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## The Effect of Quality of the Relationship Between Mothers and Adult Children With Schizophrenia, Autism, or Down Syndrome on Maternal Well-Being: The Mediating Role of Optimism

Jan Steven Greenberg, PhD and Marsha Mailick Seltzer, PhD

*University of Wisconsin—Madison*

Marty Wyngaarden Krauss, PhD

*Brandeis University*

Rita Jing-Ann Chou, PhD and Jinkuk Hong, PhD

*University of Wisconsin—Madison*

### Abstract

This article investigates the effects of the quality of the relationship between maternal caregivers and their adult child with disabilities on maternal well-being and whether this effect is mediated by dispositional optimism. Mothers caring for an adult child with Down syndrome ( $n = 126$ ), schizophrenia ( $n = 292$ ), or autism ( $n = 102$ ) were surveyed. Mothers of adults with schizophrenia and autism had better psychological well-being when the mother/adult child relationship was positive, but this effect was mediated totally or partially by optimism. For all 3 groups, optimism was related to better mental and physical health. The findings highlight the importance of dispositional optimism, a psychological resource that has been virtually ignored in studies of family caregivers of adults with disabilities.

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During the past decade, there has been an emerging literature on the well-being of parents caring for adult children with disabilities, leading to efforts to identify social resources that mitigate caregiver stress. Some past research has investigated the role of social support from family and friends in maintaining the well-being of family caregivers. In these studies, however, the role of the adult with disabilities as a potential source of support to his or her parent caregiver has largely been overlooked. Research on the quality of the parent/adult child relationship in later life suggests that most older parents and adult children enjoy a close and supportive relationship, which enhances the psychological well-being of parents (Blieszner & Bedford, 1996; Rossi & Rossi, 1990). A parallel line of investigation has been conducted with family caregivers of frail elders, which similarly has found that the presence of a close relationship between the caregiver and care recipient reduces burden and enhances caregiver well-being (Cicirelli, 1993; Li, 2000; Townsend & Franks, 1995; Walker, Martin, & Jones, 1992). However, only a few studies have extended the investigation of the quality of the parent/adult child relationship to the context of caring for an adult child with disabilities (Bulger, Wandersman, & Goldman, 1993; Greenberg, 1995; Heller, Miller, & Factor, 1997). Building on this work, we investigate the effects of the quality of the mother/adult child relationship on maternal physical and psychological well-being and ask whether this effect is similar or

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For reprints and correspondence: Jan Steven Greenberg, PhD, Waisman Center, University of Wisconsin—Madison, 1500 Highland Avenue, Room 555, Madison, WI 53705.

Jan Steven Greenberg, PhD, and Marsha Mailick Seltzer, PhD, Waisman Center and School of Social Work, University of Wisconsin—Madison; Marty Wyngaarden Krauss, PhD, Heller School, Brandeis University; Rita Jing-Ann Chou, PhD, School of Social Work, University of Wisconsin—Madison; Jinkuk Hong, PhD, Waisman Center, University of Wisconsin—Madison.

different across three caregiving contexts: mothers caring for an adult child with Down syndrome, schizophrenia, or autism.

We selected these disabilities because of the differences in the timing, symptoms, and trajectories of these three disorders, all of which may affect the parent/adult child relationship (Seltzer, Greenberg, Floyd, Pettee, & Hong, 2001). First, whereas Down syndrome is diagnosed at birth and autism is generally diagnosed in the first few years of life, schizophrenia is typically diagnosed during late adolescence or early adulthood. Consequently, these three groups of parents must cope with their child's diagnosis at different times in their own life course—early adulthood for parents whose son or daughter has Down syndrome or autism, and midlife for parents whose son or daughter has schizophrenia. Second, during the early course of both autism and schizophrenia, behavior problems that are difficult to manage are common. In contrast, children with Down syndrome tend to have less severe and less frequent behavior problems. Finally, the trajectory of the symptoms of each of these three disabilities is quite distinct. The behavior problems of persons with Down syndrome, typically relatively mild, are quite stable over the life course (Zigman, Seltzer, & Silverman, 1994), whereas the symptoms associated with autism, although initially severe, abate to some extent as individuals move into adulthood (Seltzer, Krauss, Orsmond, & Vestal, 2000). In contrast, the course of schizophrenia is more cyclical and less predictable, with some adults with schizophrenia becoming less symptomatic in middle and older adulthood, whereas others show either a stable or a worsening course (Harding, 1988).

