THE IMPACT OF FAMILY RESILIENCE FACTORS AND PARENT GENDER

ON STRESS AMONG PARENTS OF CHILDREN WITH AUTISM

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Parents of children with autism experience high degrees of stress. Research pertaining to the reduction of parental stress in families with a child with autism is needed. In this study, the relationship between family resilience, parent gender, and parental stress was examined. Seventy-one parents of young children with autism were surveyed. Regression and correlational analyses were performed. Results indicated that the vast majority of respondents reported significantly high levels of stress. Lower degrees of parental stress were correlated with higher degrees of family resilience. Family resiliency factors were significant contributors to the shared variance in parental stress. Mothers of children demonstrated higher levels of stress than fathers. Suggested explanations of these findings are presented and clinical and research implications are provided. The findings of this study provide evidence for the importance of facilitating family resilience for parents of children with autism and affirm differing stress levels between mothers and fathers.

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THE IMPACT OF FAMILY RESILIENCE FACTORS AND PARENT GENDER

ON STRESS AMONG PARENTS OF CHILDREN WITH AUTISM

Autism is a lifelong developmental syndrome with characteristics that include social impairment, patterns of stereotypical behavior, and restricted interests and activities (American Psychological Association [APA], 2013). Although the specific degrees of symptomatology are unique from one person to the next, the effects of autism features are pervasive and profound not only for the person diagnosed with the disorder but also for surrounding family members.

Recognition of the impact of raising a child with autism can be understood within the context of family systems theory. According to Bowen (1978), the family is a closed group with an emotional interconnection between members. Each family member has an impact on the overall family system regardless of the mental, physical, or emotional health of the member (Bowen, 1978).

For example, the entire family system is impacted when a new child is brought into a family. After a period of adjustment to inevitable changes accompanying the new addition, the family system eventually returns to a homeostatic condition, but individual members, inter-relational dynamics, as well as identity, roles, rules, and other attributes, are perpetually and permanently changed to some degree (Fogel, King, & Shanker, 2008).

The mental, emotional, physical, and behavioral health of each family member is among the more significant factors contributing to each individual's degree of impact on the family (O'Gorman, 2012). In the case of a child with a neurological disorder like autism, family members make numerous life changes to adjust to the challenges and

needs of the child with autism (DePape & Lindsay, 2015). The lower functioning mental, social, and physical abilities of the child require exceptional levels of care and support that take energy and time away from other people and issues needing attention. Such adaptation results in emotional impact on surrounding family members creating stressful and challenging conditions (DePape & Lindsay, 2015).

Although all family members are affected, raising a child with autism results in particularly high levels of stress due to the unique responsibility of being the primary caregiver of a child who is often difficult to care for and prone to engage in behavior that is often unpredictable, disruptive, and problematic to others around them. Researchers have postulated that such elevated stress levels are likely to result from attempts to manage the behavioral, social, and communicative challenges typically associated with autism (Jarbrink, Fombonne, & Knapp, 2003). When a child receives an autism diagnosis, his or her parents are also likely to feel emotional responses similar to those evoked by grief (Holland, 1996). In numerous studies, researchers have found that parents of children with autism have higher levels of stress than parents of children who do not have autism (Bromley, Hare, Davison, & Emerson, 2004; Hastings, 2003; Hastings & Johnson 2001; Konstantareas & Papageorgiou, 2006; Lecavalier, Leone, & Wiltz, 2006; Rivard, Terroux, Parent-Boursier, & Mercier, 2014; Walsh, Mulder, & Tudor, 2013). Moreover, researchers have consistently found mothers and fathers of children with autism experience differing levels of stress (Pisula & Kossakowska, 2010; Rivard et al., 2014; Sabih & Sajid, 2008; Soltanifar et al., 2015).

Extensive research (Walsh, 2003; 2012; 2015) focused on discovering the contributors to family resilience and effective family functioning culminated in Walsh's family resilience framework, which is comprised of nine key processes spread across three domains of family functioning. First, Walsh's (2015) belief system domain is comprised of three key processes, which included making meaning of adversity by normalizing and contextualizing stressful situations as meaningful and manageable; maintaining a positive outlook of hope by encouraging one another to change what can be changed and accept what cannot be changed; belief in transcendent powers and spiritual inspiration. Secondly, Walsh's (2015) organizational processes domain is comprised of three key processes, which included the flexibility to change and adapt; mutual respect and connectedness between family members; and the use of social and economic resources from friends, family and community networks. Finally, Walsh's (2015) communication problem-solving processes domain is also comprised of three key processes, which included the conveyance of clear communication between family members; honest sharing of emotional expression; and collaborative problem-solving.

Purpose of the Study

Previous research has overwhelmingly shown increased resilience to be predictive of reduced stress in adults (Cunningham et al., 2014; Fang et al., 2015; Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). Researchers have also found family resilience to be predictive of reduced stress within families (Deist & Greeff, 2015; Greeff & Thiel, 2012). The purpose of this study is to examine how family resilience and parent gender are predictive of degrees of stress among parents of children with autism and to examine the differences in degrees of stress between

mothers and fathers. Researchers, counselors, and parents can benefit from more information regarding factors that can reduce the stress that comes with raising a child with autism and recognize potential differences between mothers and fathers in degrees of parental stress. Principles of family resilience theory (Walsh, 2011; Walsh, 2015) and family systems theory (Bowen, 1978; Minuchin, 1974; Satir, 1988) provided a theoretical context for the study.

Method

Procedures

Participants were recruited from four autism treatment and advocacy centers in Texas, Virginia, and New York. Representatives from the collection sites posted recruitment advertisements regarding the study at their offices and on their websites under the heading of research projects.

Participants for this study were required to attest to meeting inclusionary criterion. Firstly, participants must have been living in the United States and be at least 18 years old at the time of completion of the survey questionnaire. Secondly, respondents must also have been a parent of at least one child diagnosed with autism who is younger than 13 years of age.

Instrumentation

A survey questionnaire and two instruments were used to collect data for the study. The Total Stress score of the Parenting Stress Index Short Form (PSI/SF) was used to determine the dependent variable for the study. The independent variables

(family resiliency factors) were measured by the Family Resiliency Assessment Scale (FRAS), and parent gender was determined from the demographic questionnaire.

Demographic information was collected to obtain adequate specification of the population being studied and to describe the sample. Data collection included the age and gender identity of the respondent; ethnic identity of the respondent; gross family income; employment status; number of children living in home; age and number of children with autism in the home; and marital status.

Parenting Stress Index Short Form (PSI/SF). Abidin (1995) developed the Parenting Stress Index (PSI) for clinicians to evaluate parenting styles and identify issues potentially leading to problems in the behaviors of children and parents. Abidin (1995) created the PSI with a focus on three major domains of stress, which include child characteristics, parent characteristics and situational or demographic life stress.

In addition to the Total Stress score, the PSI/SF is also divided into three subscales, which include Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC) (Abidin, 1995). As with the full-length PSI, the PSI/SF has shown good reliability in previous studies. Roggman, Moe, Hart, and Forthun (1994) reported PSI/SF alpha reliabilities of .79 for PD, .80 for P-CDI, .78 for DC, and .90 for Total Stress. According to Abidin (1995), the validity of the assessment is likely comparable to the good validity shown by the full- length measure since it is a direct derivative.

I determined the internal consistency of the measure by calculating Cronbach's alpha reliability coefficient. I derived the coefficient from an analysis of the pairwise correlation between items on each subscale of the instrument and for the entire

measure as a whole. Cronbach's alpha coefficient is an accurate estimate of the average correlation of a set of items pertaining to a particular construct (Cronbach, 1951). With all reliability coefficients being .70 or higher, as shown in Table 1, the PSI/SF demonstrated an acceptable level of internal consistency and support for the reliability of the sample data. The 0.94 alpha coefficient for the total of all items on the PSI/SF demonstrated a high level of internal consistency and exceeded the alpha coefficients found by Roggman et al. (1994).

Family Resiliency Assessment Scale (FRAS). The Family Resiliency Assessment Scale (FRAS) is a 54-item instrument measure created by Sixbey (2005) to measure the components of Walsh's (2015) conceptual model of family resilience. Sixbey (2005) followed DeVellis's (2003) eight-step process for instrument development to create the FRAS.

Each item on the FRAS instrument is rated on a 4-point Likert-scale with points along the scale as follows: *strongly agree* (1); *agree* (2); *disagree* (3); *strongly disagree* (4) (Sixbey, 2005). Each FRAS instrument item is categorized into one of six subscales: Family Communication and Problem Solving (FCPS), Utilizing Social and Economic Resources (USER), Maintaining a Positive Outlook (MPO), Family Connectedness (FC), Family Spirituality (FS), and Ability to Make Meaning of Adversity (AMMA). For the purposes of this study, scores from each of the six subscales was analyzed. According to Sixbey (2005), the FRAS was found to have a high degree of reliability and validity both as a total scale and as individual subscales (p. 110). The FRAS has been shown to be a reliable measure of family resilience with a total scale reliability coefficient of a Cronbach alpha of 0.96. The six subscale Cronbach alpha

coefficients range between 0.70 and 0.96 with individual item factor loading at 0.30 or higher on only one subscale (Sixbey, 2005).

FCPS is a subscale of the FRAS consisting of 27 items and defined as a measure of a family's ability to clearly and openly convey information, feelings, and facts. The FCPS subscale has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.96 (Sixbey, 2005).

USER is a subscale of the FRAS used to measure external and internal family norms allowing a family to accomplish daily tasks by identifying and utilizing resources such as helpful family members, community systems, or neighbors. According to Sixbey (2005), the USER subscale consisted of eight items and has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.85.

MPO is a subscale designed to measure a family's ability to organize around a distressing event with the belief that there is hope for the future and persevere to make the most out of their options. The MPO subscale consists of six items and has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.86 (Sixbey, 2005).

FC is a subscale designed to measure the ability for a family to organize and bond together for support while still recognizing individual differences. The FC subscale consists of six items and has a calculated Cronbach alpha of 0.70. Although not quite as high as other FRAS subscales, the reliability is acceptable for this type of scale (Sixbey, 2005).

FS is a subscale designed to measure a family's use of a larger belief system to provide a guiding system and help to define lives as meaningful and significant. The FS subscale consists of four items and has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.88 (Sixbey, 2005).

AMMA is a subscale designed to measure the ability for a family to incorporate the adverse events into their lives while seeing their reactions as understandable in relation to the event. The AMMA subscale consists of three items and has demonstrated an acceptable level of internal consistency and reliability with a Cronbach alpha of 0.74 and considered acceptable for this type of scale (Sixbey, 2005).

Regarding validity of the instrument, Sixbey (2005) used correlation coefficients to report the FCPS subscale of the FRAS to the Problem Solving and Family Communication subscales of the McMaster Family Assessment instrument (Epstein, Baldwin, & Bishop, 1983). The FCPS correlated moderately (.78) with the Problem Solving and Family Communication subscale.

The internal consistency of the measure was determined by calculating Cronbach's alpha reliability coefficient (Cronbach, 1951). With all reliability coefficients being .70 or higher, the FRAS demonstrated an acceptable level of internal consistency and support for the reliability of the sample data. As shown in Table 2, the 0.96 alpha coefficient for the total of all items on the FRAS demonstrated a high level of internal consistency and matched the alpha coefficient found by Sixbey (2005).

Analysis of Data

According to a meta-analysis by Hayes and Watson (2013) of twelve studies comparing the stress in parents of children with and without autism, the mean effect

size of the studies was large according to Cohen's (1992) guidelines. Therefore, I

chose to anticipate a squared multiple correlation (R^2) of .25 for the multiple regression

model. A power level of .90 was selected for this study, which is a sufficient coefficient

for most statistical analyses according to Cohen (1992). Based on the results of the a-

priori power analysis, in order to use multiple regression analyses to answer the

research questions with seven predictors, Cohen's f^2 of .25, an alpha level of .05, and

power level of .90, a sample size of approximately 63 participants was necessary.

SPSS was used to perform the statistical analyses for this study. Preliminary

analyses were included to verify assumptions of multiple regression analysis.

Descriptive analyses were included to gain an understanding of the demographic

information of the parents who completed the survey questionnaires. I analyzed

frequencies for age of parents and children with autism, gender of parents and children

with autism, ethnicity of parents, gross income, marital status, number of children in

parents' home, age of children in their home, as well as measures of central tendency

and dispersion for age of parents and age of children with autism. Cronbach's alpha

coefficients were computed to determine the internal consistency for each measure and

subscales. Pearson's coefficients were also calculated to explore the relationships

between the independent variables and the dependent variable.

A standard multiple regression analysis was performed to determine how

independent variables regarding family resilience and gender of parents contributed

significantly to prediction of parental stress. Furthermore, the analysis was also

performed to determine the variance explained in the prediction of the dependent

variable among the independent variables.

To explore the calculated effect size for the regression model, beta weights and structure coefficients were computed. According to Pedhazur (1997), beta weights are best used as a starting point as researchers begin exploring how independent variables contribute to a regression equation. The beta weight for each given independent variable is the standardized regression weight for the variable, which is interpreted as the expected increase or decrease in the dependent variable (in standard deviation units) given a one standard-deviation increase in independent variable with all other independent variables held constant (Nathans et al., 2012).

Furthermore, since beta weights assume completely uncorrelated independent variables, Thompson (1992) recommended that researchers also use structure coefficients in addition to beta weights when analyzing potentially correlated variables. Therefore, due to potential high multicollinearity among family resiliency variables, structure coefficients were also calculated.

Structure coefficients demonstrate both the variance each independent variable shares with the dependent variable and the variance it shares if an independent variable's contribution to the regression equation was distorted in the beta weight calculation process due to assignment of variance it shares with another independent variable to another beta weight.

Correlational analyses were performed to provide additional information regarding the associations between the predictor variables and dependent variable as well as other demographic variables. In addition, correlational analyses were also performed to complement the multiple regression analyses by providing correlation coefficients necessary to calculate the structure coefficients (r_s) for each independent

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variable. Furthermore, point-biserial correlations were used to examine the relationship between parent gender and the continuous study variables.

<center>Results</center>

Demographic Information

The participant sample was comprised of 71 respondents. The sample of respondents (N = 71) was 69.0% (n = 49) female and 31.0% (n = 22) male. The mean age of parents in the sample was 37.3 years old (SD = 8.7). White (76.1%, n =54) respondents comprised the large majority of respondents in the sample, followed by Asian or South Asian respondents (8.5%, n = 6). Sixty-eight respondents (95.8%) reported having only one child with autism living in their home under the age of 13 years. Three respondents (4.2%) reported having two children with autism living in their home under the age of 13. Regarding the gender of respondents' children, the majority of respondents (73.2%) reported having only one male child with autism under the age of 13 (n = 52) and 22.5% reported being a parent of only one female child with autism under the age of 13 (n = 16). One respondent (1.4%) reported having one male and one female child with autism under the age of 13, and two respondents (2.8%) reported having two male children with autism under the age of 13. See Tables 3 and 4 for summaries of demographic statistics.

The mean age of respondents' children with autism under 13 years was 7.2 years of age (SD = 7.0) and ranged from 2 to 12 years old. The majority of respondents' children with autism were male (77.0%, n =57) and 17 were female (23.0%). Forty-one children (55.4%) were identified as being diagnosed with Autism Spectrum Disorder (ASD). Seventeen children (23.0%) were identified as being

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diagnosed with Autism or Autistic Disorder. Thirteen children (17.6%) were identified as being diagnosed with Asperger's Syndrome and three children (4.1%) were identified as being diagnosed with Pervasive Developmental Disorder - Not otherwise Specified (PDD-NOS).

Regarding socioeconomic factors, 41 respondents (57.7%) reported to be working full-time and 20 respondents (28.2%) reported not to be working outside the home. A review of gross family income revealed that 45.1% of respondents ($n = 32$) reported an income of $50,001-$99,000 and 23.9% of respondents ($n = 17$) reported an income of less than $50,000.

The sample included parents from all four regions and all nine divisions of the United States as designated by the United States Census Bureau (United States Census Bureau, Geography Division, 2010). The highest number of respondents ($n = 30$) reported living in the South region of the United States comprising 42.3% of the participant sample, while the second highest number of respondents ($n = 20$) reported living in the Midwest region of the country comprising 28.2% of the sample. Summaries of demographic information are provided in Tables 3 and 4.

Parental Stress Scores

I used the Parenting Stress Index-Short Form (PSI-SF) (Abidin, 1995) to measure parental stress. Total Parental Stress (PS) raw scores ranged from 38 to 160 ($M = 102.63$, $SD = 25.2$). Of note, 74.6% of respondents scored above the 80th percentile on the Total Parental Stress scale and 38.0% scored in the 99th percentile placing them in the clinical range.

Among scores on subscales of the PSI_SF, particularly high scores were found on the Difficult Child (DC) subscale with 81.7% of respondents scoring above the 80th percentile and 38.0% scoring in the 99th percentile. Raw scores for the DC subscale ranged from 14 to 58 ($M = 38.34$, $SD = 9.38$). The mean score of 38.34 equates to an average PD score above the 90th percentile placing them in the clinical range.

Parent-Child Dysfunctional Interaction (P-CDI) was the second highest subscale with 73.3% of respondents scoring above the 80th percentile and 25.4% scoring in the 99th percentile placing them in the clinical range. Raw scores for the P-CDI subscale ranged from 12 to 47 ($M = 30.55$, $SD = 8.77$).

Parental Distress (PD) was the lowest scoring subscale of the PSI-SF with 57.8% of respondents scoring above the 80th percentile and 18.3% scoring in the 99th percentile placing them in the clinical range. Raw scores for the PD subscale ranged from 12 to 60 ($M = 33.75$, $SD = 11.02$). A summary of the PSI-SF Total Score and subscale scores is provided in Table 5.

An independent-samples t-test was performed to determine if mothers and fathers of children with autism reported mean differences in their perceptions of family resiliency factors and parental stress in their families. Independent-samples t-tests are used to determine if a statistically significant difference exists between the means of two independent groups on a continuous dependent variable. Total Stress (PS) scores from the PSI-SF instrument were used as the measure of the dependent variable, parental stress, and the independent variable was parent gender (PG).

There were 23 male and 48 female respondents. Preliminary analysis of the collected data showed that all independent-samples t-test assumptions were met. PS

scores were higher for female parents ($M = 108.96$, $SD = 24.49$) than male parents ($M = 89.43$, $SD = 21.53$), a statistically significant difference, $M = - 19.52$, $SE = 5.98$, $t(69) = -3.265$, $p = .002$. Based on this analysis, mothers of children with autism demonstrated higher mean stress levels than fathers. Furthermore, the results of the analysis demonstrated a large effect size of $d = - .84$ (Cohen, 1988).

