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Family hardiness, social support, and self-efficacy in mothers of individuals with Autism Spectrum Disorders[☆]



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ABSTRACT

Family hardiness is an important construct to understand coping in parents of individuals with Autism Spectrum Disorders (ASD), who are often at risk for considerable distress in the face of multiple stressors. The current study examined family hardiness, perceived social support and parent self-efficacy as predictors of family distress in 138 mothers of individuals with ASD, 4–41 years of age. Using a multiple mediation analysis, we demonstrated that perceived self-efficacy and social support mediated the link between the pile-up of stressors and family hardiness, and that hardiness was a partial mediator in explaining how stressors were associated with family distress. Researchers and clinicians should consider the role that perceived social support and parent self-efficacy play in explaining family hardiness, and how the perception of such hardiness is associated with less distress.

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Researchers have been conducting studies of psychological well-being in parents of people with Autism Spectrum Disorders (ASD) for decades, and have sought to identify ‘stressors’ associated with poor outcomes. Reports indicate more negative outcomes in parents of children with ASD compared to parents of typically developing children or those with intellectual disabilities without ASD (Hartley, Seltzer, Head, & Abbeduto, 2012; Montes & Halterman, 2007; Sanders & Morgan, 1997; Sivberg, 2002). Negative outcomes are often related to chronic stressors, such as the severity of child behavior problems (Abbeduto et al., 2004; Hastings, 2003; Lecavalier, Leone, & Wiltz, 2006), of autism symptom severity (Duarte, Bordin, Yazigi, & Mooney, 2005), or a “pile up” of stressors (Bristol, 1987). Researchers often operationalize negative parental outcomes as the experience of stress (Davis & Carter, 2008; Ekas, Lickenbrock, & Whitman, 2010; Lecavalier et al., 2006) or mental health problems (Ekas et al., 2010; Weiss, Cappadocia, MacMullin, Vecili, & Lunsky, 2012).

It is critical that we discern factors that help families remain resilient in the face of stressors (Gardiner & Iarocci, 2012; Lloyd & Hastings, 2008). Family resilience is defined as “the positive behavioral patterns and functional competence individuals and the family unit demonstrate under stressful or adverse circumstances, which determine the family’s ability to recover by maintaining its integrity as a unit while insuring, and where necessary restoring, the well-being of family members and the family unit as a whole (McCubbin & McCubbin, 1996, p. 5; as cited in VanBreda, 2001)”. In the Resiliency Model of Family Stress, Adjustment, and Adaptation, McCubbin and McCubbin (1996) suggest that family hardiness plays a central role in the process of overall resilience. Hardiness is seen as a family characteristic, defined by a family’s sense of

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control over life events and stressors, perception of change as beneficial, active orientation to adapting to stressors, and confidence that they can endure challenges (McCubbin, McCubbin, & Thompson, 1987). Hardiness is thus related to stressors, as well as to positive outcomes.

Preliminary investigations into family hardiness have compared hardiness in different parent groups and identified associations among hardiness and other psychological constructs using cross sectional methods. Mothers of children with ASD report less hardiness than mothers of children with intellectual disabilities or typically developing children, and such hardiness is associated with lower levels of depression, anxiety and feelings of depersonalization (Weiss, 2002). Increased family hardiness is associated with less stress in parents of children with ASD (Gill & Harris, 1991; Plumb, 2011). In families of individuals with intellectual disabilities, hardiness is related to social support (Failla & Jones, 1991), caregiver self-efficacy (Snowdon, Cameron, & Dunham, 1994), and reduced maternal distress (Ben-Zur, Duvdevany, & Lury, 2005).

These studies were among the first to draw a link between hardiness and parent functioning, but none have explored the mechanisms that lead us from the experience of a chronic stressor, to hardiness, and to negative parent outcomes. Such detailed understanding of how variables may mediate the perception of hardiness and related outcomes can help inform interventions targeted to supporting families of individuals with ASD. As past studies indicate that hardiness is a construct correlated with the presence of a stressor (i.e., behavior problems), outcomes (i.e., distress), and variables typically conceptualized as mediators in stressor–outcome models (i.e., social support, self-efficacy), we hypothesize that hardiness can function as a mediator of the stressor–outcome relationship in parents of individuals with ASD. We view a mediator as a variable that accounts for the relations between a predictor and the outcome(s) (Baron & Kenny, 1986). As chronic stressors such as negative life events or child problem behaviors increase, we expect parents to report lower levels of family hardiness, which would account for more negative outcomes. No study has included hardiness as a mediator variable to date.