We expected that these differences in the timing of the diagnosis, severity of symptoms, and trajectory of symptoms of the three disabilities would lead to differences in the quality of the mother/adult child relationship, the extent to which the mother has an optimistic or pessimistic outlook on the future, and maternal physical and psychological well-being. In our earlier work, which examined mothers of heterogeneous diagnostic groups of adults with mental illness and mental retardation, we found that mothers of adults with mental illness reported greater pessimism about the future and a poorer relationship with their son or daughter than did mothers of adults with mental retardation (Greenberg, Seltzer, & Greenley, 1993; Seltzer, Greenberg, & Krauss, 1995; Seltzer, Greenberg, Krauss, & Hong, 1997). We expect that these differences will be even more pronounced when mothers of adults with the specific diagnoses of schizophrenia and Down syndrome are compared. We further predict that the profile of mothers of adults with autism will be midway between the other two groups of maternal caregivers, because autism shares some characteristics with schizophrenia and others with Down syndrome. On the one hand, similar to mothers of adults with schizophrenia, mothers of adults with autism must manage their child's often severe behavioral symptoms, which may take a long-term toll on maternal well-being. On the other hand, similar to mothers of adults with Down syndrome, mothers of adults with autism have had many years in the caregiving role to accommodate to their child's special needs and thus may have learned how to cope with this long-term parenting challenge.

In this article, we also examine whether there are differences in the *pathways* by which the quality of the mother/adult child relationship affects maternal physical and psychological well-being. Specifically, we examine the role of dispositional optimism as potentially mediating the influence of the quality of the mother/adult child relationship on maternal well-being and ask whether this effect is similar or different across the three caregiving contexts (Down syndrome, schizophrenia, or autism). Dispositional optimism refers to an individual's general inclination toward expecting positive events in life (Scheier & Carver, 1985, 1987) and is distinct from domain-specific optimism, which refers to optimism toward specific future events, such as recovery from surgery. There is a large body of literature showing that dispositional optimism plays an important role in maintaining mental and physical health of caregivers for older or physically ill persons (Given et al., 1993; Haynie, 1999; Hooker, Monahan, Bowman, Frazier,

& Shifren, 1998). However, little is known about the role of optimism in parental caregivers of adult children with developmental disabilities or mental illness.

We expect that the effect of the quality of the mother/adult child relationship on maternal well-being will be mediated by dispositional optimism for mothers of adults with schizophrenia and mothers of adults with autism but not for mothers of adults with Down syndrome. We base this expectation on differences in the manifestation of these three disabilities across the life course. A prominent symptom in both autism and schizophrenia is difficulty with social relationships, including a qualitative impairment in reciprocal social interactions and an inability or markedly limited capacity to respond to the needs of others. Parents are faced with the task of defining their expectations for their relationship with their adult child, taking into account the difficulties that persons with autism and schizophrenia have in maintaining sustained social relationships. The behavioral problems that are common during the early years following the diagnosis of autism and schizophrenia further challenge the capacity of the parent to maintain a mutually satisfying relationship with her child with disabilities. The hope of ever having a normative parent/child relationship in which the child is able to reciprocate feelings of affection, trust, and understanding toward the parent may be a very distant dream for parents of individuals with autism or schizophrenia.

However, some individuals with autism and schizophrenia become less impaired in social relationships as they mature or as a result of improved treatment. Parents may find that as their son or daughter grows older, he or she becomes more aware of and responsive to the parent's thoughts and feelings (Park, 2001). Prior research suggests that when children do better than expected, this has a powerful effect on parental, in particular maternal, well-being (Ryff, Schmutte, & Lee, 1996). When the quality of a relationship with an adult child exceeds the parent's earlier expectations, this may similarly have positive effects on parental well-being, including a renewed hopefulness about their child's future. Parents may even become more optimistic that other life challenges will turn out for the better. Thus, we expect that when an adult child with autism or schizophrenia is able to respond to his or her mother's needs for affection, understanding, and trust (in other words, show recognition of the mother's needs), this may lead mothers to feel more optimistic and hopeful, which, in turn, may enhance maternal well-being. If this is the case, optimism would mediate the association between relationship quality and maternal well-being.

We have a different set of expectations for parents of adults with Down syndrome. Such children have a less prominent profile of behavior problems and psychopathology across the life course (Dykens, 1998). During childhood and adolescence, parents of children with Down syndrome generally have a warm exchange of emotion with their child and can realistically expect this type of relationship to continue into the future because of the relative stability in the trajectory and symptoms associated with Down syndrome. Therefore, in the case of Down syndrome, there is greater continuity in the parent/adult child relationship over time, so that the quality of the relationship in adulthood may be less salient in determining maternal feelings of optimism.

In summary, we hypothesized the following:

1. Mothers of adults with schizophrenia will display the least favorable profile with respect to quality of the relationship, optimism, depression, positive well-being, and physical health. Mothers of adults with Down syndrome will show the most favorable profile, with mothers of adults with autism in the middle.
2. The quality of the mother's relationship with her adult child will be positively related to well-being.
3. Higher levels of optimism will be related to better maternal well-being.