To compare family resilience scores, I used the Total Family Resilience (FRAS) scores from the FRAS instrument as the measure of the dependent variable and parent gender (PG) as the independent variable. FRAS scores were higher for fathers ($M = 176.13$, $SD = 18.02$) than mothers ($M = 163.75$, $SD = 22.69$), by a statistically significant difference ($M = 12.38$, $SE = 5.40$, $t(69) = 2.292$, $p = .025$). Based on this analysis, fathers demonstrated higher mean family resilience levels than mothers. Furthermore, the results of the analysis demonstrated a medium effect size of $d = .58$ (Cohen, 1988).

Research Question 1

To address the first research question, a correlational analysis was performed to examine the relationship between the variables as shown by resulting correlation coefficients (r), which indicate the magnitude and direction of the linear relationship between two variables on an ordinal scale (Hinkle, Wiersma, & Jurs, 2003). As shown in the correlational matrix in Table 6, the analyses revealed negative relationships between each family resilience variable and parental stress scores. As family resilience scores increase, PS scores tended to decrease.

AMMA ($r = -.607$, $p < .01$) had a moderate negative correlation with total parental stress (PS) and the highest among independent variables. MPO had a moderate negative correlation with PS ($r = -.584$, $p < .01$). FCPS ($r = -.561$, $p < .01$) and FC ($r = -$

.505, $p < .01$) also had moderate negative correlations with PS. USER ($r = -.438$, $p < .01$) had a low negative correlation with PS. FS ($r = -.138$, $p = .252$) did not demonstrate a statistically significant correlation to PS.

Further analyses were performed to determine correlations between demographic variables and the three subscales of PS, which included Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC) (Abidin, 1995). A point-biserial analysis was also performed to determine the correlation between PS and PG.

According to the point-biserial correlation results, PS scores demonstrated a low correlation to PG $r_{pb}(71) = .366$, $p < .01$. PS scores were not significantly correlated to race of parent, age of parent, family income, marital status, employment status, education level, number of children in home, gender of child with autism, child's diagnosis, age of child with autism, respite care, and geographic region.

Research Question 2

Preliminary analyses were performed to verify assumptions for multiple regression analysis, and check for data problems prior to performing regression analyses of the collected data. All multiple regression assumptions were met except multicollinearity of variables, which occurs when two or more independent variables are highly correlated with each other leading to problems in the determination of which variable contributes to the variance explained in a multiple regression model.

A review of correlation coefficients between each factor of family resilience and parent gender revealed that the MPO subscale was highly correlated to AMMA ($r = .757$, $p < .001$) and FCPS ($r = .780$, $p < .001$). Therefore, MPO was removed from

multiple regression analyses reducing the number of family resiliency predictors from six to five.

To check for significant outliers in the sample, standardized residuals were reviewed, which revealed three cases with values greater than 3.00 standard deviations. The cases were removed from the sample dataset as outliers, therefore after all assumptions were adjusted for and data problems were corrected, a multiple regression analysis with simultaneous entry ($n = 71$) was performed using SPSS to answer the second research question. Outcome data was compiled and reported in narrative and tabular forms. The Total Stress (PS) scores from the PSI-SF were used as the measure of the dependent variable parental stress. Independent variables were parent gender (PG) and five factors of family resilience.

As shown in Table 7, the regression model itself was statistically significant and the independent variables explained 48.0% of the variance in PS, and the overall regression equation was statistically significant $F(6, 64) = 18.140$, $p < .01$, Adjusted R^2 = .480. The difference between R^2 and Adjusted R^2 indicated minimal shrinkage due to correction for sampling error. The Adjusted R^2 value was indicative of a large effect size according to Cohen's (1988) classification.

Beta weights and structure coefficients were calculated to explore the source of the effect size. Table 8 displays the beta weights (β), the structure coefficients (r_s), the squared structure coefficients (r_s^2), and the bivariate correlations (r) for all predictor variables derived from the model.

Regarding the beta weights of variables, AMMA, FC, and PG demonstrated the largest values and each of the three independent variables were statistically significant

($p < .05$). The other independent variables (FCPS, USER, and FS) were not statistically significant, but each demonstrated beta weight contributions to the regression model.

According to the beta weight value for AMMA, each standard deviation increase in its scores led to a .334 standard deviation decrease in PS scores, with all other independent variables controlled. Moreover, each additional standard deviation increase in FC led to a .244 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for PG indicated female PS scores are higher than male scores by .220 standard deviations, with all independent variables controlled. Moreover, each additional standard deviation increase in FCPS led to a .132 standard deviation decrease in PS scores, with all independent variables controlled. Each additional standard deviation increase in USER led to a .117 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for FS indicated that each additional standard deviation increase in FS led to a .055 standard deviation increase in PS scores, with all independent variables controlled.

According to the calculated squared structure coefficients, when variance explained in PS was allowed to be shared between all independent variables, 70.3% of the 48.0% of the variance explained by the regression model was attributed to AMMA, 60.0% was attributed to FCPS, 48.7% was attributed to FC, 36.6% was attributed to USER, and 3.6% was attributed to FS. Moreover, according to the other squared structure coefficients, 25.6% of the 48.0% of the variance explained by the regression model was attributed to PG.

Discussion

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In this study, relationships between family resilience factors and parental stress were examined among mothers and fathers of children with autism by descriptive, correlational, and regression analyses. The results can provide critical information for mental health clinicians and researchers seeking to know more about family resiliency and stress. Ultimately, families and parents of children with autism can benefit from this study by gleaning information and integrating it into the clinical realm. When family members in this population seek counseling, it is imperative for counselors to be prepared to understand the benefits of resiliency and the impact it can make in reducing stress levels.

Demographic characteristics of the participants were generally representative of those in other studies of parents and children affected by autism. As in other related studies, mothers demonstrated a higher rate of participation in the study than fathers did (Soltanifar et al., 2015; Rivard et al., 2014; Sabih & Sajid, 2008; Pisula & Kossakowska, 2010). Boyd (2002) attributed higher response rates to mothers to them being primary caretakers of their children with autism.

Regarding the gender of respondents' children, approximately three times as many respondents in the sample reported having a male child than a female child with autism. However according to the CDC (2014), male children with autism outnumber female children by a ratio of approximately five to one. Therefore, the number of respondents with female children with autism was higher than expected.

The percentage of respondents reporting to be either "married" or "living with domestic partner" was also higher than expected at approximately 80%. According to Freedman et al. (2012), the divorce rate of this population is greater than 50%, which

suggests that single, divorced, and separated parents tended not to participate in the survey. One possible explanation for this difference is that single parents have less time to participate in surveys due to a relatively number of parental duties.

All other demographic characteristics including socioeconomic status were within the expected findings based on previous autism related research findings (CDC (2014). For example, 76.1% of respondents in this study identified themselves as "White". According to a report by the CDC (2014), Caucasian children are more likely to be identified with autism than children of other races due to a lack of diversity in samples of studies with families impacted by autism. Therefore, distribution of the racial composition of this study was not surprising. The ratio of Asperger syndrome to other autism disorders in the sample was also not surprising as the distribution of 1:6 in the sample was in the mid-range found in other autism research (Fombonne & Tidmarsh, 2003).

The findings of this study are consistent with the results of several other studies, which show that parents of children with autism experience high degrees of stress (Baker-Ericzen et al., 2005; Bromley et al., 2004; Erguner-Tekinalp & Akkok, 2004; Hastings, 2003; Hastings & Johnson, 2001; Huang et al., 2014; Konstantareas & Papageorgiou 2006; Lecavalier et al., 2006; Lyons, Leon, Roecker Phelps, & Dunleavy, 2010; Molteni & Maggiolini, 2015); Pisula & Kossakowska, 2010; Rivard et al., 2014; Sabih & Sajid, 2008; Soltanifar et al., 2015).

The results of the study are not consistent with other studies regarding stress and age of the child with autism. Although, previous studies have found significant correlations between parental stress levels and the age of children with autism (Barker

et al., 2011; Fitzgerald, Birkbeck, & Matthews, 2002; Gray, 2002; Lounds, Seltzer, & Greenberg, 2007; Konstantareas & Homatidis, 1989; McStay et al., 2013; Smith, Seltzer, & Tager-Flusberg, 2008; Tehee, Honan, & Hevey, 2009), I found no statistically significant correlation between these variables.

While the average of all parental stress subscales were in the clinically significant range, the Difficult Child (DC) subscale had the highest average score, followed by Parent-Child Dysfunctional Interaction (P-CDI) and Parental Distress (PD). Based on other studies (Kayfitz, Gragg, & Orr, 2010), I expected the mean PD score to be the highest of the three subscales.

However, elevated DC scores from parents of children with autism relative to the other subscale have been found in previous studies using the PSI-SF (Davis & Carter, 2008) and is plausible considering the intended purpose of the measure. According to Abidin (1995), the DC subscale was developed as a valid measure of stress levels specifically related to managing difficult behaviors that are often "rooted in the temperament of the child" (p. 56). Therefore, high DC scores could be linked to difficult behaviors, which are typically rooted in the temperaments of children with autism rather than the result of learned responses. Previous studies have also attributed increased parental stress to behavioral characteristics associated with autism (Pisula, 2007; Podolski & Nigg, 2001; Tomanik, Harris, & Hawkins, 2004) and symptom severity (Beck, Daley, Hastings, & Stevenson, 2004; Konstantareas & Papageorgiou, 2006).

Regarding other significant correlations of demographic variables to parental stress scales, female participants reported higher levels of distress than males in DC, P-

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CDI, and PD scores. Moreover, DC scores demonstrated indicated that white parents tend to report higher levels of distress than non-white parents do.

P-CDI scores also demonstrated a low correlation to gender of child with autism indicating that parents of male children with autism tended to report higher levels of stress related to parent-child interaction than parents of female children. Finally, P-CDI scores demonstrated a low correlation to respite care indicating that parents receiving weekly respite care tended to report higher levels of stress related to parent-child interaction than parents that not receiving respite care.

First Research Question

In this study, a significant negative relationship was found between each subscale of the FRAS and total parental stress, as measured on the PSI-SF. The results demonstrated that parents with lower degrees of stress tended to have higher degrees of family resilience in each subscale, and parents with higher degrees of stress tended to have lower degrees of family resilience in each subscale.

Regarding correlations between family resilience and parental stress, the ability to make meaning of adversity (AMMA), family communication and problem-solving (FCPS), and family connectedness (FC) were the most significant. This outcome suggests that resilience levels are related to stress levels. However, the correlational results do not indicate that higher resilience necessarily causes lower parental stress. The correlations might merely be the consequences of one or more other causal factors. Therefore, the statistical significance of the correlations can be recognized as evidence of possible causal relationships between family resilience factors and parental stress with the relationship between them being unlikely due to chance.

In previous studies, research specifically focused on the relationship between family resiliency and parental stress is limited for parents of children with autism. However, the findings in this study are consistent with correlational results in other studies that have found a negative relationship between stress and resilience (Becvar, 2013; Goldenberg & Goldenberg, 2013; Pargament, 1996; Krok, 2014; McCubbin, 1995; Walsh, 2011, 2015).

Second Research Question

The second research question in this study regarded a determination of how much of the variance of parental stress was explained by parent gender and family resiliency factors. According to analyses of beta weights and structure coefficients for each predictor findings in this study, AMMA, FC, PG, FCPS, USER, and FS each contributed to the shared variance of predicted PS. MPO was not included in this analysis due to the variable's high correlation with both AMMA and FCPS.

According to the beta weight value for AMMA, each standard deviation increase in its scores led to a .334 standard deviation decrease in PS scores, with all other independent variables controlled. Moreover, each additional standard deviation increase in FC led to a .244 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for PG indicated female PS scores are higher than male scores by .220 standard deviations, with all independent variables controlled. Moreover, each additional standard deviation increase in FCPS led to a .132 standard deviation decrease in PS scores, with all independent variables controlled. Each additional standard deviation increase in USER led to a .117 standard deviation decrease in PS scores, with all independent variables

controlled, and the positive beta weight for FS indicated that each additional standard deviation increase in FS led to a .055 standard deviation increase in PS scores, with all independent variables controlled.

According to the calculated squared structure coefficients, when variance explained in PS was allowed to be shared between all independent variables, 70.3% of the 48.0% of the variance explained by the regression model was attributed to AMMA, 60.0% was attributed to FCPS, 48.7% was attributed to FC, 36.6% was attributed to USER, and 3.6% was attributed to FS. Moreover, according to the other squared structure coefficients, 25.6% of the 48.0% of the variance explained by the regression model was attributed to PG.

An overall examination of the beta weight and structure coefficients of each variable yielded the following narrative summary. Of the six variables in the regression model, AMMA stood out among the others with the highest beta weight value and highest structure coefficient. The moderate beta of AMMA combined with a large structure coefficient indicated a strong probability that some of the variance it explained was shared with one or more other variables. However, AMMA was clearly the largest contributor to the variance in PS scores bolstering the importance of the family belief systems domain as constructed in Walsh's (2015) framework of family resilience.

Although the beta weight coefficient of FCPS was low, the structure coefficient was high, meaning that it was likely correlated with one or more other variables and its variance is being explained somewhere else. Such correlation does not make it a bad predictor of PS. It just means that the variance of FCPS can be explained elsewhere in

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this data set. The high structure coefficient indicated the relatively strong predictive importance of FCPS on PS.

FC was also a good predictor of PS. FC had a higher beta weight but a much lower structured coefficient than AMMA and FCPS, meaning that it had less correlation and less shared variance with other variables. Although, also a shared predictor of the variance of PS scores, a review of the beta weight and structure coefficient of USER indicated lower relative importance of the variable than AMMA, FCPS, and FC.

The results of this study are consistent with the findings of previous studies and reinforces the importance of beliefs to a family facing trials specifically regarding the benefit of attributing meaning to each struggle. Making meaning from adversity is a relational process emerging out of the family belief system and an essential component of family resiliency (Walsh, 2015). As Wright and Bell (2009) contend, belief systems held by the family greatly affect the ways in which each family member perceives challenges and crises. Such perceptions develop due to cultural and spiritual beliefs passed from one generation to the next and influence each family's approaches to both privilege and adversity. When a family faces adversity, a crisis of meaning potentially develops as members attempt to attach meaning to the painful experience. The meaning is both reflective of the family's existing belief system and contributive to meaning developed in future crises.

Family members bolster resilience within the family by finding meaning in the midst of their struggles and recognizing crises as shared challenges that they can face together. Characteristics of family relationships that facilitate such recognition include the existence of mutual assurance that family members can trust and support one

another when difficulties arise (Beavers & Hampson, 2003). Moreover, Walsh (2015) explained, "Families are better able to weather adversity when members have an abiding loyalty and faith in each other, rooted in a strong sense of trust" (p. 45). The results in this study are consistent with Bayat's (2007) findings regarding parents' ability to make meaning out of having a child with autism, as well as becoming more compassionate, caring, and mindful of others. The findings are also consistent with McGoldrick, Garcia Preto, and Carter (2016) who found that family members make meaning from adversity by recognizing a family legacy of thriving when faced with difficulties.

In addition to the benefit of having this relational view of family resilience, when members sense coherence within the family system, meaning is also facilitated (Walsh, 2015). A sense of coherence encourages members to be more hopeful in their family's ability to clarify and find meaning in adversity. The results of this study are consistent with the results of Antonovsky and Sourani's (1988) study, which showed that a sense of coherence as predictive of adaptive coping and higher degrees of satisfaction among couples experiencing stress. Similarly, according to the findings of this study, parents of children with autism have lower degrees of stress when they perceive coherence in their families.

Effective communication facilitates coherence within the family. The findings in the study are consistent with previous literature regarding the importance of adequate family communication styles as a predictor of family functioning (Epstein et al., 2003). Family communication and problem solving abilities were found to be highly correlated to parental stress in this study. Families of a child with autism can facilitate resilience

by seeking to share clear information about their situation to one another (Walsh, 2015).

Good communication leads to improved collaboration and reductions in the stress that

accompanies unknown circumstances. Therefore, parental stress can be reduced when

they open up to each other about their emotional state, their concerns, and their hopes.

Again, cohesiveness is increased and loneliness decreased as family members learn to

bond together to solve problems and address their challenges as a unit. Therefore, the

better family members communicate the more connected they become and the weight

of living with a child with autism is dispersed and therefore more manageable and

effective than individualized coping.

Moreover, family connectedness was also a contributor to shared variance in the

predicted degrees of parental stress and the only significant contributor associated with

the family organizational processes domain in Walsh's (2015) framework of family

resilience. These findings regarding family connectedness are also consistent with

Bayat's (2007) findings showing that as a result of working together for the good of the

child with autism, the majority of respondents reported they had become more

connected and had grown closer. Kapp and Brown (2011) also found that cooperation

and togetherness in families with a child with autism contributed to wellness and

resilience. Marciano, Drasgow, and Carlson (2015) found that mutual caring of a child

with autism tended to improve the bonds among marriage partners.

Similar to making meaning out of adversity, family connectedness relies on

positive interpersonal characteristics such as trust and support, which are indicative of

strong bonds within the family system. Family connectedness is crucial to the structural

organization of the family unit regarding boundaries and roles, as well as emotional

bonding (Minuchin, 1974). Resilient families are able to maintain a healthy balance

between closeness and separateness within the family. Moreover, according to family

systems theory, appropriate relational boundaries minimize the occurrence of

triangulation dynamics that can develop under stress (Bowen 1978, Minuchin, 1974).

Therefore, the findings in this study highlight the importance of family connectedness

and are consistent with family systems theory that emphasizes the need for healthy

boundaries in the facilitation of effective teamwork in facing stressful situations.

As consistent with previous studies across multiple cultures, these results

demonstrate that mothers of children with autism report higher levels of stress than

fathers do (Pisula & Kossakowska, 2010; Sabih & Sajid, 2008; Soltanifar et al., 2015).

Although Soltanifar et al. (2015) found a significant correlation between the level of

parental stress of fathers and the severity of the autistic disorder in children, this finding

was inconsistent with this study, which did not find stronger parental stress correlations

among fathers with any variables.

Considering the demographics of the sample, the results of this study regarding

parental gender and stress were not surprising. According to traditional roles and

responsibilities of American family culture, mothers are typically more involved than

fathers in the caretaking duties of their children. Mothers also tend to spend relatively

more time with their children than fathers. Therefore, due to the additional

responsibilities and time-spent caregiving, mothers of children with autism logically

experience higher levels of stress than fathers do.