We aim to further address the question of *how* stressors are related to hardiness, by examining its relationship with perceived social support and self-efficacy. This is a very important question because without understanding what contributes to family hardiness, we cannot help increase resilience to the chronic stressors that parents of people with ASD experience. For example, stressors may be negatively related to hardiness because they serve to isolate a person and reduce their experience of perceived social support (Donenberg & Baker, 1993). Social support is viewed as the provision of physical, emotional, informational and instrumental assistance that is appraised as helpful and as part of one's social network (Dunst, Trivette, & Cross, 1986). Social support has been linked to both positive and negative outcomes in mothers of children with ASD (Ekas et al., 2010; Smith, Greenberg, & Seltzer, 2012), and can serve to increase a family's level of perceived resilience (Bozo, Anahar, Ateş, & Etel, 2010).

Chronic stressors may also adversely influence a parent's sense of self-efficacy by altering a person's belief that they are effective in changing their situation (Endler, Kocovski, & Macrodimitris, 2001). Parent self-efficacy is broadly defined as an individual's self-appraisal of competency in a parenting role (Bandura, 1977; Coleman & Karraker, 1998). A belief that one lacks the knowledge or ability to manage stressors may be related to a lack of perceived family control over problems and a sense of hopelessness regarding the situation; hallmarks of a lack of family hardiness. Both social support and self-efficacy can also be targets for interventions, making them promising process variables to study.

We first hypothesize that hardiness will function as a mediator of the stressor–outcome relationship, with stressors being operationalized by the cumulative experience of child aggressive behavior and negative life events, and outcome operationalized by family distress. We then test the hypothesis that perceived social support and self-efficacy will function as mediators of the stressor–hardiness relationship. We used a structural equation modeling (SEM) approach to help identify the relative contributions of social support and self-efficacy in explaining hardiness (see Baron & Kenny, 1986; Preacher, Rucker, & Hayes, 2007 for a discussion of mediators). In the mediation model, hardiness is used to explain the relationship between the stressor and distress and why, when considering hardiness, the relationship between stress and distress becomes smaller. The variables are considered correlated, rather than independent influencers on the strength of the association between stress and parent outcome, which would be the case for moderation analysis.

1. Methods

1.1. Participants

Participants included 138 mothers of children diagnosed with an ASD aged 4–41 years (84.1% boys; M age = 13.13, SD = 6.75). Parents were asked to report on whether their child was diagnosed with Asperger Syndrome (31%), PDD-NOS (18%), or Autism (49%). Inclusion criteria based on parent report of ASD has been used in past reports of parent and child mental health (Totsika, Hastings, Emerson, Berridge, & Lancaster, 2011). Mothers' ages ranged from 31 to 71 years (M age = 44.28, SD = 7.18). Socioeconomic status was estimated based on the median income associated with participants' forward sortation area of postal codes (first three digits), using Statistics Canada's 2006 Canadian Census (Statistics Canada, 2006). Median incomes ranged from \$31,537 to \$104,207 CAD, with an overall average of approximately \$66,547 CAD (median = \$63,018; SD = \$16,281). Parents were also asked to rate on a four-point scale if they have difficulty paying their monthly bills, from "No difficulty" (1) to "Great deal of difficulty" (4): 38% percent of parents reported no difficulty paying monthly bills, 20% had a little difficulty, and 35% had 'some' or 'a great deal' of difficulty. Most participants lived in Ontario (71%), followed by Saskatchewan (6%) and British Columbia (5%). English was the first language for 91% of the sample. With respect to ethnicity, 88% of participants identified as of European Canadian background.

1.2. Measures

1.2.1. Stressors

To best operationalize the ‘pile-up’ of stressors that is noted to negatively impact families (Bristol, 1987; McCubbin & Patterson, 1983), a product of the two most commonly studied stressors was created, involving child aggressive behavior and the sum of negative life events.