4. For mothers of adults with schizophrenia and mothers of adults with autism but not for mothers of adults with Down syndrome, level of optimism will mediate the effect of the quality of the mother/adult child relationship on maternal well-being.

## Method

### Design

The samples of mothers of adults with Down syndrome, schizophrenia, and autism were drawn from independent but related studies. The families of adults with Down syndrome were sampled from a larger longitudinal study of aging mothers caring for an adult child with mental retardation. Over the time period of the study (1988 to 2000), eight waves of data were collected. These families met two criteria when initially recruited into the study: The mother was age 55 or older, and the adult with mental retardation lived at home with her. One third (37.1%) of the sample had Down syndrome, the subsample included in the present analysis. Families of adults with schizophrenia had to meet two criteria when initially recruited: The mother was age 55 or older, and the adult had a diagnosis of schizophrenia or schizoaffective disorder. The families of adults with autism were sampled from a larger study of families of adolescents and adults with autism. The sample used in this analysis was restricted to mothers age 55 and older who had an adult child age 22 and older.

All three studies used identical recruitment strategies. The majority of participants were recruited with the assistance of the state or county agencies responsible for providing services to persons with either mental retardation/developmental disabilities, autism, or schizophrenia. All sample members were volunteers.

Mothers participated in an in-home interview and completed a set of self-administered standardized measures. The data used for this article are from the first wave (1999–2000) of the studies of mothers of adults with schizophrenia and mothers of adults with autism. For the mothers of adults with Down syndrome, the optimism scale was added to the interview protocol at the third data collection point (1991–1992), and this is therefore the wave of data used in this analysis.

### Sample

The samples in the present analyses included 126 mothers of adults with Down syndrome, 292 mothers of adults with schizophrenia, and 102 mothers of adults with autism. The characteristics of the three samples appear in Table 1. The mothers of adults with autism were younger and had higher levels of education than mothers of adults with Down syndrome and schizophrenia. There was no difference among the three groups in the mothers' marital status, with approximately 60% of the mothers currently married.

In all three samples, mothers who participated were more likely to be caring for an adult son than a daughter with disability. The adults with schizophrenia were significantly older and more likely to be in poorer health than the adults with Down syndrome or autism. The adults with Down syndrome were most likely to be living in the parental home at the time of the interview, whereas the adults with autism were least likely to be coresident.

### Measures

The dependent variables in this analysis were measures of psychological and physical well-being. There is increasing recognition that mental health is not simply the absence of distress but also the presence of positive mood (Ryff, 1989). Furthermore, growing evidence suggests that positive and negative dimensions of mental health may be explained by different mechanisms (Kramer, 1997; Lawton, Moss, Kleban, Glickman, & Rovine, 1991). Thus,

psychological well-being was operationalized by measures of positive psychological well-being as well as by measures of psychological distress. Positive psychological well-being was measured by the sum of three subscales from Ryff's (1989) measure of psychological well-being (i.e., Personal Growth, Self-Acceptance, and Purpose in Life), which were included in all three studies. Each subscale consists of five items, with respondents rating their level of agreement for each item on a 6-point scale (1 = *strongly disagree* to 6 = *strongly agree*). The Cronbach's alpha reliabilities were .80, .86, and .88 for mothers of adults with Down syndrome, schizophrenia, and autism, respectively.

Psychological distress was measured by Radloff's (1977) Center for Epidemiologic Studies–Depression (CES-D) Scale, which ranges from 0 to 60. The Cronbach's alpha reliabilities were .88, .89, and .89 for mothers of adults with Down syndrome, schizophrenia, and autism, respectively. Physical health was measured by a single item in which the mother rated her health along a 4-point scale ranging from 1 (*poor*) to 4 (*excellent*).

The quality of the relationship was measured by the Positive Affect Scale (Bengtson & Schrader, 1982), which is a 10-item scale assessing the quality of the relationship between the mother and her adult child with disabilities, indicated by ratings of trust, intimacy, understanding, fairness, and mutual respect. Each item is measured on a 6-point scale, with higher scores indicating better relationship quality. Five items ask the mother to rate her feelings of trust, intimacy, understanding, fairness, and respect toward her son or daughter, while five other items ask for the mother's perception of the extent to which her son or daughter displays feelings of trust, intimacy, understanding, fairness, and respect toward her. The Cronbach's alpha reliabilities for the quality of relationship scale for the three samples of mothers of adults with Down syndrome, schizophrenia, and autism were .88, .90, and .85, respectively.