Finally, I was surprised that family spirituality was a relatively small contributor to

the shared variance of parental stress in this study and among the weakest correlates to

parental stress of all variables. I was especially surprised, since characteristics related to family spirituality are similar to those of family connectedness and making meaning in adversity, both of which were highly correlated to parental stress and contributive to the shared variance of parental stress levels. For example, regarding making meaning of adversity, Jegatheesan, Miller, and Fowler (2010), found that "religion was the primary frame within which parents understood the meaning of having a child with autism" (p. 105).

Moreover, Bayat (2007) found changes in spiritual growth or a renewed closeness to God after having a child with autism. Others studies have also shown reductions in stress levels related to the employment of religious coping behaviors (Konstantareas, 1991; Pisula & Kossakowska, 2010). Moreover, individuals with a spiritual identity are empowered by using religious activities to reduce stress when facing adversity (Pargament, 1996; Pargament et al., 1998; Krok, 2014).

The inconsistency between previous findings and this study regarding spirituality might be due to differences in study variables. For example, researchers in these studies tended to focus specifically on religious coping of individuals rather than examining family resilience and not all focused specifically on the population of parents of children with autism.

In addition, the differences might be attributed to the FS related questions on the FRAS instrument. The questions seem to be primarily oriented more to religious practice and activities rather than assessing a perceived relationship with a sovereign and omnipotent being capable of transcending human limitations and overcoming mortal struggles and stresses. Questions seeking to assess a sense of closeness to

and faith in a sovereign, omnipotent power might have resulted in higher FS scores and reflected the importance faith and trust in a strength beyond their own in the reduction of stress.

Clinical Implications

Clinicians working with family members of children with autism can use the results of the study to bring hope to clients within this population. Clinicians could use these findings to improve understanding and empathy for clients faced with stress related to having autism in the family.

Individual, family and couples counselors can affirm the reparative potential of families by using these findings to inform treatment plans that facilitate the development of specific types of resilience within the family system. For example, in family therapy, these findings can encourage clinicians to explore and recognize the existing belief systems and organizational patterns of client families. Family members reporting a family legacy of thriving when faced with adversity, can be encouraged to find clarity and meaning within the difficulties of living with a child with autism, which have been shown to make the difficulties easier to bear and potentially facilitate a perspective that is more positively skewed.

Clinicians could also use these findings to justify the value in educating parents and other caregivers about the importance of striving for resilience in their family. For example, filial therapists can supplement their traditional protocols by teaching parents ways to help siblings of children with autism develop resiliency.

In couples counseling, these findings can affirm clinicians and clients of the typical differences in stress levels between mothers and fathers. Clinicians have

evidence to normalize the higher stress levels for mothers, and fathers can be encouraged to be more empathetic to their partner.

Based on findings from this research, couples can also be encouraged to develop resiliency in their home environment, which can reduce the stress that may be contributing to their presenting problems in counseling. Treatment approaches focused on connectedness and trust building can also lead to increased resilience in the family and ultimately reduce parental stress.

Research Implications

The results of this study could provide other researchers with findings that inform future research projects. For example, the results of this study indicate the likelihood of specific types of family resiliency contributing more to lower the degrees of stress than other types of family resiliency. Therefore, research implications include the need to investigate further the importance of families striving to make meaning out of adversity, as well as seek healthy forms of connectedness between family members.

Secondly, the inconsistent findings of this study compared to previous studies regarding the significance of religion and spirituality when facing adversity highlight the need to investigate such factors in future studies of families, couples, and individuals. For example, researchers focusing on the comparison of various types of religious and transcendent beliefs could determine if specific spiritual beliefs or practices activities contribute more to stress reduction than others do.

Thirdly, I primarily focused on the correlational and predictive relationship between family resilience and stress of parents of children with autism. However, in the

future, other researchers could examine the relationship of these variables among siblings of children with autism.

Fourthly, researchers could also use the findings of this study to examine how family resiliency can potentially reduce stress among clients faced with other adverse situations. For example, in future studies, researchers could sample parents of children with other disorders to determine the potential impact of family resiliency.

Fifthly, researchers could also use qualitative methods in future studies allowing the participants with the opportunity to convey perceptions in their own words. By doing so, researchers could observe themes that could not be determined with the instruments used in this quantitative study.

Sixthly, I based this study on collected data from a cross-sectional sample. However, in future studies researchers could use a longitudinal design to evaluate the impact of family resiliency and parent gender on parental stress over time.

Finally, researchers could use experimental designs in future studies to explore the impact of an approach to therapy that employs assessments and interventions related to the development of resilience. Sixbey (2005) and Walsh (2015, pp. 357-367) provide related outlines for clinical assessment and intervention.

Limitations of Study

Results from this research need consideration in lieu of the following limitations as well as others not mentioned below. Among the limitations of the study is the manner in which I collected data through self-report measures and the ambiguity inherent in studying issues related to a spectrum disorder. Although this is a

quantitative study, self-reports regarding a relatively ambiguous topic area resulted in a less objective study.

Furthermore, self-reporting measures have the underlying assumption that participants accurately describe their actual perceptions even though results can be underreported (Morlan & Tan, 1998). For example, participants may have responded in a socially desirable way or according to a particular response style (van Riezen & Segal, 1988). Moreover, defense or coping mechanisms may have influenced participant responses (Morlan & Tan, 1998).

Another limitation was the lack of racial and ethnic diversity among participants in the sample. The convenience sample from the limited locations had a disproportionately high number of Caucasian participants and female participants.

Furthermore, the data collection sites were organizations focused on offering support services to parents of children with autism. Therefore, the sample of parents might have been biased towards those who have more supports or coping resources than those not seeking or receiving such resources. As a result, a sample lacking representation of parents experiencing debilitating levels of stress due to a lack of resources might have affected outcomes. Conversely, regarding the findings related to parental stress levels, parents with high levels of stress might have been more likely to participate in the study.

Table 1

PSI-SF Internal Consistency

PSI Subscales	α Roggman et al. (1994)	α Current Sample
Parental Distress (PD)	0.79	0.92
Parent-Child Dysfunctional Interaction (P-CDI)	0.80	0.84
Difficult Child (DC)	0.78	0.87
Total	0.90	0.94

Table 2

FRAS Internal Consistency

FRAS Subscales	α Sixbey (2005)	α Current Sample
Family Communication and Problem Solving (FCPS)	0.96	0.95
Utilizing Social and Economic Resources (USER)	0.85	0.81
Maintaining a Positive Outlook (MPO)	0.86	0.91
Family Connectedness (FC)	0.70	0.70
Family Spirituality (FS)	0.88	0.88
Ability to Make Meaning of Adversity (AMMA)	0.74	0.80
Total	0.96	0.96

Table 3

Respondents' Age, Gender, Ethnicity and Number/Gender of Children

	(*N* = 71)	
	M	*SD*
Age of Parent	37.8	8.7
	N	*%*
Gender of Parent		
Male	22	31.0
Female	49	69.0
Race/Ethnicity of Parent		
American Indian or Alaska Native	1	1.4
Asian or South Asian	6	8.5
Bi-racial	1	1.4
Black or African American	4	5.6
Hispanic or Latino	5	7.0
White	54	76.1
Number of Children with Autism under 13		
1 child	68	95.8
2 children	3	4.2
Gender of Children with Autism under 13		
1 boy	52	73.2
1 girl	16	22.5
2 boys	2	2.8
1 boy and 1 girl	1	1.4
Total Number of Children in Home under 18		
1 child	29	40.8
2 children	23	32.4
3 children	14	19.7
4 children	5	7.0

Table 4

Respondents' Marital Status and Socioeconomic Factors

	(N = 71)	
	N	%
Marital Status		
Single	7	9.9
Married	54	76.1
Widowed	1	1.4
Divorced	5	7.0
Separated	1	1.4
Living with Domestic Partner	3	4.2
Employment Status		
Full-time	41	57.7
Part-time	10	14.1
Not working outside the home	20	28.2
Gross Family Income		
<$50,000	17	23.9
$50,000 - $99,000	32	45.1
$100,000 - $149,000	9	12.7
$150,000 - $199,000	5	7.0
$200,000+	8	11.3

Table 5

Summary of PSI-SF Total Score and Subscales (n = 71)

PSI-SF	Mean	SD	Study Range	> 80th Percentile
Total Score	102.63	25.16	38-160	74.6%
PD	33.75	11.02	12-60	57.8%
P-CDI	30.55	8.77	12-47	73.3%
DC	38.34	9.38	14-58	81.7%

Table 6

Pearson Correlation Coefficients

	PS	FC	AMMA	FCPS	USER	FS	MPO	PG
PS	1.000							
FC	-.505**	1.000						
AMMA	-.607**	.359**	1.000					
FCPS	-.561**	.497**	.645**	1.000				
USER	-.438**	.376**	.436**	.552**	1.000			
FS	-.138	.016	.103	.268*	.466**	1.000		
MPO	-.584**	.419**	.757**	.780**	.531**	.192	1.000	
PG	.366**	-.146	-.245*	-.188	-.165	-.293*	-.243*	1.000

Note. $**p < 0.01$; $*p < 0.05$; $n = 71$.

Table 7

Regression Summary Table of Six Predictors and Parental Stress (n = 71)

Model	SOS	df	Mean Square	F	p	R^2	R^2_{adj}
Regression	23239.587	6	3873.265	18.140	.001*	.525	.480
Residual	21060.892	64	329.076				
Total	44300.479	70					

Note. Predictors included Family Communication and Problem Solving (FCPS), Utilizing Social and Economic Resources (USER), Family Connectedness (FC), Family Spirituality (FS), Ability to Make Meaning of Adversity (AMMA) and Parent Gender (PG). Dependent variable was Parental Stress (PS). $*p < .01$.

Table 8

Beta Weights and Structure Coefficients for the Regression Model (n = 71).

Variable	β	r	r_s	r_s^2
Family Connectedness (FC)	-.244	-.505	-.698	.487
Ability to Make Meaning of Adversity (AMMA)	-.334	-.607	-.838	.703
Family Communication and Problem Solving (FCPS)	-.132	-.561	-.775	.600
Utilizing Social and Economic Resources (USER)	-.117	-.438	-.605	.366
Family Spirituality (FS)	.055	-.138	-.191	.036
Parent Gender (PG)	.220	.366	.506	.256

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APPENDIX A

INTRODUCTION

Autism is a lifelong developmental syndrome with characteristics that include social impairment, patterns of stereotypical behavior, and restricted interests and activities (American Psychological Association [APA], 2013). Although the specific degrees of symptomatology are unique from one person to the next, the effects of autism features are pervasive and profound not only for the person diagnosed with the disorder but also for surrounding family members.

Recognition of the impact of raising a child with autism can be understood within the context of family systems theory. According to Bowen (1978), the family is a closed group with an emotional interconnection between members. Each family member has an impact on the overall family system regardless of the mental, physical, or emotional health of the member (Bowen, 1978).

For example, the entire family system is impacted when a new child is brought into a family. After a period of adjustment to inevitable changes accompanying the new addition, the family system eventually returns to a homeostatic condition, but individual members, inter-relational dynamics, as well as identity, roles, rules, and other attributes, are perpetually and permanently changed to some degree (Fogel, King, & Shanker, 2008).

The mental, emotional, physical, and behavioral health of each family member is among the more significant factors contributing to each individual's degree of impact on the family (O'Gorman, 2012). In the case of a child with a neurological disorder like autism, family members make numerous life changes to adjust to the challenges and needs of the child with autism (DePape & Lindsay, 2015). The lower functioning mental, social, and physical abilities of the child require exceptional levels of care and

support that take energy and time away from other people and issues needing attention. Such adaptation results in emotional impact on surrounding family members creating stressful and challenging conditions (DePape & Lindsay, 2015).

Statement of the Problem

Although all family members are affected, raising a child with autism results in particularly high levels of stress due to the unique responsibility of being the primary caregiver of a child who is often difficult to care for and prone to engage in behavior that is often unpredictable, disruptive, and problematic to others around them. Researchers have postulated that such elevated stress levels are likely to result from attempts to manage the behavioral, social, and communicative challenges typically associated with autism (Jarbrink, Fombonne, & Knapp, 2003). When a child receives an autism diagnosis, his or her parents are also likely to feel emotional responses similar to those evoked by grief (Holland, 1996). In numerous studies, researchers have found that parents of children with autism have higher levels of stress than parents of children who do not have autism (Bromley, Hare, Davison, & Emerson, 2004; Hastings, 2003; Hastings & Johnson 2001; Konstantareas & Papageorgiou, 2006; Lecavalier, Leone, & Wiltz, 2006; Rivard, Terroux, Parent-Boursier, & Mercier, 2014; Walsh, Mulder, & Tudor, 2013). Moreover, researchers have consistently found mothers and fathers of children with autism experience differing levels of stress (Pisula & Kossakowska, 2010; Rivard et al., 2014; Sabih & Sajid, 2008; Soltanifar et al., 2015).

Purpose of the Study

Previous research has overwhelmingly shown increased resilience to be predictive of reduced stress in adults (Cunningham et al., 2014; Fang et al., 2015;

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Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). Researchers have also

found family resilience to be predictive of reduced stress within families (Deist & Greeff,

2015; Greeff & Thiel, 2012). The purpose of this study is to examine how family

resilience and parent gender are predictive of degrees of stress among parents of

children with autism and to examine the differences in degrees of stress between

mothers and fathers. Researchers, counselors, and parents can benefit from more

information regarding factors that can reduce the stress that comes with raising a child

with autism and recognize potential differences between mothers and fathers in degrees

of parental stress. Principles of family resilience theory (Walsh, 2011; Walsh, 2015) and

family systems theory (Bowen, 1978; Minuchin, 1974; Satir, 1988) provided a theoretical

context for the study. I designed the study to answer the following research questions:

1. What is the relationship between each of the six factors of family resilience and
   degrees of parental stress among parents of children with autism?

2. How much of the variance in the amount of parental stress is explained by parent
   gender (PG) and family resiliency factors, which include Family Communication
   and Problem Solving (FCPS), the Utilization of Social and Economic Resources
   (USER), Maintenance of a Positive Outlook (MPO), Family Connectedness (FC),
   Family Spirituality (FS), and the Ability to Make Meaning of Adversity (AMMA)?

Significance of the Study

The number of children receiving an autism diagnosed has increased

considerably over the last 30 years (Baird et al., 2006; Russell, 2012). As a result, the

prevalence of autism is now high enough that mental health professionals are more

likely than ever before to have parents presenting for treatment with stress related to

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autism. Societal support services partially mitigate the impact of such stress on families. However, even though the number of support services has grown in recent years, counselors often have only a limited knowledge of the unique problems associated with autism and often lack the skills and resources to assist effectively (Bristol, 1984; DePape & Lindsay, 2015; Sivberg, 2002). The lack of effective therapeutic services, adequate special education facilities, and adequate health and social service providers leave families without professional assistance in searching for ways to cope with inevitable stress. As a result, families learn to become resilient for the sake of maintaining a functional and healthy family system (DePape & Lindsay, 2015; Sivberg, 2002). Counselors need to be more prepared to work with the unique challenges related to this population and aware of variables shown to affect the degrees of perceived stress that parents feel.

In this study, I will attempt to inform the literature regarding parents and families of children with autism. I will present research and clinical implications based on the results of the study. First, by attending to a relative lack of research on the topic of family resilience, and parental stress with this population, the study will provide additional research findings. Despite the increased interest in autism related studies, a deficit in counseling research exists regarding the positive impacts on parents and families of having a child with autism.

Medical research focused on autism has not resulted in a cure, and questions regarding definitive causes of higher prevalence continue to go unanswered. In contrast, research in the social sciences in recent years has resulted in improved efficacy of clinical interventions related to autism. In particular, the amount of autism

related research findings from counseling and marriage and family studies have increased substantially in recent years particularly with regard to the relationship between stress and raising a child with autism (Bromley et al., 2004; Hastings, 2003; Hastings & Johnson 2001; Konstantareas & Papageorgiou, 2006; Lecavalier et al., 2006; Rivard et al., 2014; Walsh et al., 2013).

However, quantitative research focused on parental gender differences and family resilience development as adaptive responses to the difficulties related to having a child with autism is scarce. This lack of research on these variables is surprising considering that the majority of research related to family resilience has increased substantially in recent years (Leadbeater, Dodgen, & Solarz, 2005; Zautra, Hall, & Murray, 2010).

Second, results of this study can have clinical implications. Mental health professionals can refer to the findings and apply them to treatment plans for individuals regarding stress management, emotional regulation, and resilience development, as well as treatment plans for couples and families regarding the impact of stress on relationships. Mental health professionals in particular who counsel couples and families can develop higher competency and may be able to use the findings of this study to enhance counseling efficacy by gaining an increased awareness and empathic understanding of clients presenting with autism related experiences. According to Hartley (1995), "the theory and practice of counseling is predicated on the notion that the experience of the client can (and should) be understood by the counselor (e.g., Rogers, 1975; Truax & Carkhuff, 1967), and regardless of the particular theory practiced, empathy is central to the counseling process" (p. 13). Clinicians may also be

able to apply the results of the study to help them conceptualize clients raising children with autism as well as familial relationship dynamics. The results will provide a more thorough understanding of family resiliency and parent gender as predictive contributors to the degrees of parental stress among this population.

Third, the results may also benefit parents and other family members seeking an improved understanding of the factors contributing to their stress, as well as a more accurate understanding of the impact on the family. Couples can benefit from learning more about the similarities and differences between mothers and fathers regarding resilience and stress as related to raising a child with autism (Lyons, Leon, Roecker Phelps, & Dunleavy, 2010).

Finally, the results may benefit children with autism as well as their siblings. According to previous studies, parental stress can inhibit the positive effects of child development (Dabrowska & Pisula, 2010; Osborne et al., 2008).

Conclusion

In summary, autism is a challenging disorder that affects not only the person with the diagnosis, but also the person's family in multiple ways and to varying degrees. In previous studies, researchers have found parents of children with autism to be significantly affected by increased levels of stress (Bromley et al., 2004; Harper, 2013; Hastings, 2003; Hastings & Johnson 2001; Konstantareas & Papageorgiou, 2006; Lecavalier et al., 2006; Rivard et al., 2014; Soltanifar et al., 2015; Walsh et al., 2013).

Results of this study may add to the knowledge base regarding the effects of family resiliency factors on parental stress and provide information regarding the differences in stress levels between mothers and fathers of children with autism. Direct

benefactors of this study include counseling researchers, clinicians, as well as parents

and other family members living with children with autism.