Child aggressive behavior. The Aggressive/Destructive Behavior subscale of the Behavior Problem Inventory – Short Form (Rojahn et al., 2012), was used as a measure of child problem behavior. The following definition of aggressive behavior is provided on the inventory: “Offensive actions or deliberate overt attacks directed toward other individuals or objects”. The subscale is comprised of 10 aggressive/destructive items, each scored on two scales: a four-point severity scale (No problem = 0, Slight problem = 1, Moderate problem = 2, and Severe problem = 3) and a five-point frequency scale (Never = 0, Monthly = 1, Weekly = 2, Daily = 3, Hourly = 4). The product of the severity and frequency ratings was calculated for each item, with higher scores indicating greater problem behavior. A mean score was calculated from all of the items to reflect overall aggressive-destructive behavior. In the current sample, Cronbach’s alpha for the frequency-severity scores was .85.

Negative life events. A list of negative life events, which was adapted from the Psychiatric Assessment Schedule for Adults with a Developmental Disability (Moss, Patel, Prosser, & Goldberg, 1993), was provided to parents. Parents were asked to indicate the life events that they had experienced within the past year. The negative events provided included: Death or illness in family member or friend (36%), serious problem with a close friend (29%), unemployment (15%), serious illness or injury (14%), retirement or laid off from work (11%), illness of a friend or relative (22%), change in residence (9%), something valuable lost or stolen (4%), problems with police or other authority (2%), break up of steady relationship (5%), major financial crisis (17%), separation or divorce (11%), sexual problem (4%), alcohol problem (5%), drug problem (1%), recent trauma/abuse (3%), and loss of staff (3%). A single point was recorded for each life event parents experienced. The majority of the sample (96%) reported at least one negative life event, and 41.8% reported at least three negative life events ($M = 2.52$, $SD = 1.78$).

1.2.2. Mediators

Family hardiness. The Inventory for Family Protective Factors (Gardner, Huber, Steiner, Vazquez, & Savage, 2008), specifically the Compensating Experiences subscale, was used as a measure of family hardiness. Parents are asked to rate their experiences related to mastery within the context of adversity. The four-item subscale is rated on a five-point Likert scale, which ranges from “Not at all like my family” to “Almost always like my family”. The Compensating Experiences subscale is correlated with other inventories that assess family hardiness (Gardner et al., 2008). A mean score was calculated from the four items with higher scores indicating greater family hardiness. In the current sample, Cronbach’s alpha was .87.

Perceived self-efficacy. The 12-item Family subscale of the Family Empowerment Scale (FES; Koren, DeChillo, & Friesen, 1992), was used to assess a parent’s feeling of personal control and self-efficacy in relation to raising a child with disability. Each item is measured on a five-point frequency scale (1 = Very Untrue; 5 = Very True), with higher scores reflecting a greater sense of empowerment. A mean score was used. Koren and colleagues report strong internal reliability and test–retest reliability (alpha coefficient = .88 and $r = .83$, respectively). Cronbach’s alpha in the current study was .89.

Perceived social support. Perceived social support was measured through items from the Family Support Scale (Dunst, Jenkins, & Trivette, 1984). Parents were asked to rate how helpful they felt the following supports were: Parents, Spouse or Partner, Relatives, Friends, Children, Other Parents or Family Members, and Co-Workers. Parents rated each source of support on a scale from 0 to 5, with 1 being “Not at All Helpful” and 5 being “Extremely Helpful” (0 being Not Available). For the purposes of this study, Not Available was recoded as Not at All Helpful. A mean score of helpfulness was used. Cronbach’s alpha was .67.

1.2.3. Outcome

Family distress. The Brief Family Distress Scale (Weiss & Lunskey, 2011) was administered to assess the current level of family distress. Parents are asked to select one of ten statements that best represents where they and their family are in terms of crisis. Each statement corresponds with a point on a continuum with 1 being “everything is fine, my family and I are not in crisis at all” and 10 being “we are currently in crisis, and it could not get any worse”. The frequency was normally distributed around a mean of 4.23 ($SD = 1.59$), and median of 4 (“Things are often stressful, but we are managing to deal with problems when they arise”). A small number of parents reported being near crisis with a rating of 6 or 7 (8.6%; “We have to work extremely hard every moment of every day to avoid having a crisis” or “We won’t be able to handle things soon. If one more thing goes wrong – we will be in crisis”) or in crisis, with a rating of 8 or above (5%).

1.3. Procedure

Recruitment through convenience sampling began in July 2009 and ended July 2010. Various Canadian Asperger and Autism advocacy organizations (e.g., Autism Ontario, Asperger Society of Ontario) shared an online survey invitation through their websites and email lists. Interested parents could access the survey online through a link provided in the invitation or request a mailed hardcopy. Parents were also able to share the invitation with other parents of children with ASD. The survey took approximately 30 min to complete. Informed consent was obtained from all parents online or through mailed hardcopy. The York University and Centre for Addiction and Mental Health Research Ethics Boards approved this research.