Dispositional optimism was measured by a slightly modified version of Scheier and Carver's (1985) Life Orientation Test (LOT). Whereas the original LOT uses a 5-point response category, with the middle point being neutral, we used a 4-point response scaling without a neutral category (0 = *strongly disagree* to 3 = *strongly agree*). The eight-item scale score ranged from 0 to 24. The Cronbach's alpha reliabilities were .75, .81, and .87, respectively, for mothers of adults with Down syndrome, schizophrenia, and autism and are comparable to those reported in the use of a 5-point response scaling.

Internalizing and externalizing behaviors of the adult with disabilities, conceptualized as major sources of stress for these maternal caregivers, were assessed by maternal completion of the Inventory for Client and Agency Planning (ICAP; Bruininks, Hill, Weatherman, & Woodcock, 1986). Externalizing behaviors include behavior that is hurtful to others, destructive to property, and disruptive. Internalizing behaviors consist of behavior that is hurtful to self, unusual or repetitive, and withdrawn or inattentive. In completing the ICAP, the mother was asked to indicate whether her adult son or daughter displayed each type of behavior. The score for each behavior domain was a count of the number of current behavior problems within each domain.

Background variables included the mother's and adult's age (in years), the mother's education (0 = less than high school to 3 = some graduate school) and marital status (1 = married; 0 = otherwise), the gender of the adult with disabilities (1 = female; 0 = male), the adult's health (1 = poor to 4 = excellent), and whether the adult coresided with the parent (1 = coresidence; 0 = otherwise).



## Analysis

Analysis of covariance was used to test our first hypothesis, which examined differences among the three groups of maternal caregivers in the quality of the adult child/parent relationship, optimism, and physical and psychological well-being. In all the analyses, we controlled for significant background differences among the three groups (mother's age and education, the adult child's gender and health, and whether the adult son or daughter lived at home). We did not include the adult child's age as a covariate because of the high correlation in the three groups between child's age and mother's age (ranging from .58 to .78). If the overall *F* test indicated a significant main effect for differences among the three groups (Down syndrome, schizophrenia, and autism), post hoc contrasts were conducted among all pairs of groups to identify which were significantly different from each other.

Hierarchical regression was used to investigate our next two hypotheses, which examined whether the quality of the mother's relationship with her adult child and dispositional optimism were predictive of maternal well-being. The fourth hypothesis, namely that optimism mediates the relationship between the quality of the parent/adult child relationship and well-being, was tested with procedures developed by Baron and Kenny (1986).

## Results

For our first research question, we hypothesized that mothers of adults with schizophrenia would report the least favorable profile, mothers of adults with Down syndrome the most favorable profile, and mothers of adults with autism in the middle. As shown in Table 2, contrary to our expectations, there were no differences among the three groups of mothers in levels of optimism, depression, psychological well-being, and physical health. It was only with respect to the quality of the relationship that the three groups differed. As hypothesized, mothers of adults with Down syndrome reported significantly better relationships with their adult children than mothers of adults with schizophrenia or autism.

Next, we investigated differences among these three groups of maternal caregivers in the *effects* of the quality of the relationship between the mother and the adult child on the psychological and physical well-being of the mother, controlling for background variables and stress related to their son or daughter's behavior problems. We also examined whether the effect of the quality of the relationship on maternal well-being was mediated by optimism. In the results reported, we dropped from the final model the gender of the adult son or daughter and whether the adult with disabilities coresided with his or her parents, because these two variables did not have a significant effect on any dependent variable or alter the pattern of findings.

According to Baron and Kenny (1986), establishing mediation requires that three conditions be met. The first step is to show that the antecedent variable (in this case, relationship quality) is significantly related to the mediator (optimism). As shown in Table 3, for mothers of adults with schizophrenia and for mothers of adults with autism but not for mothers of adults with Down syndrome, relationship quality was significantly related to optimism. Thus, the first criterion for mediation was established for mothers of adults with schizophrenia and for mothers of adults with autism. Also, higher levels of maternal education were related to higher levels of optimism for all three groups of caregivers.

The second step in establishing mediation is to show that the antecedent variable (in this case, relationship quality), is related to the dependent variable (the measure of psychological or physical well-being), prior to entering the mediator (optimism) into the model. The third step is to demonstrate that the effect of the antecedent variable on the dependent variable is reduced when the mediator is included in the model.

Table 4 presents the findings regarding these second and third steps of mediation regarding the predictors of depressive symptoms. In Model 1, before optimism was entered into the equation, a better quality relationship was related to significantly lower levels of depressive symptoms among mothers of adults with schizophrenia and mothers of adults with autism. However, for mothers of adults with Down syndrome, the quality of the mother/adult child relationship had no effect on the level of maternal depression.