APPENDIX B

EXTENDED LITERATURE REVIEW

In Appendix A, I explained the rationale for this study regarding predictors of parental stress and emphasized the need to examine how family resilience factors predict parental stress. The purpose of this section is to examine the literature related to autism, parental stress, and family resilience. This section includes three smaller sections: autism, parental stress, and family resilience and concludes with a summary of published findings regarding these variables.

Autism

Autism is a neurological and developmental disorder characterized by marked symptoms of functional impairment and considered a spectrum disorder. The nature and degree of symptom severity varies from one child to the next along a spectrum of mild to severe. Developmental level and chronological age contribute to such variations, as well as other factors such as comorbid symptoms of mental retardation (Edelson, 2006). The prevalence of the disorder has increased significantly around the world in recent decades (Russell, 2012).

Symptomology. Diagnosis of autistic disorders requires symptoms to be present in early childhood and cause clinically significant impairment in areas of functioning, such as social and occupational (APA, 2013). In addition, the symptoms must not be more characteristic of another intellectual disability or global developmental delay (APA, 2013).

The two primary domains of abnormal functioning include communication and behavior (APA, 2013). These impairments in communication and behavior impact the ability of children with autism to develop, maintain, and understand relationships in ways that align with social norms.

Individuals with autism often seem isolated from others due to impairment in communication, which includes pervasive and persistent deficits in interpersonal connection and interaction. For example, individuals with autism have difficulty reciprocating the reception and expression of emotions with others through verbal and nonverbal communication. Many individuals with autism lack spoken language, and those that do speak often do so with abnormal pitch, rate or intonation, and may have difficulty sustaining a conversation due to immature grammatical structures and repetitive use of metaphorical language. Due to these communication deficits, imaginative play is often absent among children with autism, as well as social imitative play (APA, 2013).

Impairment in behavior among children with autism includes repetitive behaviors, which tend to be fixated on restricted interests with abnormal intensity (APA, 2013). Children with autism tend to appear inflexible to routine changes and often exhibit stereotyped motor movements such as finger flicking, body rocking, or hand flapping (APA, 2013).

Due to their communication and behavior differences, children with autism typically have little desire or ability to seek out relationships and may appear to be oblivious to the presence of others (APA, 2013). They have an unusual interaction with sensory input and have difficulty regulating social interactions. Impairment in their ability to make use of nonverbal behaviors, such as eye contact or facial expressions, amplify these interactions. Children with autism also may not spontaneously seek to share enjoyment, interests, or achievements with others (APA, 2013).

Prevalence. According to the Centers for Disease Control and Prevention

(CDC), the estimated global prevalence of autism increased twenty to thirtyfold from 1

per 2,500 children to 1.5 per 100 from the late 1960s and early 1970s to the 2000s

(CDC, 2014). The number of American children diagnosed with autism began

increasing rapidly approximately 30 years ago (CDC, 2014). Prior to 1985,

approximately 0.4 to 0.5 per 1,000 children in America were diagnosed with autism, and

by 2005, the prevalence had increased to approximately 1 in 110 children (CDC, 2009).

By 2008, approximately 1 out of 88 eight-year-old children was diagnosed with autism

(1 out of 54 of boys and 1 out of 252 of girls) (CDC, 2014), and by 2010, approximately

1 in 68 individuals under the age of 21 had received a diagnosis of autism (CDC, 2014).

The underlying reasons for the increases in autism diagnoses are difficult to

determine empirically (CDC, 2014). Some have argued that the increases are the result

of increased autism awareness and recent changes in diagnostic procedures reflective

of a broadened concept of the definition of autism (Fombonne, 2003; Hyman, Rodier, &

Davidson, 2001; Parish, 2012). Others argue actual increases in the number of children

developing the disorder cannot be ruled out and advocate for attention to various public

health factors ranging from environmental contaminants to childhood vaccinations

(Pinborough-Zimmerman et al., 2012; Saracino et al., 2010).

Regardless of the reasons for the increased diagnoses, the number of parents

and families seeking assistance in meeting the unique challenges and stresses that

accompany parenting a child with autism is higher than any other time in history (CDC,

2014). Living with a child with autism affects parents and other family members both

individually and systemically. Each member is likely to endure both internally derived

distress and external stressors. The impact on individual family members pervades emotional, cognitive, behavioral, and spiritual dimensions.

Parental Stress

Researchers have examined the impact of stress on parents and families in many previous studies. Specific areas of study have included comparisons of stress levels of parents of children with autism to parents of children without autism. For example, Baker-Ericzen, Brookman-Frazee, and Stahmer (2005) found that parents of children with autism have higher degrees of stress than parents of typically developing children have. Similarly, researchers found that parents of children with autism have higher degrees of stress than parents of children with Down Syndrome (Hastings et al., 2005a) and parents of children with other disabilities (Perry, Harris, & Minnes, 2005). Although Pisula and Kossakowska (2010) found higher stress among mothers than fathers of children with autism, they did not find such a statistically significant difference between mothers and fathers of children with Down syndrome or typically developing children.

Researchers have also studied the relationship between parental stress and variables related to the child with autism such as severity of symptoms, type of symptoms, age of child, and autism diagnosis. Jarbrink, Fombonne, and Knapp (2003) postulated that elevated parental stress levels were due to difficulties in managing the behavioral, social, and communicative challenges facing children with autism. Researchers have demonstrated that the severity of autistic symptoms and behavior problems are strong predictors of parental stress (Bromley et al., 2004; Hastings, 2003;

Hastings & Johnson, 2001; Lecavalier et al., 2006; Rivard et al., 2014; Soltanifar et al., 2015) and psychological well-being (Herring et al., 2006).

Some researchers found a positive relationship related specifically to severity of symptoms and parental stress (Benson, 2006; Bromley et al., 2004; Ornstein-Davis & Carter, 2008; Hastings & Johnson, 2001; Konstantareas & Homatidis, 1989; Lyons et al., 2010). Lyons et al. (2010) highlighted autism symptom severity to be a strong and consistent predictor of stress and suggested the demands of managing autistic symptoms may threaten coping resources, which results in greater parental stress.

Regarding the impact of behavioral problems, Huang et al. (2014) found that parents of children with mild or moderate behavioral problems had lower stress levels than parents of children with severe behavioral problems. However, parents of children with mild or moderate behavioral problems also had lower degrees of stress than parents of children with no exceptional behavioral problems.

Moreover, some researchers found a lack of association between symptom severity and parental stress (Hastings et al., 2005a; Manning, Wainwright, & Bennett, 2011 McStay, Dissanayake, Scheeren, Koot, & Begeer, 2013). However, Konstantareas and Papageorgiou (2006) found degrees of autism symptom severity more significantly predictive of stress among mothers than behavioral problems,

Regarding differences between mothers and fathers in stress levels, Soltanifar et al. (2015) surveyed 42 Iranian couples to examine degrees of stress among parents of children with autism and found a positive correlation between the severity of the disorder and the level of parental stress. Analysis of the survey data demonstrated a positive correlation between stress and autism severity among both mothers and fathers

with mothers having significantly more stress than fathers. Similarly, in a study of

Pakistani parents of a child with autism, Sabih and Sajid (2008) found that mothers of

children with autism experienced more stress than fathers.

Researchers have also studied differences in stress between mothers and

fathers of children with autism, as well as the impact on marital relations. Although

Rivard et al. (2014) found correlations between levels stress of both mothers and

fathers with their child's intelligence, chronological age, symptom severity, and

behaviors, they found higher levels of stress reported by fathers than reported by

mothers. Moreover, Rivard et al. (2014) found gender and severity of symptoms of the

child predictive of stress among fathers but not mothers.

Researchers demonstrated other findings regarding the relationship between the

age of children with autism and the stress levels of their parents. Moreover, multiple

studies have demonstrated higher degrees of stress in parents of younger children

(Barker et al., 2011; Fitzgerald, Birkbeck, & Matthews, 2002; Gray, 2002; Lounds,

Seltzer, & Greenberg, 2007; Smith, Seltzer, & Tage-Flusberg, 2008). However, Orr,

Cameron, and Dobson (1993) found significantly higher degrees of stress among

mothers of children with autism within the specific range of 6 to 12 years old as

compared to mothers of children with autism of all other ages. Moreover, other

researchers have found a positive relationship between parental stress and the age of

the child (Konstantareas & Homatidis, 1989; Tehee, Honan, & Hevey, 2009). Gray

(2002) suggested that the age of the child with autism might mediate parental stress

levels.

While child age and autism symptoms impact general experiences of stress in parents of children with autism, other child-related variables may also influence experiences of parenting stress. For example, unhappy children may cause parents to question their parenting skills because they might experience high levels of responsibility for such behaviors (McStay et al., 2013). Consequently, parents likely link their child's well-being or perceived quality of life to their parenting abilities. This is a relatively new concept in autism research. However, research outcomes regarding parents caring for children with severe medical conditions support the association between perceived child quality of life and negative parent outcomes (McStay et al. 2013).

Co-morbid behaviors that are not part of the autism diagnosis can also cause significant parental stress. For example, some researchers have consistently found that issues such as behavioral problems and attention deficiencies predict higher degrees of stress in parents of a child with autism (Lecavalier et al., 2006; Manning et al., 2011; Orsmond, Seltzer, & Greenberg, 2006).

Researchers have examined parental stress and other variables that affect the marital relationships of parents with a child with autism. According to Harper (2013), among parents of children with autism, the quality of marital relations can be lower than parents of children without autism. Doron and Sharabany (2013) found that support from community and family was correlated with positive marital relationships. Moreover, the older the age of child with autism, the lower emotional stability and the greater the distance between husband and wife. The degree of autistic symptoms in the child was not shown to significantly impact marital relationships. However, Beer, Ward, and Moar

(2013) found that higher levels of child behavior problems were associated with more severe parental depressive symptoms, anxiety symptoms and stress and lower levels of mindful parenting.

Social support in the form of respite care has been shown to benefit couples. Harper (2013) found a positive correlation between the number of hours of respite care and improved marital quality for both mothers and fathers of a child with autism. Moreover, increased respite care was correlated with reduced levels of parental stress and higher marital quality. In addition, greater stress and reduced marital quality was associated with the number of children in the family (Harper, 2013).

According to Marciano, Drasgow, and Carlson (2015), the ability of parents to run errands and enjoy things as a family outside of the home is impacted due to the potential negative and socially unacceptable behaviors of their child with autism. Moreover, when such unacceptable behaviors occur in public. parents perceive judgment from others regarding their parenting skills (Bagenholm & Gillberg, 1991; Marciano et al., 2015; Weiss, 2002).

According to interviews of 21 couples raising a child with autism, Marciano et al. (2015) found that parents tended to emphasize the importance of social support that allows the couple time to focus on the marriage, resulting in improved marital quality. According to Marciano et al. (2015), the major frustration expressed by parents was not having enough time to spend fun time together as a couple.

Molteni and Maggiolini (2015) sampled parents in 31 Italian families for a case study focused on the impact of autism diagnoses on parents and families. Among the findings, 89% of parents reported that the diagnosis significantly impacted their family,

especially regarding marital quality. Fifty-nine percent of the parents reported a

negative overall impact due to a lack of personal space, increased difficulties in family

communication, and negative impacts on marital quality due to misunderstandings and

detachment in their dyadic relationship. Parents reported that their families felt isolated

from their surrounding community and cited tendencies to devote less attention to

siblings without an autism diagnosis (Molteni & Maggiolini, 2015).

Moreover, siblings of children with autism can be affected negatively by having

the disorder in the family. For example, typically developing children with a sibling with

autism tend to exhibit behavioral problems (Hastings, 2003; Meyer, Ingersoll, &

Hambrick, 2011) and psychological distress (Macks & Reeve, 2007).

However, other researchers did not find differences between pairs of typically

developing siblings and pairs of sibling where one sibling had autism (Dempsey,

Llorens, Brewton, Mulchandani, Goin-Kochel, 2012; Tomeny, Barry, & Bader, 2012).

Furthermore, Verte, Roeyers, and Buysse (2003) actually found higher levels of

empathy and patience by children having a sibling with autism than those with non-

autistic siblings.

Likewise, although parental stress has been shown to have detrimental impacts

on marital relationships, researchers have also discovered positive outcomes for

parents of children with autism. For example, in a qualitative study of the perceptions of

marital quality and marital longevity, Marciano et al. (2015), found that some marriage

partners have felt more bonded as a result of their joint care of their child with autism.

Of the parents of the 31 Italian families sampled by Molteni and Maggiolini (2015), 30%

reported that having a child with autism had an overall positive effect on the couple, in

terms of harmony and affinity within the relationship, as parents were more willing to share their problems and difficulties with each other.

Parental stress has also been shown to have an impact on the development of the child with autism. According to previous studies, early teaching interventions for children with autism are less effective when parenting stress levels are higher (Bittsika & Sharpley, 2000; Osborne et al., 2008).

Resiliency

Researchers have found that individuals with high levels of resiliency enjoy better health, longer life expectancy, and more likelihood of success in school and work. In addition, resilient individuals tend to experience higher satisfaction in relationships and less prone to mood disorders (Masten & Coatsworth, 1998; Siegel, 1999). According to Walsh (2015), resilience "can be defined as the ability to withstand and rebound from serious life challenges" (p. 4). However, "the ability to rebound is not to be misconstrued as simple breezing through a crisis, unscathed by painful experience" (Walsh, 2015, p. 5). Furthermore, Walsh (2015) argued that resilience should be distinguished from the unrealistic yet common expectation for people to "just bounce back" from serious life challenges and instead recognized as dynamic processes that foster positive adaptation to adversity. Likewise, Valent (1998) noted that resilience is "not a simple concept like a tennis ball springing back, but like vulnerability is part of a complex system" within humans who have "biological, psychological, and social features which can be impacted by life's stresses" (p. 531).

Although some consider resilience similar to a personality trait that is relatively unchangeable, Rutter (2008) considered resilience to be an ordinary process that can

be learned. Walsh (2015) also described resilience to be the result of processes noting that it is "forged through suffering and struggle" (p. 4) and reliant on interpersonal relational support.

However, in step with the traditional individualism of western civilization that hails self-reliance and minimizes the need for interpersonal relational support, early scholars of resilience claimed that childhood trauma survivors were able to abandon interpersonal reliance and vulnerable tendencies and replace them with a self-derived "invulnerability" to stress that bolsters inner fortitude (Anthony, 1987).

Conversely, Felsman and Vaillant (1987) claimed, "The term 'invulnerability' is antithetical to the human condition" (p. 304) regardless of any life experiences. Walsh (2015) concurs with this holistic view and argues for vulnerability and relational needs to not only be embraced as an inevitable part of the human condition but as a key component in the development of resiliency. "It is through our connectedness to others that we grow and thrive throughout life" (Walsh, 2015, p. 6). Various studies worldwide have shown that resilience is greater among children facing adversity who have a close, caring relationship with at least one parent or other adult advocating for them and from whom they could gather strength to overcome difficulties (Rutter, 1987; Ungar, 2004; Walsh 2015; Werner & Smith, 2001).

Family resiliency. Within the context of a family, resiliency refers to family members' ability to thrive despite the adversity they experience when they are challenged by hardships (Masten & Coatsworth, 1998). Family resilience can also be conceptualized as the ability of a family to respond in positive ways to a challenging situation and thrive forward with increased strength, resourcefulness, and confidence

(Simon, Murphy, & Smith, 2005; Walsh, 2003; 2015). The ability of families to thrive in the face of considerable stress has been the subject of considerable theoretical discussion and empirical research (Becvar, 2013; Goldenberg & Goldenberg, 2013; McCubbin, 1995; 2011; Walsh, 2015).

  Walsh's family resilience framework. Extensive research over a 30-year period focused on discovering the crucial variables that contribute to family resilience and effective family functioning culminated in Walsh's family resilience framework (Walsh, 2003; 2012; 2015). The framework is comprised of nine key processes spread across three domains of family functioning, which include family belief systems, organizational processes, and communication problem-solving processes (Walsh, 2015).

  First, Walsh's (2015) belief system domain is comprised of three key processes, which included making meaning of adversity by normalizing and contextualizing stressful situations as meaningful and manageable; maintaining a positive outlook of hope by encouraging one another to change what can be changed and accept what cannot be changed; belief in transcendent powers and spiritual inspiration. Secondly, Walsh's (2015) organizational processes domain is comprised of three key processes, which included the flexibility to change and adapt; mutual respect and connectedness between family members; and the use of social and economic resources from friends, family and community networks. Finally, Walsh's (2015) communication problem-solving processes domain is also comprised of three key processes, which included the conveyance of clear communication between family members; honest sharing of emotional expression; and collaborative problem-solving.

Several studies have investigated how a family's ability to clarify and give

meaning to their adversities can make the struggles easier to bear (Antonovsky, 1998;

Kagan, 1984; Patterson & Garwick, 1994; Walsh, 2015). McGoldrick, Garcia Preto, and

Carter (2016) found that family members can make meaning from current challenges by

recognizing a family legacy of thriving in the face of adversity.

In addition to families making meaning from adversity, Walsh (2015) emphasized

the importance of maintaining a positive perspective to overcome adversity. Struggling

families can do so by choosing to have reasonable hope for a better future and seeking

an optimistic orientation to life (Beavers & Hampson, 2003; Weingarten, 2004).

However, according to Ehrenreich (2009) attaining a positive outlook requires a positive

mindset accompanied by successful experiences within a nurturing context.

Walsh (2015) also affirmed the vast research that has revealed how

transcendent beliefs and spiritual experiences "provide meaning, purpose and

connection beyond ourselves our families and our immediate plight" (p. 57). This key

process is particularly significant considering the prominence of religion and spirituality

in American society. According to various studies, between 71% and 90% of Americans

believe in God, and between 56% and 85% report that religion is important to them

(Barna, 1992; Kosman & Lachman, 2001; Pew Forum on Religion and Public Life,

2008).

The results of a 2001 survey focused on spirituality and religion showed that 79%

of Americans identified themselves as spiritual, and 64% identified themselves as

religious (Kosman & Lachman, 2001). Moreover, according to a 2008 large scale

survey of 35,000 American adults, 56% consider religion to be very important to them,

39% attend a weekly religious service, and 58% pray at least one time a day (Pew Forum on Religion & Public Life, 2008). Although, 16% of Americans report no identification with any particular faith, many describe themselves as religious, spiritual, or both. In summary, most Americans profess religious or spiritual beliefs and practices (Barnett & Johnson, 2011).