Table 1
Summary of correlations for scores on stressors, mediators, outcome, and child age.

Measure	1	2	3	4	5
1. Stressors	–				
2. Hardiness (IPPF)	–.33***	–			
3. Social Support (FSS)	–.26**	.37***	–		
4. Self Efficacy (FES)	–.24**	.43***	.35***	–	
5. Family Distress (BFDS)	.38***	–.53***	–.43***	–.31***	–
6. Child Age (Age)	.06	.04	–.09	.04	–.01

Note: IPPF = Inventory for Family Protective Factors, Compensating Experiences subscale; FES = The Family subscale of the Family Empowerment Scale; FSS = Family Support Scale; BFDS = The Brief Family Distress Scale.

** $p < .01$.

*** $p < .001$.

1.4. Data analysis plan

Testing mediation by using an SEM methodology allows for more intricate mediation hypotheses that can more accurately reflect empirical phenomenon to be tested compared to regression alone. In the simplest case, when testing mediation with SEM, an internal variable is constructed which represents the product of two coefficients: the regression of the independent variable on the mediation variable, and the regression of the mediation variable on the dependent variable. This product coefficient is then compared either to a ‘delta method’ derived standard error (equivalent to the traditional statistic proposed by Sobel, 1982) or, often more appropriately due to the nature of product variables, to a bootstrapped standard error estimate (MacKinnon, 2008). The benefit to SEM is that all coefficients are estimated conditional on the structural relationships defined from the model, and therefore can be more effective in situations where variables of interest should be included but do not relate directly to the mediation relationship, when multiple mediation paths are present, or when latent variables are required (MacKinnon, 2008). Separate SEM were run to test the hypotheses that (1) family hardiness would be a mediator of the relationship between the pile-up of stressors and maternal reports of family distress and (2) self-efficacy and social support would be mediators of the relationship between the stressors and hardiness. We then ran one larger combined SEM to test whether self-efficacy and social support would remain mediators of hardiness, and hardiness a mediator of distress, taking into account any other potential paths to our outcome. We controlled for age and gender in all analyses. Our sample was expected to have adequate power for SEM given that our models did not have latent variables and that there were at most six parameters in the most complex of models, far over the minimum of $n = 5$ per parameter (Bentler & Chou, 1987).

2. Results

Bivariate correlations among stressor, proposed mediators, and the outcome variable are shown in Table 1. Pearson product moment correlations indicated that the build up of stressors was positively correlated with family distress (outcome), and negatively correlated with the proposed mediators. Family hardiness was negatively related to family distress, and positively related to perceived social support and self-efficacy. Child age was not correlated with any variable, and independent samples t -tests (unequal variances assumed given the uneven group sizes) indicated that there were no differences between mothers of males and females with ASD (all $p > .05$).

2.1. Hypothesis 1: family hardiness as mediator of stressor and family distress

To determine whether hardiness was a significant mediator of family distress, a structural equation model was tested, controlling for age and child gender (see Fig. 1). The model was fit using a robust maximum-likelihood criteria using the

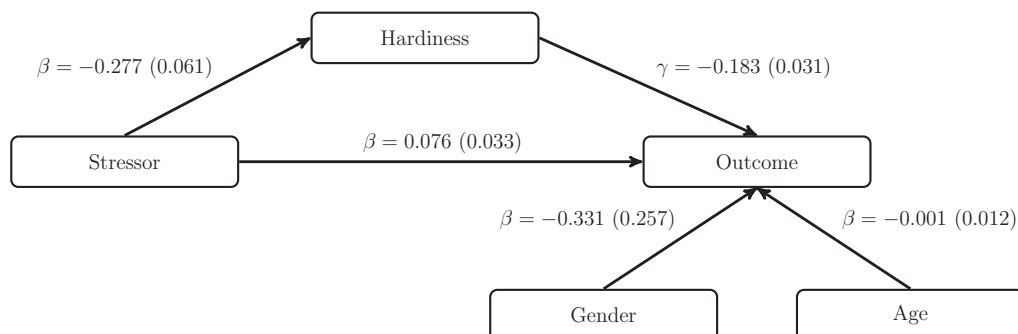


Fig. 1. Structural equation model for testing the mediation of hardiness with stressor and family distress while accounting for gender and age.

