies have found that Chilean adolescents were less likely to believe that parents had legitimate authority to

regulate some areas of their lives or to feel obliged to obey them than adolescents from other countries, such as Filipino and US adolescents (Darling, Cumsille, & Peña Alampay, 2005).

When adolescent reports were considered, the negative relationship between maternal depression and cohesion was present only in female adolescents. This could be related to the notion that children and adolescents are more likely to observe and imitate their same-sex parent (Bussey & Bandura, 1984), and to the finding that disagreements, anger, and tension with parents increase in 11 to 14 year olds, especially in girls (McGue, Elkins, Walden, & Iacono, 2005).

The mother-adolescent difference scores indicate that adolescents reported a more favorable view of family cohesion than their mothers as mothers' depressive symptoms increased. This finding is consistent with the literature, showing that parental mental health problems were associated with mother-adolescent divergences about acceptance (Korelitz & Garber, 2016), and to other aspects of family functioning, such as conflict (Ehrlich et al., 2011), maternal disciplinary practices (Chi & Hinshaw, 2002), and parental monitoring (De los Reyes et al., 2008). This suggests that maternal depression can negatively bias mothers' views of family functioning, thereby leading to disagreement with the perceptions of other family members, such as partners or children. However, earlier studies by Bonne et al. (2003) and Kaslow et al. (1992) suggest that differential reports between family members could be caused by variations in perception of functioning between clinical vs. non-clinical samples rather than by different levels of agreement across raters belonging to the respective samples. It is relevant to note that the study by Kaslow et al. (1992) examined the same family functioning dimensions as the present study, and it focused on parental depression. Nevertheless, Kaslow and colleagues' inconsistent findings could be related to low statistical power to detect intra-informant differences.

Finally, considering maternal depression, 23% of mothers presented with depression (17% = low and 6% = moderate to severe depressive symptoms), which was more prevalent in low-SES

families. This percentage corresponds with the Chilean national prevalence rate (MINSAL, 2009–2010). Furthermore, these results are consistent with results that show the greatest prevalence of this disorder in people with fewer economic resources (Lehtinen et al., 2005; Markkula et al., 2017).

From a sociological perspective, it has been proposed that the high rate of mental health problems could be related to the societal changes observed in Chile during the past 20 years (UNDP, 2017). Further, it could be suggested that the transformation of social functioning could have a negative impact on people who are less prepared for an individualistic society, due to inexperience and/or insufficient economic resources to deal with the challenges that societies pose for individuals. In line with this suggestion, the results of this study—which are consistent with international research—highlight maternal and offspring age as relevant to family functioning. In particular, it is worth noting that maternal reports of cohesion were more strongly associated with the age of offspring in young mothers, and that the association between maternal depression and family cohesion was stronger when children were younger. This suggests that younger mothers, and/or mothers of younger children who have less experience in performing the maternal role, may have greater difficulty with encompassing the challenges of raising an adolescent child with their own mental health issues, especially in an individual-oriented society.

Although the present study contributes to the literature by examining the association between mothers' and adolescents' dissimilar perceptions of family functioning, some limitations should be noted. Because of the cross-sectional nature of the design, it is not possible to establish the causality of the effects on maternal depression and family functioning. It is possible that low family cohesion contributes to maternal mental health problems (De Ross, Marrinan, Chattner, & Gullone, 1999). In fact, the lack of satisfactory interpersonal relationships or/and poor quality of such relationships constitute a risk factor for depression in adults (Lancaster, Gold, Heather, Yoo, Marcus, & Davis, 2010), with inter-marital conflict standing out among them (Zelkowitz et al.,

2004). However, family cohesion and maternal mental health could be affected by other family circumstances, such as violent interactions within the family (Holmes, Yoon, & Berg, 2017) and/or social stressors (Sheidow, Henry, Tolan, & Strachan, 2014). Future longitudinal studies could address this issue to clarify the nature of the association between family cohesion and mental health.

Secondly, the proposed models explained a low amount of variability, which indicates that other variables that were not included in the present study could affect family functioning. A third limitation refers to the exclusive inclusion of only mothers in the present study. Fathers' mental health may have a significant influence on family functioning; thus, the perceptions and emotional wellbeing of fathers warrants inclusion in future studies. Further limitations refer to the very low reliability that was found for the adaptability scale, and the prevalence of maternal depressive symptoms, which was lower than expected in the examined age range (23% in the sample versus the expected 28%–30%), with more severe cases (moderate-severe symptoms) being underrepresented. This situation may be explained by the use of a self-report scale to measure maternal depressive symptoms rather than a diagnostic interview. As noted by Hunt, Auriemma, and Cashaw (2003), underreporting by individuals is one of the problems in identifying and treating depression. Indeed, mothers may be relatively unaware of the severity of their depressive symptoms. At a methodological level, the present study relied on a traditional method to examine parent-adolescent agreement (standardized difference scores), although other studies have used recently developed methods such as multitrait-multimethod, confirmatory factor analysis, latent profile analysis, or polynomial regressions (Laird & De los Reyes, 2013).