Wright (2009) noted that suffering directs the family towards transcendence and spirituality. Others researchers agree that parents and families thrive and prosper in community when connected to a transcendent value system (Beavers & Hampson, 2003; Brandt, 2004; Doherty, 2013; Walsh, 2009; 2015). Moreover, research has abundantly shown the benefits of shared religiosity and spiritual beliefs among couples and families regarding overcoming tragedy and adversity (Beavers & Hampson, 2003; Caffaro, 2011; Ellison, Burdette, & Wilcox, 2010; Mahoney, 2010).

Walsh (2015) identified organizational processes as the second domain of the family resilience framework and noted that "families need to develop a flexible structure for optimal functioning in the face of adversity" (p. 65). Minuchin (1974) stressed the importance of structure within the family that provides support needed to adapt to changes as they arise within the family system. Families benefit from an ability to reorganize their mutual habits, expectations, personal preferences, and accommodations when faced with crisis and adversity (Walsh, 2015). Researchers have observed that healthy families have the ability to maintain connectedness and structure in homeostatic stability but are also flexible enough to change to meet the challenges of life (Beavers & Hampson, 2003; Imber-Black, 2012; Olson, Gorall & Tiesel, 2006; Satir, 1988). Healthy interpersonal boundaries between family members

regarding roles, support, and connectedness facilitate resilience. (Bowen, 1978; Minuchin, 1974).

Walsh (2015) identified communication processes as the third domain of the family resilience framework and noted that "good communication facilitates all aspects of family functioning and resilience" (p. 82). Clarity in communication facilitates the healthy functioning of couples and families according to multiple studies (Beavers & Hampson, 2003; Minuchin, 1974; Olson et al., 2006; Satir, 1988; Walsh, 2015). The ability to work together and cohesively solves problems is essential for families facing crises and adversity (Beavers & Hampson, 2003; Walsh, 2015).

Family Resiliency and Autism. Researchers exploring resilience in families with a child with autism have focused on a variety of related items such as individual resilience among parents and children, cognitive patterns, coping styles, marital satisfaction, psychopathology of parents, counseling interventions, and various demographic factors. Greeff and van der Walt (2010) identified higher socioeconomic status, social support, open communication, supportive environment, including commitment and flexibility, family hardiness, internal and external coping strategies, positive life perspectives, and family belief systems as contributing factors to resilience in families of children with autism.

Kapp and Brown (2011) studied adjustment and adaptation of families living with autism and found that families were able to access a number of resiliency factors despite the complex challenges facing them. They found that the factors that enable at-risk families to meet the challenges of life and return to previous levels of functioning following a challenge empowered them with knowledge regarding areas of functioning

that could be nurtured (Kapp & Brown, 2011). Furthermore, Kapp and Brown (2011) also found that stressful factors could be incorporated into intervention programs and assist in guiding the provision of comprehensive information and support to families with a child with autism. Finally, they found that focusing on the factors contributing to adaptation assisted families in reframing their circumstances and shifting their perspective from a problem-focused to a strengths-based orientation, thereby affirming their reparative potential (Kapp & Brown, 2011).

Families with a child with autism often respond to their unique challenges in intentional ways. However, researchers have determined that families of children with autism that choose to respond passively by employing little or no deliberate intervention display higher levels of family adaptation to the new challenges associated with the disorder by accepting the reality of having a child with autism than families that choose a more active approach to intervention (Dyson, Edgar, & Crnic, 1989; Greeff & van der Walt, 2010; Powers, 2000).

In a study of 175 caregivers of children with autism, Bayat (2007) discovered various themes related to family resilience. Family connectedness was determined to be an end result of the family members working together in cooperation for the good of the child with autism (Bayat, 2007). Approximately 62% of caregivers sampled reporting that they had grown closer as a result of having a child with autism (Bayat, 2007).

Kapp and Brown (2011) also reported the importance of togetherness in families with a child with autism. Maintaining routines, responsibilities, and cooperation

regarding scheduling activities as well as encouraging open and honest communication contributed to wellness and resilience in the family (Kapp & Brown, 2011).

Changed perspectives and making meaning from raising a child with autism was also an evident theme in Bayat's (2007) study with approximately 63% of participants reporting a new more positive outlook or worldview. Participants reported "becoming more compassionate, less selfish and more caring, and becoming mindful of individual differences" (Bayat, 2007, p. 710). Moreover, these participants identified gaining new qualities and new more positive perspectives, including being personal or social, spiritual and inspirational.

About 39% of the participants in Bayat's (2007) study reported a renewed strength in the family resulting from having a child with autism and cited interpersonal growth as affirmation. Respondents reported becoming more compassionate, caring, and mindful of others, while finding healthier perspectives in life.

Bayat (2007) also identified changes in spiritual belief as a theme among sample respondents. About 45% of the respondents referred to changes regarding increased closeness to God or spiritual growth. Bayat (2007) reported consistent statements from parents raising a child with autism regarding the identification of new spiritual beliefs or a renewed conviction of their faith.

Moreover, according to Wolin and Wolin (1993), resilience occurs when people use coping methods such as religious coping to navigate through stress and adversity. Changes in spiritual or religious belief can contribute to the employment of adaptive religious coping behaviors to combat stress and reduce the negative consequences of

the disorder among parents of children with autism (Konstantareas, 1991; Pisula & Kossakowska, 2010).

Religious coping refers to positive and negative methods that assist people searching for "a sense of meaning and purpose, emotional comfort, personal control, intimacy with others, physical health, or spirituality" (Pargament et al., 1998, p. 711). A religious or spiritual identity empowers individuals to apply their religious beliefs and activities to stressful situations in cognitive, behavioral, passive activities, and collaborative responses (Pargament, 1996; Krok, 2014). Findings from a qualitative study of child survivors of the Holocaust demonstrated the importance of higher mental and spiritual levels of resilience such as identity, existential meanings, and purpose (Valent, 1998).

For a parent facing the stress of having a child with autism, a cognitive religious coping activity might be the belief that there is a religious or spiritual explanation for their child to have autism. Behavioral activities for such a parent might be attending church for worship services that bring a sense of community and support and combat the common stress of isolation. Passive activities might include praying to a transcendent power to perform a miracle. Activities of collaborative response might include fasting as an act of trust in a higher power for sustenance and provision (Pargament, 1996; Krok, 2014). Although parents of children with autism might employ religious coping and other coping methods to reduce stress, Walsh (2015) acknowledges that resilience goes beyond coping or adjusting to stress and "entails more than merely surviving, getting through or escaping a harrowing ordeal" (p. 4).

Conclusion

In conclusion, autism is a pervasive disorder characterized by significant impairment in communication and behavior (APA, 2013). While causes and cures of the disorder remain unknown, the prevalence of autism as increased drastically in the last 30 years (CDC, 2014). Researchers have found that parents of children with autism usually report levels of stress that are higher than parents of children without an autism diagnosis. According to previous studies, various factors contribute to the degree of stress in parents and siblings of children with autism (Freeman, Perry, & Factor, 1991; Hastings & Johnson, 2001; Konstantareas & Homatidis, 1989; Ornstein-Davis & Carter, 2008; Soltanifar et al., 2015).

Family resilience is the ability for the family unit or system to respond positively to adverse situations and thrive through them with increased strength, resourcefulness, and confidence (Simon et al., 2005). Walsh (2015) constructed a framework to outline three domains and nine key processes most important to effective family resilience when struggling with adversity. Researchers have studied the ability of families to thrive in the face of considerable stress and have identified factors that are related to active and passive resiliency styles (Becvar, 2013; Goldenberg & Goldenberg, 2013; McCubbin, 1995; Walsh, 2011, 2015). Religion and spirituality can contribute to resilience by the incorporation of adaptive coping styles (Pargament, 1996; Krok, 2014). However, although as such coping methods contribute to the resilience process, resilience itself goes beyond mere coping activities comprising the culmination of multiple factors that "foster positive adaptation in the context of significant adversity" (Walsh, 2015, p.4).

APPENDIX C

EXTENDED METHODOLOGY

Appendix B contained a review of literature regarding parental stress and family resilience. Although studies related to autism are numerous in counseling research, a deficit exists regarding how adaptive family resiliency factors impact degrees of parental stress levels of families that have a child with autism. The current study is a response to this need by examining different factors of family resiliency as predictors of parental stress. Multiple regression analysis will be conducted to examine the relationship between the variables and descriptive statistics will be collected to provide demographic data of the sample.

In this section, I will present the methods and procedures implemented in this study. First, I will provide research questions based on conclusions drawn from previously reviewed research. Secondly, I will listed and define key terms for this study. Thirdly, I will describe the demographics of the sample. I will also explain the recruitment method and instrumentation used in the study. Finally, I will describe study procedures and data analysis methods.

Research Questions

I designed this study to examine the following research questions:

1. What is the relationship between each of the six factors of family resilience and degrees of stress among parents of children with autism?

2. How much of the variance in the amount of parental stress is explained by parent gender (PG) and family resiliency factors, which include Family Communication and Problem Solving (FCPS), the Utilization of Social and Economic Resources (USER), Maintenance of a Positive Outlook (MPO), Family Connectedness (FC), Family Spirituality (FS), and the Ability to Make Meaning of Adversity (AMMA)?

Definition of Terms

For purposes of this study, autism is defined as a pervasive developmental disorder characterized by marked impairment in social communication and behavior. Furthermore, the term is operationalized to describe a disorder meeting criteria for the DSM-IV-TR diagnoses of Autistic Disorder, Pervasive Developmental Disorder - Not Otherwise Specified, or Asperger's Disorder, or for the diagnostic criteria for Autism Spectrum Disorder (ASD) as published in DSM-5.

Parental stress is defined in this study as the overall level of stress a parent is experiencing (Abidin, 1995) and the manifestation of "aversive psychological and physiological reactions arising from attempts to adapt to the demands of parenthood" (Deater-Deckard, 2004, p. 6). Parental stress (PS) values in this study correspond to the Total Stress scores as measured on the Parenting Stress Index Short Form (PSI/SF). Parental stress does not include stresses associated with other roles and life events but limited to stress experienced within the role of the parent, which includes areas of personal parental distress, stresses derived from the parent's interaction with the child, and stresses that result from the child's behavioral characteristics.

Parental distress is defined as a measure of the distress a parent is experiencing related to his or her functional roles directly related to parenting (Abidin, 1995). According to Abidin (1995), stresses associated with this subscale are "impaired sense of parenting competence, stresses associated with the restrictions placed on other life roles, conflict with the child's other parent, lack of social support, and presence of depression, which is a known correlate of dysfunctional parenting" (p. 56). For the

purposes of this study, PD scores on the PSI/SF measure parental distress levels of participants.

Parent-child dysfunctional interaction is defined as stress a parent is experiencing related to perceptions that his or her child does not meet their personal expectations (Abidin, 1995). Furthermore, according to Abidin (1995), this subscale measures a parent's perceptions that interactions with their child is not reinforcing to him or her as a parent. In this study, parent-child dysfunctional interactions are assessed on the PSI/SF and calculated as P-CDI scores.

Difficult child is defined as parental stress related to "some of the basic behavioral characteristics of children that make them either easy or difficult to manage" (Abidin, 1995, p. 56). Such behaviors are often rooted in the temperament of the child, but might also include learned patterns of defiant, noncompliant, and demanding behaviors (Abidin, 1995). In this study, difficult child levels are assessed on the PSI/SF and calculated as DC scores.

Family is defined as a group of people connected somehow within a unit and not limited to genetic or legal definitions. Membership within the family group is determined by each member's individual perception of who is a part of the family group. A common criterion for family membership typically includes several subjective factors such as an exhibited history of dedication, caring, and self-sacrifice for one another (Stacey, 1996).

Parent is defined as an adult living with and caring for a child of whom they have legal custody. Mother is defined as a female parent, and father is defined as a male parent.

Resilience is defined as positive adaptation to adversity (Wright & Masten, 2005).

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Family resilience describes a family's ability to respond adaptively a past or present challenge. Resilient families have enough strength and resourcefulness to meet the challenges of life by not simply surviving and managing but by growing and thriving (Sixbey, 2005; Walsh, 2015). According to Walsh (2015), key factors in family resilience are family belief systems, organizational patterns, and communication processes.

For the purpose of this study, family resilience refers to Sixbey's (2005) construct compiled of six resiliency factors residing within a family unit: communication and problem solving; utilization of social and economic resources; maintenance of a positive outlook; connectedness; spirituality; and the ability to make meaning of adversity. The six factors correspond to six subscales of Sixbey's (2005) Family Resiliency Assessment Scale (FRAS) used to measure family resiliency in this study.

Participants

I selected participants for this study based on several inclusionary criterion. Firstly, participants must have been living in the United States and at least 18 years old at the time of participation. Secondly, participants must also have been a parent of at least one child diagnosed with autism who is younger than 13 years of age. Although we hoped to have both mothers and fathers respond to the survey, completion of the survey questionnaire by only one parent per child was necessary.

I developed a survey questionnaire to collect demographic information pertinent to the research questions. Data collection included the age and gender identity of the respondent; ethnic identity of the respondent; gross family income; employment status; number of children living in home; age and number of children with autism; and marital

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status. The purpose of collecting demographic information was to obtain adequate specification of the population being studied and to describe the sample. Demographic information also facilitates the ability to replicate a study and generalize the results (Sue & Sue, 2003). A copy of the demographic questionnaire is included in Appendix F.

Instrumentation

I used two instruments to study the relationships among variables. The Parenting Stress Index Short Form (PSI/SF) measured the predictor variable, parental stress. The Family Resiliency Assessment Scale (FRAS), and the demographic questionnaire measured the criterion variables.

Parenting Stress Index Short Form (PSI/SF). Abidin (1995) developed the Parenting Stress Index (PSI) for clinicians to evaluate parenting styles and identify issues potentially leading to problems in the behaviors of children and parents. Abidin (1995) created the PSI with a focus on three major domains of stress, which include child characteristics, parent characteristics and situational or demographic life stress.

At the request of clinicians and researchers, Abidin (1995) subsequently developed the Parenting Stress Index PSI Short Form (PSI/SF) as a brief version of the full-length PSI measure. The short form allowed for assessment completion in less than 10 minutes. All thirty-six items on the PSI/SF are contained in the full-length PSI form and worded identically. Requirements of both assessments include a 5th-grade reading level, and for respondents to be parents of children 12 years and younger. Items are rated in a 5-point Likert scale ranging from "strongly disagree to strongly agree" with a higher score meaning more stress.

The PSI/SF yields a Total Stress raw score, which can vary from 36 to 180. Scores greater than or equal to 90 are at or above the 90th percentile and likely to be experiencing clinically significant levels of stress (Abidin, 1995).

In addition to the Total Stress score, the PSI/SF is also divided into three subscales, which include Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC) (Abidin, 1995). Subscale raw scores range from 12 to 60, with higher scores indicating more stress related to the specific subscale area. Scores greater than or equal to 36 are considered at or above the 90th percentile.

As with the full-length PSI, the PSI/SF has shown good reliability in previous studies. Roggman, Moe, Hart, and Forthun (1994) reported PSI/SF alpha reliabilities of .79 for PD, .80 for P-CDI, .78 for DC, and .90 for Total Stress. The instrument has also demonstrated good validity as shown by correlations of stress with recent life events, depressive and physical symptoms, utilization of health services, and social anxiety (Cohen, Kamarck, & Mermelstein, 1983; Cohen & Janicki-Deverts, 2012; Cohen & Williamson, 1988). According to Abidin (1995), the validity of the assessment is likely comparable to the good validity shown by the full- length measure since it is a direct derivative.

I determined the internal consistency of the measure by calculating Cronbach's alpha reliability coefficient. I derived the coefficient from an analysis of the pairwise correlation between items on each subscale of the instrument and for the entire measure as a whole. Cronbach's alpha coefficient is an accurate estimate of the average correlation of a set of items pertaining to a particular construct (Cronbach, 1951). With all reliability coefficients being .70 or higher, as shown in Table 1, the

PSI/SF demonstrated an acceptable level of internal consistency and support for the reliability of the sample data. The 0.94 alpha coefficient for the total of all items on the PSI/SF demonstrated a high level of internal consistency and exceeded the alpha coefficients found by Roggman et al. (1994).

Table 1

PSI-SF Internal Consistency

PSI Subscales	α Roggman et al. (1994)	α Current Sample
Parental Distress (PD)	0.79	0.92
Parent-Child Dysfunctional Interaction (P-CDI)	0.80	0.84
Difficult Child (DC)	0.78	0.87
Total	0.90	0.94

Family Resiliency Assessment Scale (FRAS). The Family Resiliency Assessment Scale (FRAS) is a 54-item instrument measure created by Sixbey (2005) to measure the components of Walsh's (2015) model of family resilience. Each item on the FRAS instrument is rated on a 4-point Likert-scale with points along the scale as follows: Strongly Agree (1); Agree (2); Disagree (3); Strongly Disagree (4) (Sixbey, 2005). Sixbey (2005) followed DeVellis's (2003) eight-step process for instrument development to create the FRAS.

I categorized each FRAS instrument item into one of six subscales for this study: Family Communication and Problem Solving (FCPS), Utilizing Social and Economic Resources (USER), Maintaining a Positive Outlook (MPO), Family Connectedness (FC), Family Spirituality (FS), and Ability to Make Meaning of Adversity (AMMA). For the purposes of this study, I analyzed scores from each of the six subscales.

According to Sixbey (2005), the FRAS has a high degree of reliability and validity both as a total scale and as individual subscales (p. 110). The FRAS is a reliable measure of family resilience with a total scale reliability coefficient of a Cronbach alpha of 0.96. The six subscale Cronbach alpha coefficients range between 0.70 and 0.96 with individual item factor loading at 0.30 or higher on only one subscale (Sixbey, 2005).

FCPS is a subscale of the FRAS consisting of 27 Likert-scale items designed to measure a family's ability to convey information, feelings, and facts effectively (Sixbey, 2005). The FCPS subscale has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.96 (Sixbey, 2005).

USER is a subscale of the FRAS used to measure how well a family identifies and utilizes resources inside and outside if the family system such as family members, community members, or neighbors. According to Sixbey (2005), the USER subscale consists of eight Likert-scale items and has a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.85.

MPO is a subscale designed to measure a family's ability to recognize positive perspectives around a distressing event with the belief that there is hope for the future and persevere to make the most out of their options (Sixbey, 2005). The MPO subscale consists of six Likert-scale items and has a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.86 (Sixbey, 2005).