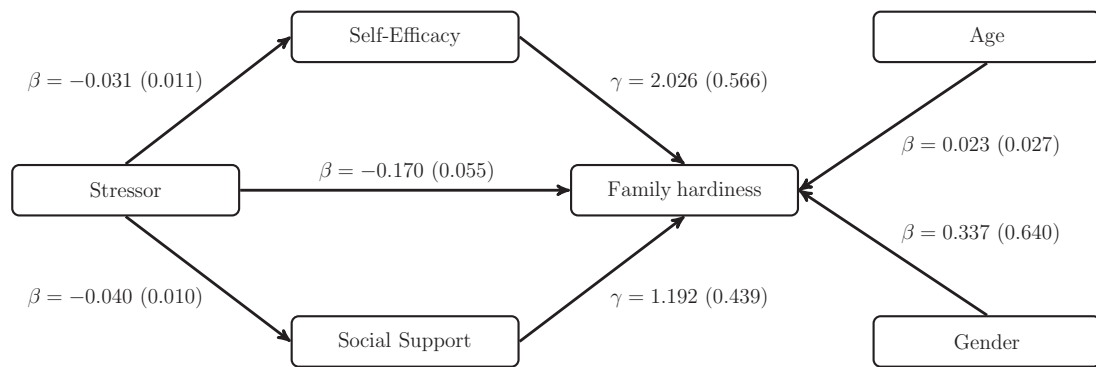


Fig. 2. Multiple mediation analysis of perceived self-efficacy and social support on maternal perceptions of family hardness.

lavaan package (Rosseel, 2012) and bootstrapped standard error estimates were computed to account for potential deviation from multivariate normality and for the known normality problems when testing defined mediation coefficients. Overall the model provided a good fit to the data (Satorra–Bentler $\chi^2(2) = 1.310$, $p = .520$; CFI = 1.00; adjusted GFI = .999; RMSEA = .000 [.000, .138]) and Fig. 1 displays the estimated coefficients along with their respective bootstrapped standard errors (in parentheses). The standard estimates can be used to test whether any given parameter is equal to zero by dividing the coefficient by its standard error to get a z-statistic. The defined mediation coefficient was found to be significant, $z = 3.64$, $p < .001$, indicating that hardness was a mediator of the relationship between the stressors and family distress. The build up of stressors remained a significant predictor of family distress ($z = 2.30$, $p = .01$), suggesting that hardness was a partial mediator. The ratio of the indirect to total effect for this relationship was .40, indicating that approximately 40% of the total effect of the stressors on family distress was accounted for by the mediation.

2.2. Hypothesis 2: test of multiple mediators of family hardness

To test the hypothesis that parent self-efficacy and perceived social support would function as mediators of the stressor–hardiness relationship, a second SEM model was constructed using the same estimation approach as before. Fig. 2 displays the unstandardized coefficients of a doubly mediated path model, while controlling for child gender and age. The double mediation model fit the data reasonably well, Satorra–Bentler $\chi^2(5) = 18.193$, $p = .003$; CFI = .813; adjusted GFI = .993; RMSEA = .140 [.078, .208]. In this model there were two mediation coefficients defined, one for the mediation effect of self-efficacy and one for social support. The self-efficacy and social support mediation coefficients were both significant ($z = -2.28$, $p = .02$, 16% of the total effect, and $z = -2.17$, $p = .03$, 22% of the total effect, respectively), indicating that the relationship between the stressors and hardness was statistically and independently mediated by both the effect of self-efficacy and social support. The relationship between stressors and hardness remained non-zero ($z = -3.09$, $p = .001$), indicating that the mediation effects were partial effects.

For completeness, the two models above were merged into a larger double mediation model for testing the direct effect of self-efficacy and social support on outcomes (shown in Fig. 3). In this final model, both self-efficacy and social support remained independent significant mediators of the stressor and family hardness relationship ($z = -2.05$, $p = .04$; $z = -1.96$, $p = .05$, respectively), accounting for 22.7% and 16.7% of the stressors' effects on hardness. In turn, family hardness remained a significant mediator of the relationship between stressors and family distress ($z = 2.28$, $p = .02$), continuing to explain 21.4% of the relationship between the build up of stressors and family distress. Self-efficacy and social support did not emerge as significant mediators of family distress (both p 's $> .10$), indicating that their influence is explained through their relationship to hardness.