Despite these limitations, the study shows the association between maternal depressive symptoms—a common mental health issue in today's society—and lower family cohesion as reported by mothers and their adolescent children.

Given the significant role of family cohesion for positive child and adolescent development, the findings from the present study suggest that preventive and treatment strategies targeting symptoms of depression in mothers of adolescents and **promoting positive family functioning** should be prioritized. These strategies could promote adolescent wellbeing, particularly for early- and mid-age female adolescents (12 to 16 years of age).

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Table 1

Sample characteristics.

	No depressive symptoms in mothers ^a	Low maternal depressive symptoms ^b	Moderate to severe maternal depressive symptoms ^c
<i>N</i> (dyads)	730	159	54
Adolescent's age	14.46 (1.43)	14.28 (1.29)	14.37 (1.53)
Female (%)	489 (67%)	120 (76%)	39 (72%)
Mother's age	43.06 (6.35)	43.73 (6.89)	43.45 (7.01)
Socio-economic status ^d			
Low	265 (36%)	74 (47%)	23 (43%)
Middle	284 (39%)	50 (21%)	25 (46%)
High	181 (25%)	35 (22%)	6 (11%)
Number of Children			
one children	15 (12%)	54 (9%)	23 (11%)
two-children	50 (41%)	271 (45%)	88 (41%)
Three-children	40 (33%)	187 (31%)	60 (28%)
Four or more children	17 (14%)	96 (16%)	42 (20%)
Family structure			
Nuclear families	83 (68%)	415 (68%)	137 (64%)
Single-mother families	28 (23%)	139 (23%)	64 (30%)
Mothers and her partners	11 (9%)	53 (9%)	12 (6%)

Note. Mean age in years (standard deviation). ^aLess than 10 points in Beck Depressive Inventory (BDI-IA). ^b10 to 18 points in BDI-IA. ^cMore than 18 points in BDI-IA. ^dHigh SES= children attend high-SES schools (independent of the type of school) and students attending middle-high SES schools as long as those students attend private non-subsidized schools. Middle-SES corresponds to those adolescents who attend medium-high SES schools and attend private subsidized schools. Low-SES corresponds to children attending to municipal schools (independent of type of school).

Table 2

Descriptive statistics and correlations of study variables.

	<i>M</i>	<i>DS</i>	2	3	4	5	6	7	8	9	10
Adolescents											
1. Sex (1= male)	31%	-	.08*	.04	.12***	-.02	.06	.01	-.07*	.17***	.19***
2. Age	14.43	1.41		.04	.10**	.22***	-.07*	.05	-.03	.05	-.10**
3. Cohesion	36.96	7.44			.39***	-.02	.38***	.13***	-.14***	-.08*	-.03
4. Adaptability	24.35	6.24				.08*	.13**	.33***	-.05	.20***	-.04
Mothers											
5. Age	43.20	6.49					-.04	.03	.03	.13***	-.10**
6. Cohesion	41.51	5.35						.25***	-.22***	.02	.01
7. Adaptability	25.19	5.00							.00	.05	-.03
8. Depressive Symptoms	6.35	6.19								-.06	-.02
Socio-economic status (SES) of Dyads											
9. High SES ^b	24%	-									-.44***

10. Middle SES^b 39% -

Note. Variable means were replaced by percentage in categorical variables. ^b SES reference category (0)= Low.

Table 3

Standardized Regression Coefficients of family cohesion and adaptability based on adolescents' and mothers' point of view.

	Mothers		Adolescent	
	Cohesion	Adaptability	Cohesion	Adaptability
	Model 1	Model 3	Model 2	Model 4
Adolescent Sex (1= Male)	.06	.00	.02	.08*
Adolescent Age	-.07*	.04	.05	.08*
Mother Age	-.02	.01	-.03	.04
High SES ^a	.01	.05	.08	.19***
Middle SES ^a	-.01	-.01	-.01	.03
Maternal Depressive Symptoms	-.22***	.00	-.17***	-.03
(MDS)				
Adolescent Age * MDS	.08*	-	-	-
Adolescent Sex * MDS	-	-	.08 [£]	-
Adolescent Age * Mother Age	.07*	-	-	-
R ²	7%	0%	3%	6%

Note. Mother-reported cohesion model: $F(9,875) = 8.12, p < .001$; Mother-reported adaptability model: $F(6,876) = .84, p = .54$; Adolescent-reported cohesion model: $F(7,874) = 4.14, p < .001$; Adolescent-reported adaptability model: $F(6,876) = 9.22, p < .001$. ^aSES reference category (0)= Low.