FC is a subscale designed to measure the ability for a family to join and support each other while still recognizing relational boundaries and individual differences (Sixbey, 2005). The FC subscale consists of six Likert-scale items and has a calculated

Cronbach alpha of 0.70. Although the alpha score not quite as high as other FRAS subscales, the reliability is acceptable for this type of scale (Sixbey, 2005).

FS is a subscale designed to measure a family's use of a transcendent belief system to provide guidance and help to find meaning and significance in life. The FS subscale consists of four Likert-scale items and has demonstrated a high level of internal consistency and reliability with an acceptable Cronbach alpha of 0.88 (Sixbey, 2005).

AMMA is a subscale designed to measure the ability for a family to incorporate adverse events into their lives and perceive their reactions as appropriate relative to the event (Sixbey, 2005). The AMMA subscale consists of three Likert-scale items and has an acceptable level of internal consistency and reliability with a Cronbach alpha of 0.74, which is acceptable for this type of scale (Sixbey, 2005).

Regarding validity of the instrument, Sixbey (2005) used correlation coefficients to report the FCPS subscale of the FRAS to the Problem Solving and Family Communication subscales of the McMaster Family Assessment instrument (Epstein, Baldwin, & Bishop, 1983). The FCPS correlated moderately (.78) with the Problem Solving and Family Communication subscale.

The Affective Responsiveness and Affective Involvement subscales of the McMaster Family Assessment instrument (Epstein et al., 1983) correlated moderately (.72) to the FC subscale of the FRAS instrument (Sixbey, 2005). However, all other subscales of the FRAS (Sixbey, 2005) had a low to moderate correlation with related subscales of the McMaster Family Assessment and the Personal Meaning Index instrument (Reker, 2005).

By using the same process I used to determine the internal consistency of the PSI-SF, I calculated Cronbach's alpha reliability coefficient for the FRAS (Cronbach, 1951). With all reliability coefficients being .70 or higher, as shown in Table 2, the FRAS demonstrated an acceptable level of internal consistency and support for the reliability of the sample data. In addition, the 0.96 alpha coefficient for the total of all items on the FRAS demonstrated a high level of internal consistency and matched the alpha coefficient found by Sixbey (2005).

Table 2

FRAS Internal Consistency

FRAS Subscales	α Sixbey (2005)	α Current Sample
Family Communication and Problem Solving (FCPS)	0.96	0.95
Utilizing Social and Economic Resources (USER)	0.85	0.81
Maintaining a Positive Outlook (MPO)	0.86	0.91
Family Connectedness (FC)	0.70	0.70
Family Spirituality (FS)	0.88	0.88
Ability to Make Meaning of Adversity (AMMA)	0.74	0.80
Total	0.96	0.96

Procedures

I received approval to conduct this study from the Institutional Review Board (IRB) of the University of North Texas (Human Subject Application #15149). In adherence to best practice and abidance with IRB protocol, all participants were also required to provide assent in order to participate in this study and consent was acquired from recruitment site representatives. I received approval to recruit study participants from four autism treatment and advocacy centers. Two were in Texas, one in Virginia,

and one in New York. Representatives from the collection sites posted recruitment advertisements regarding the study at their offices and on their websites under the heading of research projects.

Parents that met the inclusionary criterion and chose to participate in the study were invited to complete the survey packet, which included reviewing and signing an informed consent form, a demographic questionnaire, the FRAS instrument, and the PSI/SF instrument. As compensation for participation, I provided participants with the opportunity to win one of two Visa $50 gift cards as determined by a random drawing. Participants choosing to participate in the drawing were required to provide their e-mail address for notification upon winning. The collected e-mail addresses from all participants were stored separately from the survey questionnaire data.

Analysis of Data

Sample size. I performed an a-priori power analysis using G*Power 3 (Faul, Erdfelder, Buchner, & Lang, 2009) to determine the appropriate sample size needed to answer the research questions. Parameters for the analysis included statistical power, alpha level, anticipated effect size, and the number of independent variables.

According to Cohen (1992) and Thompson (2006), power is defined as the likelihood of correctly rejecting the null hypothesis and is considered an essential component in statistical significance testing (Balkin & Sheperis, 2011). I selected a power level of .90 for this study, which is a sufficient coefficient for most statistical analyses according to Cohen (1992).

According to a meta-analysis by Hayes and Watson (2013) of twelve studies comparing the stress in parents of children with and without autism, the mean effect

size of the studies was large according to Cohen's (1992) guidelines. Therefore, I

chose to anticipate a squared multiple correlation (R^2) of .25 for the multiple regression

model, which corresponds to a large effect size of .33 based on Cohen's (1988) formula:

$$\text{Cohen's } f^2 = R^2 / 1 - R^2$$

According to results of the a-priori power analysis, in order to use multiple regression

analyses to answer the research questions with seven predictors, Cohen's f^2 of .33, an

alpha level of .05, and power level of .90, a sample size of approximately 63 participants

was necessary.

I used SPSS Version 23 to perform the statistical analyses for this study.

Preliminary analyses were included to verify assumptions of multiple regression

analysis. Descriptive analyses were included to gain an understanding of the

demographic information of the parents who completed the survey questionnaires. I

analyzed frequencies for age of parents and children with autism, gender of parents and

children with autism, ethnicity of parents, marital status, gross income, number of

children in parents' home, as well as measures of central tendency and dispersion for

age of parents and age of children with autism. I computed Cronbach's alpha

coefficients to determine the internal consistency for each measure and subscales. I

also calculated Pearson's coefficients to explore the relationships between the

independent variables and the dependent variable.

I performed a standard multiple regression analysis to determine how

independent variables regarding family resilience and gender of parents contributed

significantly to prediction of the dependent variable, parental stress. In addition, I

performed the analysis to determine the variance explained in the prediction of the dependent variable among the independent variables.

To explore the calculated effect size for the regression model, I computed beta weights and structure coefficients. Beta weights are standardized coefficients that provide a measure of variable importance by rank ordering the contribution of each independent variable to a multiple regression equation. However, beta weight analysis has shortcomings since any given variable's beta weight coefficient may receive the credit for explained variance shared with one or more independent variables (Pedhazur, 1997). Therefore, the other weights do not receive credit for this shared variance, and their contribution to the regression equation is not fully accounted for in the beta weight value (Nathans, Oswald, & Nimon, 2012). According to Pedhazur (1997), beta weights are a starting point for researchers as they begin analyzing how independent variables contribute to a regression model. The beta weight for each given independent variable is the standardized regression weight for the variable, which is interpreted as the expected increase or decrease in the dependent variable (in standard deviation units) given a one standard-deviation increase in independent variable with all other independent variables held constant (Nathans et al., 2012).

In addition to beta weight values, I also calculated structure coefficients due to potential multicollinearity among variables. As beta weights assess variable importance by identifying the merit of any predictor that is not significantly correlated with other independent variables (Nathans et al., 2012), structure coefficients are not affected by multicollinearity. Therefore, Nathans et al. (2012) recommend that researchers should

use structure coefficients in addition to beta weights in the presence of correlated predictors.

Moreover, according to Thompson (1992), the "…thoughtful researcher should always interpret either (a) both the beta weights and the structure coefficients or (b) both the beta weights and the bivariate correlations of the predictors with Y" (p. 14). "By consulting both beta weights and structure coefficients, researchers can report unbiased and valid regression results by balancing their attention to both interpretation perspectives" (Tong, 2006, p. 11).

Structure coefficients demonstrate both (a) the variance each independent variable shares with the dependent variable and (b) the variance it shares if an independent variable's contribution to the regression equation was distorted in the beta weight calculation process due to assignment of variance it shares with another independent variable to another beta weight. However, as a direct effect measure, structure coefficients do not identify which independent variables jointly share in the variance or quantify the amount of the shared variance (Nathans et al., 2012).

A structure coefficient is the bivariate correlation between a given predictor variable and the latent (or synthetic) variable Y^ and therefore, can be applied to evaluate the relative predictive importance of a single predictor on the dependent variable in multiple regression (Tong, 2006). Where R is the multiple correlation for the regression containing all predictor variables, the structure coefficient (r_s) differs from the Pearson r correlation coefficient between a given predictor X and the measured variable Y by the formula:

$$r_s = r_{XY} / R$$

As shown in the above equation, a structure coefficient is simply a Pearson r between an independent variable and the dependent variable, and is therefore, not affected by correlations between independent variables. Squared structure coefficients represent the amount of variance that an independent variable shares with the variance from the predicted y scores (Nathans et al., 2012).

I performed correlational analyses to complement the multiple regression analyses by providing correlation coefficients necessary to calculate the structure coefficients (r_s) for each independent variable. Correlational analyses also provided additional information regarding the associations between the predictor variables and dependent variable as well as other demographic variables. A point-biserial correlation (r_{pb}), was calculated when one variable was dichotomous and the other was continuous (Hinkle, Wiersma, & Jurs, 2003).

APPENDIX D

EXTENDED RESULTS

Results

The purpose of this study was to examine the degree to which family resilience factors are predictive of stress among parents of children with autism, as well as examine the differences in stress levels among mothers and fathers of children with autism.

This section presents the results pertaining to the descriptive statistical analyses of the sample and inferential statistical analyses of the relationships among variables. The first section describes demographic data and pertinent information related to data collection. The second presents results of statistical procedures used to examine relationships among variables.

Descriptive Analyses

Results from descriptive analyses were compiled to describe demographic and other characteristics of the collected data. Statistics were calculated for the data from the demographic questionnaire, the FRAS, and the PSI-SF.

Demographic Information

The participant sample was comprised of 71 respondents. The sample of respondents ($N = 71$) was 69.0% ($n = 49$) female and 31.0% ($n = 22$) male. The mean age of parents in the sample was 37.3 years old ($SD = 8.7$). White (76.1%, $n = 54$) respondents comprised the large majority of respondents in the sample, followed by Asian or South Asian respondents (8.5%, $n = 6$). Sixty-eight respondents (95.8%) reported having only one child with autism living in their home under the age of 13 years. Three respondents (4.2%) reported having two children with autism living in their home under the age of 13. Regarding the gender of respondents' children, the majority

of respondents (73.2%) reported having only one male child with autism under the age of 13 (n = 52) and 22.5% reported being a parent of only one female child with autism under the age of 13 (n = 16). One respondent (1.4%) reported having one male and one female child with autism under the age of 13, and two respondents (2.8%) reported having two male children with autism under the age of 13. See Table 3 for a summary of demographic statistics.

Table 3

Respondents' Age, Gender, Ethnicity and Number/Gender of Children

	(N = 71)	
	M	*SD*
Age of Parent	37.8	8.7
	N	%
Gender of Parent		
Male	22	31.0
Female	49	69.0
Race/Ethnicity of Parent		
American Indian or Alaska Native	1	1.4
Asian or South Asian	6	8.5
Bi-racial	1	1.4
Black or African American	4	5.6
Hispanic or Latino	5	7.0
White	54	76.1
Number of Children with Autism under 13		
1 child	68	95.8
2 children	3	4.2
Gender of Children with Autism under 13		
1 boy	52	73.2
1 girl	16	22.5
2 boys	2	2.8
1 boy and 1 girl	1	1.4
Total Number of Children in Home under 18		
1 child	29	40.8
2 children	23	32.4

3 children	14	19.7
4 children	5	7.0

The mean age of respondents' children with autism under 13 years was 7.2 years of age (*SD* = 7.0) and ranged from 2 to 12 years old. The majority of respondents' children with autism were male (77.0%, *n* =57) and 17 were female (23.0%). Participants identified 41 children (55.4%) as diagnosed with Autism Spectrum Disorder (ASD). Participants identified 17 children (23.0%) as diagnosed with Autism or Autistic Disorder. Participants identified 13 children (17.6%) as diagnosed with Asperger's Syndrome and identified three children (4.1%) as diagnosed with Pervasive Developmental Disorder - Not otherwise Specified (PDD-NOS). See Table 4 for a summary of these demographic statistics.

Table 4

Age, Gender, Diagnosis of Children with Autism

	(*N* = 74)	
Demographic Variable	*M*	*SD*
Age of Children with Autism	7.2	7.0
	N	%
Gender of Children with Autism		
Male	57	77.0
Female	17	23.0
Diagnosis of Children with Autism		
Autism Spectrum Disorder (ASD)	41	55.4
Autism or Autistic Disorder	17	23.0
Asperger's Disorder	13	17.6
Pervasive Developmental Disorder (PDD-NOS)	3	4.1

Regarding socioeconomic factors, 41 respondents (57.7%) reported to be working full-time and 20 respondents (28.2%) reported not to be working outside the home. A review of gross family income revealed that 45.1% of respondents ($n = 32$) reported an income of $50,001-$99,000 and 23.9% of respondents ($n = 17$) reported an income of less than $50,000. See Table 5 for a summary of all descriptive statistics regarding these factors.

Table 5

Respondents' Marital Status and Socioeconomic Factors

	($N = 71$)	
	N	%
Marital Status		
Single	7	9.9
Married	54	76.1
Widowed	1	1.4
Divorced	5	7.0
Separated	1	1.4
Living with Domestic Partner	3	4.2
Employment Status		
Full-time	41	57.7
Part-time	10	14.1
Not working outside the home	20	28.2
Gross Family Income		
<$50,000	17	23.9
$50,000 - $99,000	32	45.1
$100,000 - $149,000	9	12.7
$150,000 - $199,000	5	7.0
$200,000+	8	11.3

The sample included parents from all four regions and all nine divisions of the United States as designated by the United States Census Bureau (United States Census Bureau, Geography Division, 2010).

The highest number of respondents (n = 30) reported living in the South region of the United States comprising 42.3% of the participant sample, while the second highest number of respondents (n = 20) reported living in the Midwest region of the country comprising 28.2% of the sample. Respondents living in the West region of the United States comprised 19.7% (n = 14) of the participant sample, and finally 9.9% of the sample (n = 7) reported living in the Northeast region of the country.

Sixteen respondents reported living in states in the West South Central division of the South region comprising the highest number of sample participants (22.5%). States in the West South Central division include Arkansas, Louisiana, Oklahoma, and Texas.

Twelve respondents reported living in states in the East North Central division of the Midwest region of the country comprising the next largest sample of participants (16.9%). States in this division include Illinois, Indiana, Michigan, Ohio, and Wisconsin.

Eleven respondents reported living in states in the South Atlantic division of the South region comprising the third largest number of sample participants (15.5%). The South Atlantic division includes Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, Washington D.C., and West Virginia.

Ten respondents reported living in states in the Pacific division of the West region of the country comprising the fourth largest number of sample participants

(14.1%). The Pacific division includes Alaska, California, Hawaii, Oregon, and Washington. See Table 6 for a summary of all geographic regions and divisions.

Table 6

Respondents' Home Location

	(N = 71)	
	N	*%*
Geographic Region		
Northeast	7	9.9
Midwest	20	28.2
South	30	42.3
West	14	19.7
Geographic Division		
New England	3	4.2
Mid-Atlantic	4	5.6
East North Central	12	16.9
West North Central	8	11.3
South Atlantic	11	15.5
East South Central	3	4.2
West South Central	16	22.5
Mountain	4	5.6
Pacific	10	14.1

Parental Stress Scores

I used the Parenting Stress Index-Short Form (PSI-SF) (Abidin, 1995) to measure parental stress. I provided a summary of scores in Table 7. Total Parental Stress (PS) raw scores ranged from 38 to 160 ($M = 102.63$, $SD = 25.2$). Of note, 74.6% of respondents scored above the 80th percentile on the Total Parental Stress scale and 38.0% scored in the 99th percentile.

Table 7

Summary of PSI-SF Total Score and Subscales (n = 71)

PSI-SF	Mean	SD	Study Range	> 80th Percentile
Total Score	102.63	25.16	38-160	74.6%
PD	33.75	11.02	12-60	57.8%
P-CDI	30.55	8.77	12-47	73.3%
DC	38.34	9.38	14-58	81.7%

Among scores on subscales of the PSI_SF, particularly high scores were found on the Difficult Child (DC) subscale with 81.7% of respondents scoring above the 80th percentile and 38.0% scoring in the 99th percentile. Raw scores for the DC subscale ranged from 14 to 58 ($M = 38.34$, $SD = 9.38$). The mean score of 38.34 equates to an average PD score above the 90th percentile placing them in the clinical range.

Parent-Child Dysfunctional Interaction (P-CDI) was the second highest subscale with 73.3% of respondents scoring above the 80th percentile and 25.4% scoring in the 99th percentile placing them in the clinical range. Raw scores for the P-CDI subscale ranged from 12 to 47 ($M = 30.55$, $SD = 8.77$).

Parental Distress (PD) was the lowest scoring subscale of the PSI-SF with 57.8% of respondents scoring above the 80th percentile and 18.3% scoring in the 99th percentile placing them in the clinical range. Raw scores for the PD subscale ranged from 12 to 60 ($M = 33.75$, $SD = 11.02$).

I performed analyses using SPSS to determine if mothers and fathers of children with autism reported mean differences in their perceptions of family resiliency factors and parental stress in their families. I performed Independent-samples t-tests to

determine if statistically significant differences existed between the mean PS scores of mothers and fathers and mean family resiliency scores of mothers and fathers.

To compare PS scores, I used Total Stress scores from the PSI-SF instrument as the measure of the dependent variable, parental stress (PS), and the independent variable was parent gender (PG). There were 23 male and 48 female respondents. There were no outliers in the data, as assessed by inspection of a boxplot. PS scores for each variable were normally distributed, as assessed by Shapiro-Wilk's test ($p >$ .05). According to Levene's test for equality of variances ($p = .606$), homogeneity of variances existed. PS scores were higher for mothers ($M = 108.96$, $SD = 24.49$) than fathers ($M = 89.43$, $SD = 21.53$), by a statistically significant difference ($M = -19.52$, $SE = 5.98$, $t(69) = -3.265$, $p = .002$). Based on this analysis, mothers demonstrated higher mean stress levels than fathers. Furthermore, the results of the analysis demonstrated a large effect size of $d = -.84$ (Cohen, 1988).

To compare family resilience scores, I used the Total Family Resilience (FRAS) scores from the FRAS instrument as the measure of the dependent variable and parent gender (PG) as the independent variable. Of the 23 male and 48 female respondents, there were no outliers in the data, as assessed by inspection of a boxplot. FRAS scores for each variable were normally distributed, as assessed by Shapiro-Wilk's test ($p >$ .05). According to Levene's test for equality of variances ($p = .305$), homogeneity of variances existed. FRAS scores were higher for fathers ($M = 176.13$, $SD = 18.02$) than mothers ($M = 163.75$, $SD = 22.69$), by a statistically significant difference ($M = 12.38$, $SE = 5.40$, $t(69) = 2.292$, $p = .025$). Based on this analysis, fathers demonstrated

higher mean family resilience levels than mothers. Furthermore, the results of the

analysis demonstrated a medium effect size of $d = .58$ (Cohen, 1988).