In Model 2, optimism is entered into the analysis and, as hypothesized, is related to lower levels of depressive symptoms for all three groups, with the effect for mothers of adults with autism being particularly strong. Further, with optimism in the model, the effect of relationship quality becomes nonsignificant for mothers of adults with schizophrenia and sharply reduced but still significant for mothers of adults with autism. Thus, optimism fully mediates the effect of the quality of the relationship on depression for mothers of adults with schizophrenia but only partially mediates the effect of relationship quality for mothers of adults with autism.

In addition, mothers of adults with Down syndrome and mothers of adults with schizophrenia had higher levels of depression when their children had higher levels of externalizing behaviors. In other words, mothers of adults with Down syndrome or schizophrenia who reported that their children were hurtful to others, destructive to property, and disruptive were more likely to be depressed. Mothers of adults with Down syndrome also had higher levels of depression if their adult son and daughter displayed more internalizing behaviors.

Next we examined whether optimism had a similar effect in mediating the association between relationship quality and our measure of positive psychological well-being. As shown in Table 5, Model 1, for mothers of adults with schizophrenia and mothers of adults with autism but not for mothers of adults with Down syndrome, relationship quality was related to higher levels of psychological well-being. When optimism is included in Model 2, it has a significant effect on psychological well-being for all three groups of caregivers, with more optimistic mothers reporting a greater sense of positive well-being. The effect of optimism on psychological well-being is again particularly strong for mothers of individuals with autism. When we compare Model 1 and Model 2, the coefficient for relationship quality becomes nonsignificant for mothers of adults with autism and drops almost in half for mothers of adults with schizophrenia, which again supports evidence for a mediation effect, especially among mothers of adults with autism.

Contextual variables had a limited influence on feelings of positive psychological well-being in our sample of caregivers. For mothers of adults with Down syndrome, maternal age was a significant predictor of psychological well-being. Older mothers were less likely than younger mothers to report feelings of personal growth, self-acceptance, and purpose in life. Before optimism was entered in the model, maternal education was related to better psychological well-being for mothers of adults with autism and schizophrenia. The effect of education, however, was mediated by optimism for these two groups, as indicated by the greatly reduced beta coefficient for education when optimism was entered into the model. To our surprise, neither internalizing nor externalizing behaviors had an effect on maternal psychological well-being for any of the three groups of maternal caregivers.

Finally, we turn to the influence of relationship quality and optimism on the mother's physical health. As shown in Table 6, Model 1, contrary to our expectation, quality of the mother/adult child relationship was unrelated to maternal health in all three groups. Optimism, however, when entered in Model 2, was significantly related to the health of mothers in all three groups. Mothers who reported being more optimistic had better health than those who were less optimistic. In addition, mothers of adult children with Down syndrome and mothers of adults with schizophrenia who had children with more externalizing behaviors had poorer health.

Also, mothers of adults with schizophrenia who had more education and whose children had better health reported their own health as being better.

## Discussion

With respect to mean level differences, it was only in regard to the quality of the parent/adult child relationship that the three groups differed, with mothers of adults with Down syndrome reporting better relationships with their son or daughter than the other two groups of caregivers. However, counter to our expectation, there were no mean level differences in optimism, depression, positive psychological well-being, and physical health among the three groups of caregiving mothers. In our prior work, we found mean-level differences between mothers of adults with mental illness and mothers of adults with mental retardation in their degree of role-specific pessimism about their child's future (e.g., Seltzer et al., 1997). This pattern was not replicated in the present analysis, which used a measure of dispositional optimism rather than the role-specific approach taken in our prior analyses. In our regression analysis, we did not find that dispositional optimism was predicted by specific stressors (e.g., externalizing and internalizing behaviors) in the caregiving context. Thus, dispositional optimism may be less sensitive to characteristics of the caregiving context than role-specific measures, which could thus explain the lack of group differences in the present analysis. Regarding depressive symptoms, although the differences were not significant, the means were in the direction of our prediction, with mothers of adults with Down syndrome having the lowest level of depressive symptoms and mothers whose adult child had schizophrenia or autism about a point higher.

We also did not find the expected group differences in the psychological well-being of these maternal caregivers. Our measure of psychological well-being consisted of three subscales from Ryff's (1989) measure of positive mental health: Personal Growth, Self-Acceptance, and Purpose in Life. There has been increasing recognition that in the course of facing the stressors of caregiving, family members often have unexpected but positive experiences that derive from these nonnormative parenting challenges and that may increase their resilience to future life stressors. For example, in a study of families coping with mental illness, Marsh, Lefley, Evans-Rhodes, Ansell, and Doerzbacher (1996) found that over 90% of the family members reported that they had personally grown and become closer to family and friends as a consequence of coping with mental illness. Greenberg, Seltzer, and Judge (2000), in a study of aging mothers with an adult son or daughter with mental illness, found that many mothers could speak of ways that their life had been positively transformed as a consequence of their struggle with their son or daughter's illness, for example, causing them to reevaluate their priorities and goals in life and to become more assertive advocates for their son or daughter. Parents of children with developmental disabilities such as Down syndrome or autism report sharing similar perceptions that the challenges of caregiving have led them to develop an inner strength and acceptance that they might not otherwise have developed (Krauss & Seltzer, 2000). Thus, our finding that all three groups maintained a relatively high level of positive psychological well-being speaks to the capacity of these mothers to find meaning and opportunities for personal growth even in the face of ongoing parenting challenges.