*** $p < .001$; ** $p < .01$; * $p < .05$; £ $p = .052$

Table 4

Standardized Regression Coefficients of family cohesion and adaptability adolescent/mother difference score

	Difference Score Cohesion Model 5	Difference Score Adaptability Model 6
Adolescent Sex (1= Male)	.04	-.07
Adolescent Age	-.11**	-.03
Mother Age	.01	.03
High SES ^a	-.07	-.13***
Middle SES ^a	-.03	-.05
Maternal Depressive Symptoms (MDS)	-.08*	-.05
Adolescent Age * Mother Age	.09*	.08*
R ²	2%	3%

Note. Adolescent-Mother cohesion difference score: $M = .00$, $DS = 11.11$, Range = -6.44 – 4.41; $F(8,873) = 3.45$, $p < .001$; Adolescent-Mother adaptability difference score: $M = -.14$, $DS = 1.16$, Range = -6.76 – 4.39; $F(7,873) = 3.97$, $p < .001$; ^aSES reference category (0) = Low.

*** $p < .001$; ** $p < .01$; * $p < .05$

Figure Captions

Figure 1. Maternal depressive symptoms associated with family cohesion reported by adolescents according adolescents' sex.

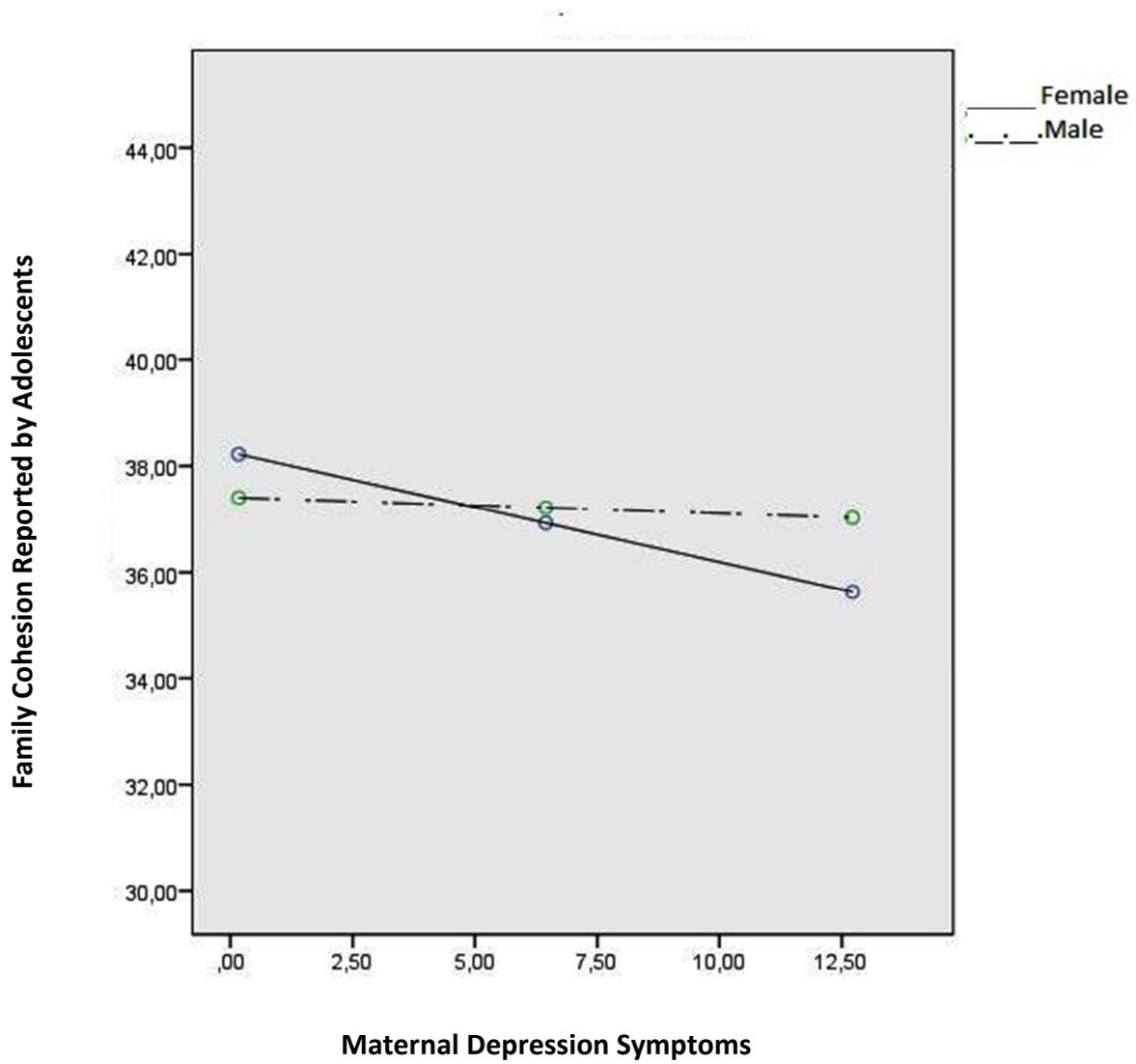


Figure 1