3. Discussion

Family hardness is an important construct to understand coping in mothers of individuals with ASD. We explored hardness in two ways. First, we found that it was a significant mediator of the relationship between the build up of stressors (seen here as the experience of negative life events and aggressive child behavior) and family distress. Second, we found that informal social support and perceived self-efficacy were significant mediators explaining the path from the build up of stressors to hardness. Past research has linked these three variables (self efficacy, social support and hardness) to parental adjustment. Our study goes beyond discussion of associations, and offers some theoretical explanations for linking chronic stressors to family distress, by showing that self-efficacy and social support can explain changes in hardness, which in turn can explain caregiver's perception of family distress. These findings support process models of family coping, which propose that stressors can have destabilizing influences on parents' internal and external resources, which can then lead to changes in the meaning applied to the situation and ultimately to experiences of distress (McCubbin & Patterson, 1983; Patterson, 1988).

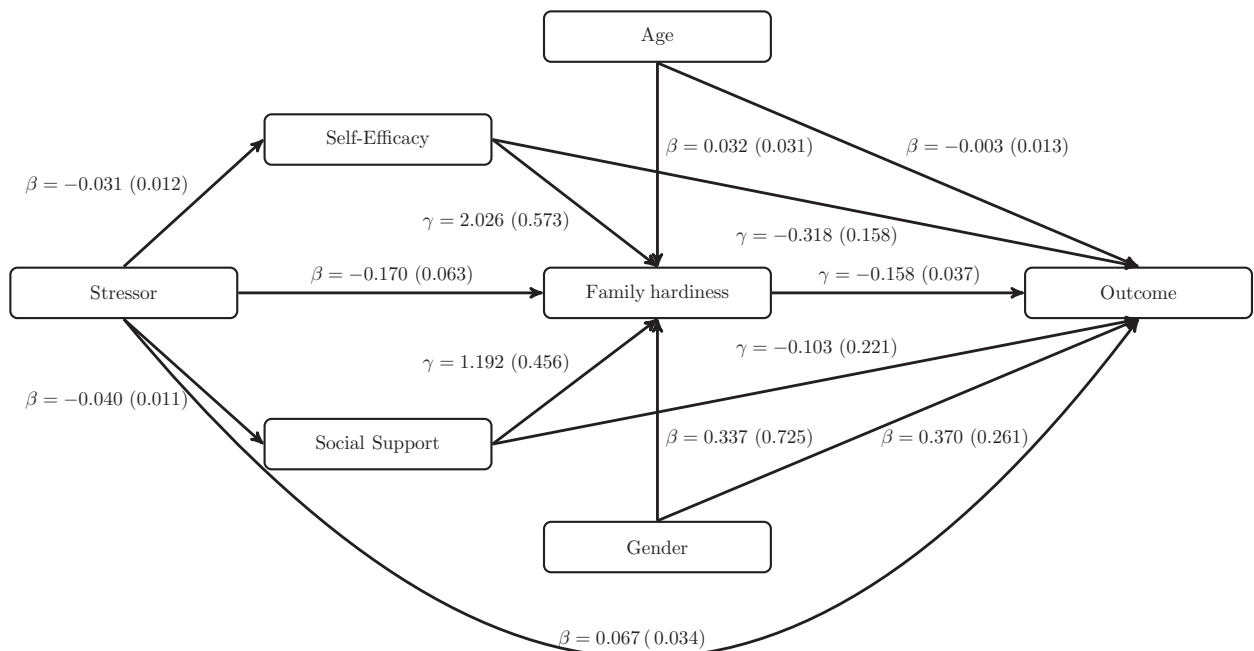


Fig. 3. Complete path diagram of multiple mediation.

An appraisal of family hardiness reflects how well a person believes their family can withstand and manage challenging events in their lives. Following suit of Positive Psychology, with an emphasis on positive aspects of mental health and well-being (Seligman & Csikszentmihalyi, 2000), the identification of positive elements that contribute to family resilience allows for a broader understanding of the complex processes and mechanisms that buffer the impact of chronic stressors (Dykens, 2006; Patterson, 2002). Such complex processes are first explored through correlation, but then tested through more complex models of mediation, such as in the current study. On a clinical level, once identified, interventions can be implemented to strengthen caregiver self-appraisals and facilitate optimal functioning (Ellis & Hirsch, 2000), and our findings suggest that a focus on self-efficacy and social support is warranted.