In contrast, we found that the three groups varied with respect to the *effects* of relationship quality on maternal well-being, and they also varied regarding how optimism figured into this association. Mothers of adults with schizophrenia and autism had better psychological well-being when they had a better quality of relationship with their son or daughter, but the effect of the parent/adult child relationship was not evident among mothers of adults with Down syndrome. And for mothers of adults with autism or schizophrenia, the effect of relationship quality on psychological well-being was mediated totally or partially by optimism. This mediation effect was consistent with our hypotheses and, with respect to psychological well-



being, was most prominent in the sample of mothers who had an adult child with autism, while with respect to depressive symptoms, it was most prominent in the sample of mothers who had an adult child with schizophrenia.

Why did optimism have such a strong mediating effect on the association between the quality of the relationship and psychological well-being for mothers of adults with autism? The answer might lie with respect to the place that this cohort fits in the history of diagnosis and treatment for individuals with autism. The average person with autism in this sample was born 35 years ago, in the mid 1960s, an era when the blame for the cause of autism was placed squarely on the shoulders of the mother. Although autism is now recognized to be a neurological disorder with a strong genetic basis, the children in our sample were diagnosed when bad parenting—particularly bad mothering—was the dominant explanation and when no hope was held out for improvement of the symptoms of autism across the life course. In the face of this hostile professional climate, mothers who, over the years, developed positive relationships with their child with autism had reason to feel very optimistic because this positive relationship with their child contradicted all of the incorrect predictions made by professionals about what the future held for their family life (Park, 2001). Similarly, mothers of adults with schizophrenia were also blamed for their child's difficulties in past decades, which may account for the mediating effect of optimism we found with respect to maternal depression.

A question raised by our findings is why relationship quality was not predictive of the well-being among mothers of adults with Down syndrome. We had hypothesized that relationship quality would be a significant predictor of well-being in all three groups and expected this to hold particularly among mothers of adults with Down syndrome. Such children have a less prominent profile of behavior problems and psychopathology and a more normative range of social relationships (Dykens, 1998) than the other two diagnostic groups in our study, which we expected in turn would be a boost to maternal well-being. The median quality of the relationship score for mothers of adults with Down syndrome was 52 out of a maximum of 60 (as compared with a median of 47 for mothers of adults with autism and 45 for mothers of adults with schizophrenia). And, more important, only 2% of the mothers of adults with Down syndrome had quality of relationship scores lower than 40, which would indicate some degree of dissatisfaction with the relationship. Thus, restriction in range of the quality of relationship variable in the subsample of adults with Down syndrome may be one reason why relationship quality had no significant effect in this group.

Our study findings highlight the role of adults with schizophrenia and adults with autism as supports to their mother. For both mothers of adults with schizophrenia and mothers of adults with autism, the quality of their relationship with their adult child was related to higher levels of maternal optimism, increased psychological well-being, and lower levels of depression. Even after we controlled for optimism, the quality of the mother/adult child relationship was predictive of lower levels of depression in mothers of adults with autism and higher levels of psychological well-being in mothers of adults with schizophrenia. All too often the focus of research is on the role of adults with disabilities as a burden to their family, with little recognition of their role as a source of family support. Our findings contribute to the emerging body of research documenting the positive and supportive role played by persons with disabilities within their family (Greenberg, 1995; Greenberg, Greenley, & Benedict, 1994; Heller et al., 1997; Summers, Behr, & Turnbull, 1989). Additional research is needed to investigate the role of adults with disabilities as supports to their family and the potential influence of this support in enhancing not only the quality of life of family members but, equally important, the quality of life of adults with disabilities.

Our findings add to the growing evidence of the importance of optimism as a psychological resource that is associated with an array of indicators of positive mental and physical health

(Chang, 2001; Peterson & Bossio, 2001). Our study is among the first to investigate the role of optimism as a resource to aging parents caring for an adult child with disabilities. The consistency and strength of the effect of optimism across these three diverse groups of caregivers and outcomes speaks to the importance of optimism as a resource to parents coping with the stressors of caring for an adult child with disabilities. Historically, optimism has been viewed as a personality trait that is quite stable across time and situations. However, with the growing evidence of the beneficial effects of optimism on physical and mental health, researchers have begun evaluating different interventions aimed at increasing an individual's optimism. To date, cognitive-behavioral therapy has shown promising results in producing short-term changes in optimism, although further evidence is needed to determine whether these effects persist over time (Pretzer & Walsh, 2001). Our findings suggest that interventions aimed at enhancing feelings of optimism hold great promise for developing new strategies to working with family caregivers to alleviate or reduce feelings of distress.