Correlational Analyses

Correlation coefficients (r) indicate the magnitude and direction of the linear

relationship between two variables on an ordinal scale (Hinkle et al., 2003). To address

the first research question, I performed correlational analyses in SPSS and examined

the resulting Pearson coefficients. As shown in the correlational matrix in Table 8, the

analyses revealed negative relationships between each family resilience variable and

parental stress scores. As family resilience scores increase, PS scores tended to

decrease.

Table 8

Pearson Correlation Coefficients

	PS	FC	AMMA	FCPS	USER	FS	MPO	PG
PS	1.000							
FC	-.505**	1.000						
AMMA	-.607**	.359**	1.000					
FCPS	-.561**	.497**	.645**	1.000				
USER	-.438**	.376**	.436**	.552**	1.000			
FS	-.138	.016	.103	.268*	.466**	1.000		
MPO	-.584**	.419**	.757**	.780**	.531**	.192	1.000	
PG	.366**	-.146	-.245*	-.188	-.165	-.293*	-.243*	1.000

Note. **$p < 0.01$; *$p < 0.05$; $n = 71$.

AMMA ($r = -.607, p < .01$) had a moderate negative correlation with PS and the

highest among independent variables. MPO had a moderate negative correlation with

PS ($r = -.584, p < .01$). FCPS ($r = -.561, p < .01$) and FC ($r = -.505, p < .01$) also had

moderate negative correlations with PS. USER ($r = -.438, p < .01$) had a low negative

correlation with PS. FS (r = -.138, p = .252) did not demonstrate a statistically significant correlation to PS.

I performed further analyses to determine correlations between demographic scale variables and the three subscales of the PSI-SF and the five subscales of the FRAS. I also performed point-biserial analyses to determine the correlation between each of the PSI-SF subscales and each of the FRAS subscales with the dichotomous variable, PG.

Regarding the PSI-SF subscales, DC scores demonstrated a low correlation to PG r_{pb}(71) = .400, p < .01 and a low correlation to race dominance r_{pb}(71) = -.339, p < .01. DC scores were not significantly correlated to any of the other demographic variables, which included age of parent, family income, marital status, employment status, education level, number of children in home, gender of child with autism, child's diagnosis, age of child with autism, respite care, or geographic region. P-CDI scores demonstrated a low correlation to PG r_{pb}(71) = .400, p < .05 and a low correlation to gender of child with autism r_{pb}(71) = -.278, p < .05. P-CDI scores also demonstrated a low correlation to respite care r_{pb}(71) = .266, p < .05. P-CDI scores were not significantly correlated with any of the other demographic variables. PD scores demonstrated a low correlation to PG r_{pb}(71) = .262, p < .05. PD scores were not significantly correlated with any of the other demographic variables. Total PS scores demonstrated a low correlation to PG r_{pb}(71) = .366, p < .01. PS scores were not significantly correlated with any of the other demographic variables.

Regarding the FRAS subscales, AMMA scores demonstrated a low correlation to PG r_{pb}(71) = -.245, p < .05. FS scores demonstrated a low correlation to PG r_{pb}(71) = -

.293, $p < .05$. MPO scores also demonstrated a low correlation to PG $r_{pb}(71) = -.243$, p

$< .05$. Other than PG, AMMA, FS, and MPO were not significantly correlated with any

of the other demographic variables. However, FC, FCPS, and USER scores were not

significantly correlated with PG or any of the other demographic variables.

Regression Analysis

I performed preliminary analyses to check for missing data, verify assumptions

for multiple regression analysis, and check for data problems prior to performing

regression analyses of the collected data. Regarding checks for missing data, six

respondents began completing the survey questionnaire but stopped responding at

various points and chose not to complete it. Therefore, their responses were not

included in the dataset or any analyses. All other respondents completed the entire

questionnaire and left no questions unanswered.

Assumptions to be checked included: Independence of errors (residuals);

existence of a linear relationship between the predictor variables and the dependent

variable; homoscedasticity of residuals (equal error variances); low multicollinearity; and

verification that residuals errors were normally distributed. Data problems were also

examined to check for significant outliers, leverage points, or influential points.

First, autocorrelation of adjacent observations are problematic for multiple

regression analysis. Therefore, I performed an independence of residuals assessment,

which resulted in a Durbin-Watson statistic of 1.848. This finding indicated no

correlation between residuals (Durbin & Watson, 1950, 1951).

Second, independent variables collectively are assumed to be linearly related to

the dependent variable in multiple regression, and each independent variable is

assumed to be linearly related to the dependent variable (Keith, 2006). Therefore, I

checked for this assumption by plotting the studentized residuals against the predicted

values in SPSS. A visual inspection of the scatterplot resulted in the observance of

points resembling a horizontal band, which demonstrated that the relationship between

the PS and the independent variables was linear.

Third, I tested homoscedasticity of residuals (equal error variances). According

to the assumption of homoscedasticity, residuals are equal for all values of the

predicted dependent variable. Violation of this assumption does not affect the

regression coefficients but does affect statistical significance, (Cohen, Cohen, West, &

Aiken, 2003; Keith, 2006). To check for heteroscedasticity, I used SPSS to plot the

studentized residuals against the unstandardized predicted values. I performed a visual

inspection of the scatterplot and found the residuals equally spread over the predicted

values of PS. Therefore, the assumption of homogeneity of variance was not violated.

Fourth, I tested for high multicollinearity among the independent variables, which

occurs when two or more independent variables are highly correlated with each other

leading to problems in the determination of which variable contributes to the variance

explained in a multiple regression model. Correlation coefficients greater than $r = .700$

signify a likelihood of high multicollinearity between variables, as well as collinearity

Tolerance values of less than .100, which can also be indicative of high multicollinearity

(Keith, 2006).

To check for high multicollinearity, I reviewed the Pearson correlation coefficients

between each factor of family resilience and parent gender and used SPSS to calculate

collinearity tolerance values. The MPO subscale was shown to be highly correlated to

AMMA ($r = .757$, $p < .001$) and FCPS ($r = .780$, $p < .001$). The Tolerance value for MPO was the lowest of all independent variables (.274) but greater than .100. However, due to high correlation with two other variables, I chose to remove MPO from multiple regression analyses. As a result, the number of predictors decreased from six to five.

Fifth, I verified that residuals errors were normally distributed with their values of residuals approximating a normal curve (Keith, 2006). I used three methods to check for this assumption with plots created in SPSS.

1. I visually inspected a histogram for each variable with a superimposed normal curve and a P-P Plot. Inspections of histograms for each variable indicated that the data was normally distributed.

2. I visually inspected a Normal Q-Q Plot of the studentized residuals. I observed from the P-P Plot, the points were aligned close enough to indicate that the residuals were normally distributed.

3. I also used non-graphical tests to assess for normal distribution. All skewness and kurtosis coefficients were determined to be in the acceptable range of +/- 3.00 standard deviations. PS scores were normally distributed for males with a skewness of -0.969 ($SE = 0.481$) and kurtosis of -0.158 ($SE = 0.935$). Parental Stress scores were also normally distributed for females with a skewness of -1.466 ($SE = 0.343$) and kurtosis of 0.083 ($SE = 0.674$). Moreover, Parental Stress scores were normally distributed for all genders together with a skewness of -1.088 ($SE = 0.285$) and kurtosis of -0.385 ($SE = 0.563$).

Finally, other analyses were performed to check for significant outliers and influential points. Standardized residuals were analyzed to detect significant outliers. I used the common cut-off criterion of +/- 3.00 standard deviations to assess whether a particular residual might be representative of an outlier and used SPSS to calculate Casewise Diagnostics, which created a table of outliers. Using this criterion, I removed three cases from the sample dataset as outliers because they had values greater than 3.00 standard deviations.

To check for influential points, I calculated Cook's Distance for each of the data points in the set and created an index plot using these values (Cook & Weisberg, 1982). I then examined the index plot and found that all values were within tolerable range. Therefore, because of analyses to check for significant outliers and influential points, the sample of participants for the study included 71 respondents.

After all assumptions were adjusted for and data problems were corrected, a multiple regression analysis with simultaneous entry ($n = 71$) was performed to answer the second research question. I compiled outcome data and reported the results in narrative and tabular forms. I used PS scores from the PSI-SF as the measure of the dependent variable parental stress. Independent variables were parent gender (PG) and five factors of family resilience measured with the FRAS instrument.

As shown in Table 9, the regression model itself was statistically significant and the independent variables explained 48.0% of the variance in PS, and the overall regression equation was statistically significant $F(6, 64) = 18.140$, $p < .01$, Adjusted R^2 = .480. The difference between R^2 and Adjusted R^2 indicated minimal shrinkage due to

correction for sampling error. The Adjusted R^2 value was indicative of a large effect size

according to Cohen (1988).

Table 9

Regression Summary Table of Six Predictors and Parental Stress (n = 71)

Model	SOS	df	Mean Square	F	p	R^2	R^2_{adj}
Regression	23239.587	6	3873.265	18.140	.001*	.525	.480
Residual	21060.892	64	329.076				
Total	44300.479	70					

Note. Predictors included Family Communication and Problem Solving (FCPS), Utilizing Social and Economic Resources (USER), Family Connectedness (FC), Family Spirituality (FS), Ability to Make Meaning of Adversity (AMMA) and Parent Gender (PG). Dependent variable was Parental Stress (PS). *$p < .01$.

I computed beta weights and structure coefficients to explore the source of the

effect size. Table 10 displays the beta weights (β), the structure coefficients (r_s), the

squared structure coefficients (r_s^2), and the bivariate correlations (r) for all predictor

variables derived from the model.

Table 10

Beta Weights and Structure Coefficients for the Regression Model (n = 71).

Variable	β	r	r_s	r_s^2
Family Connectedness (FC)	-.244	-.505	-.698	.487
Ability to Make Meaning of Adversity (AMMA)	-.334	-.607	-.838	.703
Family Communication and Problem Solving (FCPS)	-.132	-.561	-.775	.600
Utilizing Social and Economic Resources (USER)	-.117	-.438	-.605	.366
Family Spirituality (FS)	.055	-.138	-.191	.036
Parent Gender (PG)	.220	.366	.506	.256

Regarding the beta weights of variables, AMMA, FC, and PG demonstrated the

largest values and each of the three independent variables were statistically significant

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($p < .05$). The other independent variables (FCPS, USER, and FS) were not statistically significant, but each demonstrated beta weight contributions to the regression model.

According to the beta weight value for AMMA, each standard deviation increase in its scores led to a .334 standard deviation decrease in PS scores, with all other independent variables controlled. Moreover, each additional standard deviation increase in FC led to a .244 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for PG indicated female PS scores are higher than male scores by .220 standard deviations, with all independent variables controlled. Moreover, each additional standard deviation increase in FCPS led to a .132 standard deviation decrease in PS scores, with all independent variables controlled. Each additional standard deviation increase in USER led to a .117 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for FS indicated that each additional standard deviation increase in FS led to a .055 standard deviation increase in PS scores, with all independent variables controlled.

According to the calculated squared structure coefficients, when variance explained in PS was allowed to be shared between all independent variables, 70.3% of the 48.0% of the variance explained by the regression model was attributed to AMMA, 60.0% was attributed to FCPS, 48.7% was attributed to FC, 36.6% was attributed to USER, and 3.6% was attributed to FS. Moreover, according to the other squared structure coefficients, 25.6% of the 48.0% of the variance explained by the regression model was attributed to PG.

APPENDIX E

EXTENDED DISCUSSION

In this study, I examined the relationships between family resilience factors and parental stress among mothers and fathers of children with autism. I performed descriptive, correlational, and regression analyses. The results can provide critical information for mental health clinicians and researchers seeking to know more about family resiliency and stress. Ultimately, families and parents of children with autism can benefit from this study by gleaning information and integrating it into the clinical realm. When family members in this population seek counseling, it is imperative for counselors to be prepared to understand the benefits of resiliency and the impact it can make in reducing stress levels.

In this section, I will discuss the results of the statistical analyses presented in the previous section. First, I will review demographic information of sample participants, as well as findings regarding parental stress. Secondly, I will discuss the results pertaining specifically to the three research questions. Thirdly, I will present implications for clinical practice and research. Fourthly, I will review limitations of this study, and lastly, I will make recommendations for further research.

Demographic characteristics of the participants were generally representative of those in other studies of parents and children affected by autism. As in other related studies, mothers demonstrated a higher rate of participation in the study than fathers did (Soltanifar et al., 2015; Rivard et al., 2014; Sabih & Sajid, 2008; Pisula & Kossakowska, 2010). Boyd (2002) attributed higher response rates to mothers to them being primary caretakers of their children with autism.

Regarding the gender of respondents' children, approximately three times as many respondents in the sample reported having a male child than a female child with

autism. However according to the CDC (2014), male children with autism outnumber female children by a ratio of approximately five to one. Therefore, the number of respondents with female children with autism was higher than expected.

The percentage of respondents reporting to be either "married" or "living with domestic partner" was also higher than expected at approximately 80%. According to Freedman et al. (2012), the divorce rate of this population is greater than 50%, which suggests that single, divorced, and separated parents tended not to participate in the survey. One possible explanation for this difference is that single parents have less time to participate in surveys due to a relatively number of parental duties.

All other demographic characteristics including socioeconomic status were within the expected findings based on previous autism related research findings (CDC (2014). For example, 76.1% of respondents in this study identified themselves as "White". According to a report by the CDC (2014), Caucasian children are more likely to be identified with autism than children of other races due to a lack of diversity in samples of studies with families impacted by autism. Therefore, distribution of the racial composition of this study was not surprising. The ratio of Asperger syndrome to other autism disorders in the sample was also not surprising as the distribution of 1:6 in the sample was in the mid-range found in other autism research (Fombonne & Tidmarsh, 2003).

The findings of this study are consistent with the results of several other studies, which show that parents of children with autism experience high degrees of stress (Baker-Ericzen et al., 2005; Bromley et al., 2004; Erguner-Tekinalp & Akkok, 2004; Hastings, 2003; Hastings & Johnson, 2001; Huang et al., 2014; Konstantareas &

Papageorgiou 2006; Lecavalier et al., 2006; Lyons et al., 2010; Molteni & Maggiolini, 2015); Pisula & Kossakowska, 2010; Rivard et al., 2014; Sabih & Sajid, 2008; Soltanifar et al., 2015).

The results of the study are not consistent with other studies regarding stress and age of the child with autism. Although, previous studies have found significant correlations between parental stress levels and the age of children with autism (Barker et al., 2011; Fitzgerald et al., 2002; Gray, 2002; Lounds et al., 2007; Konstantareas & Homatidis, 1989; McStay et al., 2013; Smith et al., 2008; Tehee et al., 2009), I found no statistically significant correlation between these variables.

While the average of all parental stress subscales were in the clinically significant range, the Difficult Child (DC) subscale had the highest average score, followed by Parent-Child Dysfunctional Interaction (P-CDI) and Parental Distress (PD). Based on other studies (Kayfitz, Gragg, & Orr, 2010), I expected the mean PD score to be the highest of the three subscales.

However, elevated DC scores from parents of children with autism relative to the other subscale have been found in previous studies using the PSI-SF (Davis & Carter, 2008) and is plausible considering the intended purpose of the measure. According to Abidin (1995), the DC subscale was developed as a valid measure of stress levels specifically related to managing difficult behaviors that are often "rooted in the temperament of the child" (p. 56). Therefore, high DC scores could be linked to difficult behaviors, which are typically rooted in the temperaments of children with autism rather than the result of learned responses. Previous studies have also attributed increased parental stress to behavioral characteristics associated with autism (Pisula, 2007;

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Podolski & Nigg, 2001; Tomanik, Harris, & Hawkins, 2004) and symptom severity (Beck, Daley, Hastings, & Stevenson, 2004; Konstantareas & Papageorgiou, 2006).

Regarding other significant correlations of demographic variables to parental stress scales, female participants reported higher levels of distress than males in DC, P-CDI, and PD scores. Moreover, DC scores demonstrated indicated that white parents tend to report higher levels of distress than non-white parents do.

P-CDI scores also demonstrated a low correlation to gender of child with autism indicating that parents of male children with autism tended to report higher levels of stress related to parent-child interaction than parents of female children. Finally, P-CDI scores demonstrated a low correlation to respite care indicating that parents receiving weekly respite care tended to report higher levels of stress related to parent-child interaction than parents that not receiving respite care.

First Research Question

In this study, a significant negative relationship was found between each subscale of the FRAS and total parental stress, as measured on the PSI-SF. The results demonstrated that parents with lower degrees of stress tended to have higher degrees of family resilience in each subscale, and parents with higher degrees of stress tended to have lower degrees of family resilience in each subscale.

Regarding correlations between family resilience and parental stress, the ability to make meaning of adversity (AMMA), family communication and problem-solving (FCPS), and family connectedness (FC) were the most significant. This outcome suggests that resilience levels are related to stress levels. However, the correlational results do not indicate that higher resilience necessarily causes lower parental stress.

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The correlations might merely be the consequences of one or more other causal factors. Therefore, the statistical significance of the correlations can be recognized as evidence of possible causal relationships between family resilience factors and parental stress with the relationship between them being unlikely due to chance.

In previous studies, research specifically focused on the relationship between family resiliency and parental stress is limited for parents of children with autism. However, the findings in this study are consistent with correlational results in other studies that have found a negative relationship between stress and resilience (Becvar, 2013; Goldenberg & Goldenberg, 2013; Pargament, 1996; Krok, 2014; McCubbin, 1995; Walsh, 2011, 2015).

Second Research Question

The second research question in this study regarded a determination of how much of the variance of parental stress was explained by parent gender and family resiliency factors. According to analyses of beta weights and structure coefficients for each predictor findings in this study, AMMA, FC, PG, FCPS, USER, and FS each contributed to the shared variance of predicted PS. MPO was not included in this analysis due to the variable's high correlation with both AMMA and FCPS.

According to the beta weight value for AMMA, each standard deviation increase in its scores led to a .334 standard deviation decrease in PS scores, with all other independent variables controlled. Moreover, each additional standard deviation increase in FC led to a .244 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for PG indicated female PS scores are higher than male scores by .220 standard deviations, with all

independent variables controlled. Moreover, each additional standard deviation increase in FCPS led to a .132 standard deviation decrease in PS scores, with all independent variables controlled. Each additional standard deviation increase in USER led to a .117 standard deviation decrease in PS scores, with all independent variables controlled, and the positive beta weight for FS indicated that each additional standard deviation increase in FS led to a .055 standard deviation increase in PS scores, with all independent variables controlled.