To strengthen a family's hardiness, we need interventions that help foster self-efficacy by helping mothers to cognitively cope with their situation, to build skills to manage addressable stressors, and to engage better with the service system (Kuhn & Carter, 2006; Nachshen & Minnes, 2005). Researchers have shown that cognitive behavioral approaches can teach parents to cope through emotion and problem-focused techniques and prioritize where they can make differences in their lives (Hastings & Beck, 2004; Singer, Ethridge, & Aldana, 2007). A focus on targeting parenting skills is also warranted, as increases in parental self-efficacy has been shown to occur following participation in a parent skills training intervention that teaches parents ways of successfully managing their children's problem behaviors. In addition to helping parents develop skills, we need to make sure that the service system is manageable and that parents are able to engage with it constructively, and this can be accomplished through empowerment and family centered models of service delivery (Brookman-Frazee, 2004; Koren et al., 1992; Nachshen & Minnes, 2005). Such models are predictive of increased parental satisfaction with services (Trivette, Dunst, & Hamby, 1996), better outcomes in child interventions (Brookman-Frazee, 2004) and increased parent self-efficacy (Brookman-Frazee, 2004; Dunst, Trivette, & Hamby, 2007). Interventions can help parents to better assert their specific needs, identify the strengths and weaknesses of their social networks, and mobilize their networks when needed (Hansell et al., 1998).

Hardiness may also be improved by increasing the helpfulness of targeted social supports. There is evidence that it is the quality of such support, rather than the quantity available, which is important (Porritt, 1979; Smith et al., 2012). The type and quality of support offered, the person providing the assistance, and contextual issues, may all play a role in determining whether parents perceive support as beneficial (Ekas et al., 2010; Hogan, Linden, & Najarian, 2002). Mothers may perceive some sources as more supportive than others (Herman & Thompson, 1995), and in fact, certain types of social support may be perceived as negative "social strain" and exacerbate stress (Lakey, Tardiff, & Drew, 1994; Sloper & Turner, 1992). Parents may benefit from learning how to engage with the right kinds of supports. It is equally important that support networks be available when mothers ask for help. For example, research has shown that an acute stressor may initiate immediate support mobilization, whereas chronic stressors, as often experienced by parents of children with ASD, may erode support over time (Thoits, 1995). Sources of social support may in fact avoid parents in distress because these sources are unsure how to help (Chesler & Barbarin, 1984) or they feel their effort will not make a difference (Brickman et al., 1982). Future research could examine how to work with informal social networks of parents of children with ASD to help them to be available and offer meaningful support.

This study has several limitations. Because of our Internet recruitment method, we may have predisposed our sample to bias, as parents would have to have been connected online with the agencies we contacted. Also, the sample was primarily well educated and of European background, and results may not generalize to other cultures. This was not however a highly affluent sample, with median household income being fairly well distributed, and with over a third of the sample reporting having at least some difficulty pay their monthly bills. Although many authors suggest that the stressor–outcome relation may indeed be bidirectional (Lecavalier et al., 2006), our cross sectional analyses cannot discern the direction of effects, and further longitudinal research is important in this regard. Like many other studies that examine the process of family adjustment (Bristol, 1987; Lavee, McCubbin, & Patterson, 1985; Minnes, Woodford, & Passey, 2007), the constructs measured here have some conceptual similarities and were measured through a single informant, and such shared variance may have contributed to the small or medium sized bivariate correlations among self-efficacy, social support, hardiness, and distress. Using multiple informants would be an ideal way of dealing with the issue of shared variance.

3.1. Conclusion

This study contributes to our understanding of the processes involved in experiencing stressors and distress in mothers of individuals with ASD. Experiences of social support, self-efficacy, and family hardiness all appear to be important constructs in how mothers experience child and life stressors. This study is the first to demonstrate that the relations between a pile-up of stressors and parent distress can be explained by mothers' appraisals of family hardiness, and how the link between stressors and hardiness is explained both by perceived social support and self-efficacy. This is an important step toward targeted interventions to strengthen hardiness in parents who are at risk for emotional difficulties or crisis in the long term, because of the compounding of multiple situational stressors. Future research is needed to examine these processes longitudinally and assess how hardiness can change through interventions that target the mediator variables.

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