Our findings regarding the effects of behavior problems on maternal well-being are complex and may suggest that the effects of different types of behavior problems may depend in part on the nature of the child's disability. For both mothers of adults with Down syndrome and mothers of adults with schizophrenia, externalizing behaviors were related to higher levels of depression and lower levels of physical health. Since parental caregivers are often the targets of externalizing behaviors (Estroff, Zimmer, Lachicotte, & Benoit, 1994), it is not surprising that such behaviors would have strong effects on maternal well-being. For mothers of adults with Down syndrome, internalizing behaviors also were related to higher levels of maternal depression. Adults with Down syndrome are at an elevated risk of depressive symptoms (Zigman et al., 1994), especially in their midlife and older years, which can be a source of distress to their caregiving mothers.

It is unclear why neither externalizing nor internalizing behaviors affected the well-being of mothers of adults with autism. One possibility is that our measure of behavior problems did not capture the range of behaviors that are most distressing to parents of adults with autism. Fortunately, in our study of adults with autism, we also administered the Autism Behavior Checklist (Krug, Arick, & Almond, 1980), which assesses behavioral symptoms associated with autism. When we reran the regression analysis using the Autism Behavior Checklist instead of the measure of behavior problems, we found the expected relationship: A higher level of behavioral symptoms was predictive of a higher level of depression and lower levels of well-being (data available from us). Thus, our finding of no relationship between behavior problems and well-being of mothers of adults with autism must be interpreted cautiously, as it is likely due to limitations in the use of the ICAP for capturing the range of behavior problems in adults with autism.

There are two limitations to our study that should be noted. First, all the sample members volunteered to participate and were almost exclusively White, and thus generalizations should be made with caution. Second, as with all cross-sectional studies, the temporal ordering of the variables cannot be tested in this analysis. On the basis of a stress process model, the quality of the relationship was hypothesized to contribute to feelings of optimism, which in turn influenced maternal well-being. Other theoretical frameworks may offer an alternative ordering of the variables. One alternative formulation is that dispositional optimism (a "trait") may exert its influence prior to the quality of the mother/child relationship. According to this formulation, more optimistic individuals have better relationships with others, which, in turn, enhances their well-being. In other words, relationship quality is hypothesized to mediate or intervene between feelings of optimism and well-being. We tested this alternative model but did not find evidence that relationship quality mediated the effects of optimism on well-being. Another formulation suggested in the literature is that optimism buffers or moderates the effect of stress. According to this formulation, being optimistic is a resource that reduces distress

under conditions of high levels of stress, in our case high levels of behavior problems. We also tested this model but found little evidence for a buffering effect. Nevertheless, these analyses, as noted above, are limited by the cross-sectional nature of the data. Our ongoing research consists of longitudinal studies, each involving at least three waves of data collection, that will allow us to investigate more rigorously the temporal nature of the pathway between quality of the relationship, optimism, and well-being.

In conclusion, this is one of the first studies to examine the role of optimism in the context of maternal caregiving for an adult child with disabilities. Our findings also highlight the importance of the quality of the mother/adult child relationship in the context of autism and schizophrenia, a social resource that has been virtually ignored in studies of these two populations. Our findings suggest that optimism is a resource that has wide-ranging beneficial effects for these midlife and older mothers who face lifelong caregiving responsibilities. Understanding more fully how individuals sustain a sense of optimism in the face of lifelong caregiving challenges will open the door to new interventions for helping caregivers.

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## Demographic Characteristics

Table 1

Characteristic	Down syndrome (n = 126)	Schizophrenia (n = 292)	Autism (n = 102)	F	df
Characteristics of mother					
Age	69.3	69.3	65.1	12.48 <sup>***c</sup>	2, 517
Education <sup>a</sup>	1.4	1.5	1.8	6.50 <sup>***c</sup>	2, 516
Married (%)	61.1	53.1	60.8	1.62	2, 517
Characteristics of adult child					
Gender (% male)	61.1	74.0	69.6	3.50 <sup>*d</sup>	2, 517
Age	34.1	41.3	34.7	52.21 <sup>***e</sup>	2, 517
Health <sup>b</sup>	3.3	2.5	3.1	51.33 <sup>***e</sup>	2, 517
Coresidence (% at home)	90.5	45.2	33.3	57.09 <sup>***f</sup>	2, 517

<sup>a</sup> Education coded 0 = less than high school, 1 = high school graduate, 2 = some college or college graduate, 3 = some graduate school.