According to the calculated squared structure coefficients, when variance explained in PS was allowed to be shared between all independent variables, 70.3% of the 48.0% of the variance explained by the regression model was attributed to AMMA, 60.0% was attributed to FCPS, 48.7% was attributed to FC, 36.6% was attributed to USER, and 3.6% was attributed to FS. Moreover, according to the other squared structure coefficients, 25.6% of the 48.0% of the variance explained by the regression model was attributed to PG.

An overall examination of the beta weight and structure coefficients of each variable yielded the following narrative summary. Of the six variables in the regression model, AMMA stood out among the others with the highest beta weight value and highest structure coefficient. The moderate beta of AMMA combined with a large structure coefficient indicated a strong probability that some of the variance it explained was shared with one or more other variables. However, AMMA was clearly the largest contributor to the variance in PS scores bolstering the importance of the family belief systems domain as constructed in Walsh's (2015) framework of family resilience.

Although the beta weight coefficient of FCPS was low, the structure coefficient was high, meaning that it was likely correlated with one or more other variables and its variance is being explained somewhere else. Such correlation does not make it a bad predictor of PS. It just means that the variance of FCPS can be explained elsewhere in this data set. The high structure coefficient indicated the relatively strong predictive importance of FCPS on PS.

FC was also a good predictor of PS. FC had a higher beta weight but a much lower structured coefficient than AMMA and FCPS, meaning that it had less correlation and less shared variance with other variables. Although, also a shared predictor of the variance of PS scores, a review of the beta weight and structure coefficient of USER indicated lower relative importance of the variable than AMMA, FCPS, and FC.

The results of this study are consistent with the findings of previous studies and reinforces the importance of beliefs to a family facing trials specifically regarding the benefit of attributing meaning to each struggle. Making meaning from adversity is a relational process emerging out of the family belief system and an essential component of family resiliency (Walsh, 2015). As Wright and Bell (2009) contend, belief systems held by the family greatly affect the ways in which each family member perceives challenges and crises. Such perceptions develop due to cultural and spiritual beliefs passed from one generation to the next and influence each family's approaches to both privilege and adversity. When a family faces adversity, a crisis of meaning potentially develops as members attempt to attach meaning to the painful experience. The meaning is both reflective of the family's existing belief system and contributive to meaning developed in future crises.

Family members bolster resilience within the family by finding meaning in the midst of their struggles and recognizing crises as shared challenges that they can face together. Characteristics of family relationships that facilitate such recognition include the existence of mutual assurance that family members can trust and support one another when difficulties arise (Beavers & Hampson, 2003). Moreover, Walsh (2015) explained, "Families are better able to weather adversity when members have an abiding loyalty and faith in each other, rooted in a strong sense of trust" (p. 45). The results in this study are consistent with Bayat's (2007) findings regarding parents' ability to make meaning out of having a child with autism, as well as becoming more compassionate, caring, and mindful of others. The findings are also consistent with McGoldrick et al. (2016) who found that family members make meaning from adversity by recognizing a family legacy of thriving when faced with difficulties.

In addition to the benefit of having this relational view of family resilience, when members sense coherence within the family system, meaning is also facilitated (Walsh, 2015). A sense of coherence encourages members to be more hopeful in their family's ability to clarify and find meaning in adversity. The results of this study are consistent with the results of Antonovsky and Sourani's (1988) study, which showed that a sense of coherence as predictive of adaptive coping and higher degrees of satisfaction among couples experiencing stress. Similarly, according to the findings of this study, parents of children with autism have lower degrees of stress when they perceive coherence in their families.

Effective communication facilitates coherence within the family. The findings in the study are consistent with previous literature regarding the importance of adequate

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family communication styles as a predictor of family functioning (Epstein, Ryan, Bishop, Miller, & Keitner, 2003).   Family communication and problem solving abilities were found to be highly correlated to parental stress in this study. Families of a child with autism can facilitate resilience by seeking to share clear information about their situation to one another (Walsh, 2015). Good communication leads to improved collaboration and reductions in the stress that accompanies unknown circumstances. Therefore, parental stress can be reduced when they open up to each other about their emotional state, their concerns, and their hopes. Again, cohesiveness is increased and loneliness decreased as family members learn to bond together to solve problems and address their challenges as a unit. Therefore, the better family members communicate the more connected they become and the weight of living with a child with autism is dispersed and therefore more manageable and effective than individualized coping.

Moreover, family connectedness was also a contributor to shared variance in the predicted degrees of parental stress and the only significant contributor associated with the family organizational processes domain in Walsh's (2015) framework of family resilience. These findings regarding family connectedness are also consistent with Bayat's (2007) findings showing that as a result of working together for the good of the child with autism, the majority of respondents reported they had become more connected and had grown closer. Kapp and Brown (2011) also found that cooperation and togetherness in families with a child with autism contributed to wellness and resilience. Marciano et al. (2015) found that mutual caring of a child with autism tended to improve the bonds among marriage partners.

Similar to making meaning out of adversity, family connectedness relies on positive interpersonal characteristics such as trust and support, which are indicative of strong bonds within the family system. Family connectedness is crucial to the structural organization of the family unit regarding boundaries and roles, as well as emotional bonding (Minuchin, 1974). Resilient families are able to maintain a healthy balance between closeness and separateness within the family. Moreover, according to family systems theory, appropriate relational boundaries minimize the occurrence of triangulation dynamics that can develop under stress (Bowen 1978, Minuchin, 1974). Therefore, the findings in this study highlight the importance of family connectedness and are consistent with family systems theory that emphasizes the need for healthy boundaries in the facilitation of effective teamwork in facing stressful situations.

As consistent with previous studies across multiple cultures, these results demonstrate that mothers of children with autism report higher levels of stress than fathers do (Pisula & Kossakowska, 2010; Sabih & Sajid, 2008; Soltanifar et al., 2015). Although Soltanifar et al. (2015) found a significant correlation between the level of parental stress of fathers and the severity of the autistic disorder in children, this finding was inconsistent with this study, which did not find stronger parental stress correlations among fathers with any variables.

Considering the demographics of the sample, the results of this study regarding parental gender and stress were not surprising. According to traditional roles and responsibilities of American family culture, mothers are typically more involved than fathers in the caretaking duties of their children. Mothers also tend to spend relatively more time with their children than fathers. Therefore, due to the additional

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responsibilities and time-spent caregiving, mothers of children with autism logically experience higher levels of stress than fathers do.

Finally, I was surprised that family spirituality was a relatively small contributor to the shared variance of parental stress in this study and among the weakest correlates to parental stress of all variables. I was especially surprised, since characteristics related to family spirituality are similar to those of family connectedness and making meaning in adversity, both of which were highly correlated to parental stress and contributive to the shared variance of parental stress levels. For example, regarding making meaning of adversity, Jegatheesan, Miller, and Fowler (2010), found that "religion was the primary frame within which parents understood the meaning of having a child with autism" (p. 105).

Moreover, Bayat (2007) found changes in spiritual growth or a renewed closeness to God after having a child with autism. Others studies have also shown reductions in stress levels related to the employment of religious coping behaviors (Konstantareas, 1991; Pisula & Kossakowska, 2010). Moreover, individuals with a spiritual identity are empowered by using religious activities to reduce stress when facing adversity (Pargament, 1996; Pargament et al., 1998; Krok, 2014).

The inconsistency between previous findings and this study regarding spirituality might be due to differences in study variables. For example, researchers in these studies tended to focus specifically on religious coping of individuals rather than examining family resilience and not all focused specifically on the population of parents of children with autism.

In addition, the differences might be attributed to the FS related questions on the FRAS instrument. The questions seem to be primarily oriented more to religious practice and activities rather than assessing a perceived relationship with a sovereign and omnipotent being capable of transcending human limitations and overcoming mortal struggles and stresses. Questions seeking to assess a sense of closeness to and faith in a sovereign, omnipotent power might have resulted in higher FS scores and reflected the importance faith and trust in a strength beyond their own in the reduction of stress.

Clinical Implications

Clinicians working with family members of children with autism can use the results of the study to bring hope to clients within this population. Clinicians could use these findings to improve understanding and empathy for clients faced with stress related to having autism in the family.

Individual, family and couples counselors can affirm the reparative potential of families by using these findings to inform treatment plans that facilitate the development of specific types of resilience within the family system. For example, in family therapy, these findings can encourage clinicians to explore and recognize the existing belief systems and organizational patterns of client families. Family members reporting a family legacy of thriving when faced with adversity, can be encouraged to find clarity and meaning within the difficulties of living with a child with autism, which have been shown to make the difficulties easier to bear and potentially facilitate a perspective that is more positively skewed.

Clinicians could also use these findings to justify the value in educating parents and other caregivers about the importance of striving for resilience in their family. For example, filial therapists can supplement their traditional protocols by teaching parents ways to help siblings of children with autism develop resiliency.

In couples counseling, these findings can affirm clinicians and clients of the typical differences in stress levels between mothers and fathers. Clinicians have evidence to normalize the higher stress levels for mothers, and fathers can be encouraged to be more empathetic to their partner.

Based on findings from this research, couples can also be encouraged to develop resiliency in their home environment, which can reduce the stress that may be contributing to their presenting problems in counseling. Treatment approaches focused on connectedness and trust building can also lead to increased resilience in the family and ultimately reduce parental stress.

Research Implications

The results of this study could provide other researchers with findings that inform future research projects. For example, the results of this study indicate the likelihood of specific types of family resiliency contributing more to lower the degrees of stress than other types of family resiliency. Therefore, research implications include the need to investigate further the importance of families striving to make meaning out of adversity, as well as seek healthy forms of connectedness between family members.

Secondly, the inconsistent findings of this study compared to previous studies regarding the significance of religion and spirituality when facing adversity highlight the need to investigate such factors in future studies of families, couples, and individuals.

For example, researchers focusing on the comparison of various types of religious and transcendent beliefs could determine if specific spiritual beliefs or practices activities contribute more to stress reduction than others do.

Thirdly, I primarily focused on the correlational and predictive relationship between family resilience and stress of parents of children with autism. However, in the future, other researchers could examine the relationship of these variables among siblings of children with autism.

Fourthly, researchers could also use the findings of this study to examine how family resiliency can potentially reduce stress among clients faced with other adverse situations. For example, in future studies, researchers could sample parents of children with other disorders to determine the potential impact of family resiliency.

Fifthly, researchers could also use qualitative methods in future studies allowing the participants with the opportunity to convey perceptions in their own words. By doing so, researchers could observe themes that could not be determined with the instruments used in this quantitative study.

Sixthly, I based this study on collected data from a cross-sectional sample. However, in future studies researchers could use a longitudinal design to evaluate the impact of family resiliency and parent gender on parental stress over time.

Finally, researchers could use experimental designs in future studies to explore the impact of an approach to therapy that employs assessments and interventions related to the development of resilience. Sixbey (2005) and Walsh (2015, pp. 357-367) provide related outlines for clinical assessment and intervention.

Limitations of Study

Results from this research need consideration in lieu of the following limitations as well as others not mentioned below. Among the limitations of the study is the manner in which I collected data through self-report measures and the ambiguity inherent in studying issues related to a spectrum disorder. Although this is a quantitative study, self-reports regarding a relatively ambiguous topic area resulted in a less objective study.

Furthermore, self-reporting measures have the underlying assumption that participants accurately describe their actual perceptions even though results can be underreported (Morlan & Tan, 1998). For example, participants may have responded in a socially desirable way or according to a particular response style (van Riezen & Segal, 1988). Moreover, defense or coping mechanisms may have influenced participant responses (Morlan & Tan, 1998).

Another limitation was the lack of racial and ethnic diversity among participants in the sample. The convenience sample from the limited locations had a disproportionately high number of Caucasian participants and female participants.

Furthermore, the data collection sites were organizations focused on offering support services to parents of children with autism. Therefore, the sample of parents might have been biased towards those who have more supports or coping resources than those not seeking or receiving such resources. As a result, a sample lacking representation of parents experiencing debilitating levels of stress due to a lack of resources might have affected outcomes. Conversely, regarding the findings related to

parental stress levels, parents with high levels of stress might have been more likely to

participate in the study.

APPENDIX F

SUPPLEMENTAL MATERIALS

DEMOGRAPHIC SURVEY

This section asks general questions about you and your child with an Autism Spectrum Disorder. Please mark your answer or fill in the blank.

1. Are you a parent of a child diagnosed with autism?
   - ☐ Yes
   - ☐ No

2. Do you live with and provide care for this child?
   - ☐ Yes
   - ☐ No

3. What is your gender?
   - ☐ Male
   - ☐ Female
   - ☐ Transgender
   - ☐ Other _____

4. What is your age in years? _____

5. What is your highest level of educational completion?
   - ☐ High school, no diploma
   - ☐ High school diploma
   - ☐ Specialists degree
   - ☐ Associates / Vocational degree
   - ☐ Bachelors degree
   - ☐ Masters degree
   - ☐ Doctorate degree

6. Approximately, what is your family's total yearly income? _____

7. What is your current marital status?
   - ☐ Single   ☐ Divorced
   - ☐ Married   ☐ Separated
   - ☐ Widowed   ☐ Living with domestic partner

8. What state do you live in? _____

9. How would you describe your racial/ethnic identity? (Choose one or more from the following)

☐ Hispanic or Latino

☐ American Indian or Alaska Native

☐ Asian or South Asian

☐ Black or African American

☐ Native Hawaiian or Other Pacific Islander

☐ White

10. What is your employment status?

☐ Full-time

☐ Part-time

☐ Not working outside of the home

11. How many children under the age of 18 live in your home?

_____

12. How many children with autism under the age of 18 live in your home?

_____

13. What is the age of your child/children with autism?

_____

14. What is the gender of your child/children with autism?

_____

15. Which of the following best describes your child's diagnosis? (Select one)

☐ Autism or Autistic Disorder

☐ Asperger's Disorder

☐ Pervasive Developmental Disorder

☐ Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS)

☐ Child Disintegrative Disorder

☐ Autism Spectrum Disorder (choose if none of the above apply)

16. Approximately, how many hours per week does your child/children with autism receive therapy (speech therapy, occupational therapy, ABA, equestrian therapy, counseling, etc.)? _____

17. Approximately, how many hours per week do you have respite care or babysitting services for your child/children with autism? _____

FAMILY RESILIENCE ASSESSMENT SCALE (FRAS)

Please read each statement carefully. Decide how well you believe it describes your family now from your viewpoint. Your "family" may include any individuals you wish.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. Our family structure is flexible to deal with the unexpected.	☐	☐	☐	☐
2. Our friends are a part of everyday activities.	☐	☐	☐	☐
3. The things we do for each other make us feel a part of the family.	☐	☐	☐	☐
4. We accept stressful events as a part of life.	☐	☐	☐	☐
5. We accept that problems occur unexpectedly.	☐	☐	☐	☐
6. We all have input into major family decisions.	☐	☐	☐	☐
7. We are able to work through pain and come to an understanding.	☐	☐	☐	☐
8. We are adaptable to demands placed on us as a family.	☐	☐	☐	☐
9. We are open to new ways of doing things in our family.	☐	☐	☐	☐
10. We are understood by other family members.	☐	☐	☐	☐
11. We ask neighbors for help and assistance.	☐	☐	☐	☐
12. We attend church/synagogue/mosque services.	☐	☐	☐	☐
13. We believe friends can take advantage of us.	☐	☐	☐	☐
14. We can ask for clarification if we do not understand each other.	☐	☐	☐	☐
15. We can be honest and direct with each other in our family.	☐	☐	☐	☐
16. We can blow off steam at home without upsetting someone.	☐	☐	☐	☐
17. We can compromise when problems come up.	☐	☐	☐	☐
18. We can deal with family differences in accepting a loss.	☐	☐	☐	☐
19. We can depend upon people in this community.	☐	☐	☐	☐
20. We can question the meaning behind messages in our family.	☐	☐	☐	☐
21. We can solve major problems.	☐	☐	☐	☐

	Strongly Agree	Agree	Disagree	Strongly Disagree
22. We can survive if another problem comes up.	☐	☐	☐	☐
23. We can talk about the way we communicate in our family.	☐	☐	☐	☐
24. We can work through difficulties as a family.	☐	☐	☐	☐
25. We consult with each other about decisions.	☐	☐	☐	☐
26. We define problems positively to solve them.	☐	☐	☐	☐
27. We discuss problems and feel good about the solutions.	☐	☐	☐	☐
28. We discuss things until we reach a resolution.	☐	☐	☐	☐
29. We feel free to express our opinions.	☐	☐	☐	☐
30. We feel good giving time and energy to our family.	☐	☐	☐	☐
31. We feel people in this community are willing to help in an emergency.	☐	☐	☐	☐
32. We feel secure living in this community.	☐	☐	☐	☐
33. We feel taken for granted by family members.	☐	☐	☐	☐
34. We feel we are strong in facing big problems.	☐	☐	☐	☐
35. We have faith in a supreme being.	☐	☐	☐	☐
36. We have the strength to solve our problems.	☐	☐	☐	☐
37. We keep our feelings to ourselves.	☐	☐	☐	☐
38. We know there is community help if there is trouble.	☐	☐	☐	☐
39. We know we are important to our friends.	☐	☐	☐	☐
40. We learn from each other's mistakes.	☐	☐	☐	☐
41. We mean what we say to each other in our family.	☐	☐	☐	☐
42. We participate in church activities.	☐	☐	☐	☐
43. We receive gifts and favors from neighbors.	☐	☐	☐	☐
44. We seek advice from religious advisors.	☐	☐	☐	☐
45. We seldom listen to family members concerns or problems.	☐	☐	☐	☐

	Strongly Agree	Agree	Disagree	Strongly Disagree
46. We share responsibility in the family.	☐	☐	☐	☐
47. We show love and affection for family members.	☐	☐	☐	☐
48. We tell each other how much we care for one another.	☐	☐	☐	☐
49. We think this is a good community to raise children.	☐	☐	☐	☐
50. We think we should not get too involved with people in this community.	☐	☐	☐	☐
51. We trust things will work out even in difficult times.	☐	☐	☐	☐
52. We try new ways of working with problems.	☐	☐	☐	☐
53. We understand communication from other family members.	☐	☐	☐	☐
54. We work to make sure family members are not emotionally or physically hurt.	☐	☐	☐	☐

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