<sup>b</sup> Health coded 1 = poor, 2 = fair, 3 = good, 4 = excellent.

<sup>c</sup> Post hoc contrasts were significant between autism and Down syndrome, and between autism and schizophrenia.

<sup>d</sup> Post hoc contrasts were significant between schizophrenia and Down syndrome.

<sup>e</sup> Post hoc contrasts were significant between schizophrenia and Down syndrome, and between schizophrenia and autism.

<sup>f</sup> Post hoc contrasts were significant between Down syndrome and schizophrenia, and between Down syndrome and autism.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

Table 2

## Mean-Level Differences

Variable	Down syndrome (n = 126)	Schizophrenia (n = 292)	Autism (n = 102)	F	df
Quality of relationship					
M	50.8	45.6	47.5	19.64 <sup>***a</sup>	2, 497
SD	5.07	7.60	6.28		
Optimism					
M	16.1	15.7	16.3	1.00	2, 499
SD	3.30	3.17	4.20		
Depressive symptoms					
M	9.4	10.2	10.4	0.67	2, 508
SD	8.16	8.61	8.45		
Psychological well-being					
M	71.8	71.3	73.3	1.10	2, 502
SD	10.38	11.05	11.55		
Physical health <sup>b</sup>					
M	3.0	2.9	2.7	2.67	2, 511
SD	0.71	0.74	0.75		

Note. Table presents adjusted means, with controls for mother's age and education, child's gender and health, and whether son or daughter coresides with parent.

<sup>a</sup> Post hoc contrasts were significant between Down syndrome and schizophrenia, and between Down syndrome and autism.

<sup>b</sup> Physical health (1 = poor, 2 = fair, 3 = good, 4 = excellent).

\*\*\*  
p < .001.

**Table 3**

## Predictors of Optimism

Predictor	Down syndrome	Schizophrenia	Autism
Mother's age	.05	.05	.10
Mother's education	.24 **	.17 **	.26 **
Mother's marital status	.06	.10	.17
Child's health	.12	.06	.15
Externalizing	.08	.04	-.03
Internalizing	.01	.09 ***	.02
Quality of relationship	.06	.30 ***	.31 **
$R^2$	.10	.12 ***	.20 **

\*\*  
 $p < .01$ .

\*\*\*  
 $p < .001$ .

Table 4

## Predictors of Depressive Symptoms

Predictor	Down syndrome		Schizophrenia		Autism	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Mother's age	.14	.16	-.05	-.03	-.06	-.01
Mother's education	-.08	-.01	-.11	-.04	-.08	.08
Mother's marital status	-.20*	-.17	-.05	-.02	-.22*	-.12
Child's health	-.12	-.07	-.08	-.06	-.08	.01
Externalizing behaviors	.20*	.23*	.11	.12*	.05	.03
Internalizing behaviors	.17	.17*	-.01	.02	.06	.07
Quality of relationship	.02	.01	-.21***	-.09	-.37***	-.18*
Optimism	.17***	-.36***	.09	-.40***	.20**	-.60***
$R^2$		.29		.23		.49

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

Table 5

## Predictors of Psychological Well-Being

Predictor	Down syndrome		Schizophrenia		Autism	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Mother's age	-.18	-.20*	-.00	-.03	.10	.03
Mother's education	.13	.02	.20****	.12*	.31**	.15
Mother's marital status	.10	.07	-.02	-.06	.23*	.12
Child's health	.06	.01	.01	-.01	.01	-.08
Externalizing behaviors	-.05	-.08	-.01	-.03	.01	.02
Internalizing behaviors	-.07	-.07	-.03	-.07	.07	.06
Quality of relationship	.16	.13	.30****	.16**	.29**	.10
Optimism	.12*	.45****	.13	.47****	.20**	.63****
R <sup>2</sup>		.31		.33		.52

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



Table 6

## Predictors of Physical Health

Predictor	Down syndrome		Schizophrenia		Autism	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Mother's age	-.40***	-.41***	-.04	-.04	-.11	-.15
Mother's education	.06	.00	.18**	.16**	.17	.06
Mother's marital status	-.10	-.12	.05	.04	.19	.12
Child's health	.15	.12	.25***	.24***	.14	.08
Externalizing behaviors	-.25***	-.26**	-.13*	-.14*	-.15	-.13
Internalizing behaviors	.04	.04	.11	.10	.05	.04
Quality of relationship	.10	.09	-.02	-.06	.04	-.09
Optimism	.27***	.25***	-.02	-.14*	.04	-.09
$R^2$		.32	.13	.15	.12	.27

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