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# ASSOCIATIONS BETWEEN PERCEIVED FAMILY SOCIAL SUPPORT AND THE PSYCHOLOGICAL HEALTH OF CAREGIVERS OF CHILDREN AND ADOLESCENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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## ABSTRACT

Perceived social support is a robust predictor of individuals' psychological health. This systematic review and meta-analysis evaluated the relationships between perceived family social support and five dimensions of psychological health of parents and other primary caregivers of children and adolescents with and without developmental disabilities or chronic medical conditions. Five primary and six secondary electronic databases were searched for family support scale studies. Studies were included if the correlations between perceived family social support and one or more measures of the psychological health of parents or other primary caregivers were reported. Thirty-nine published and unpublished research studies including 51 independent samples of participants met the inclusion criteria. The studies were conducted between 1985 and 2020 and included 4,540 parents and other caregivers. Random-effects models found that the sizes of effects were all statistically significant and ranged between $r$ = -.14 (95% CI = -.21, -.09) for negative life events and $r$ = .24 (95% CI = .07, .43) for positive psychological well-being. The strengths of the relationships between perceived family social support and psychological health were moderated by caregiver gender, caregiver marital status, and child condition Family social support was related to the psychological health of female study participants (mothers and grandmothers) but not fathers; married study participants and those living with a partner; and children and adolescents with and without disabilities or medical conditions but not for children and adolescents who were at-risk for family or neighborhood reasons (e.g., poverty, violence). Results showed that perceived helpfulness of family social support was related to the less negative and more positive psychological health of parents and other primary caregivers of children and adolescents with and without developmental disabilities or chronic health conditions but not for parents and other primary caregivers in households of children and adolescents at-risk for poor outcomes for family and neighborhood risk factors.

**Keywords**: Social support, family support, psychological health, systems theory, meta-analysis.

## INTRODUCTION

Social support includes the received or perceived provision of assistance, advice, and help from family members, relatives, friends, and other social network members (Helgeson, 1993; Kent de Grey et al., 2018). Received or enacted social support refers to “the experience of receiving actions and behavior that are considered supportive by the recipient…which matches the types of support sought by the recipient with ones that are provided by close relations and significant others” (Nurullah, 2012, p.174). Perceived social support refers to a person’s subjective appraisals or judgments of the general availability of support, the helpfulness of support, or satisfaction with support (Sarason et al., 1990). Both received and perceived social support are hypothesized to lessen the negative effects of stressful life events and enhance psychological health and well-being (e.g., Chen, 2013; Winnubst et al., 1988).

The relationships between received or perceived social support, or both, and different dimensions of psychological health have been the focus of more than a dozen meta-analyses (Bender et al., 2019; Chronister et al., 2008; Chu et al., 2010; del-Pino-Casado et al., 2018; Haber et al., 2007; Piper, 2006; Prati & Pietranoni, 2010; Procidano, 1992; Rueger et al., 2016; Schiller, 2019; Schiller et al., 2021; Schwarzer & Leppin, 1989; Yalcin, 2015; Zalta et al., 2021). A similar pattern of results was found in most of these syntheses. Perceived social support was significantly related to different dimensions of psychological health in all of the meta-analyses. In investigations examining both perceived and received social support, the sizes of effect for perceived support were larger than the sizes of effect for received support. In the meta-analyses reporting the effect sizes for women and men, the sizes of effect for women were all significantly related to psychological health and the sizes of effect for men were close to zero. The findings from the meta-analyses, taken together, indicate that perceived social support is more important than received social support for women but not men.

Social support may be especially important for parents and other primary caregivers of children with identified disabilities, children with chronic health conditions, and children at-risk for poor outcomes for family-related factors (e.g., Hill et al., 2021; Paterson et al., 1997; Singer & Irving, 1989). This is the case because the birth and rearing of a child with a disability or medical condition, or the rearing of a child under adverse conditions, are often stressful life events for parents and other caregivers (e.g., Barroso et al., 2018; Feizi et al., 2014; Steele et al., 2016). Social support is hypothesized to buffer parents and other primary caregivers from the adverse effects of these stressful life events and lessen psychological distress and enhance positive psychological health (e.g., Park & Lee, 2022; Szkody & McKinney, 2019).

The results from the meta-analyses briefly reviewed above do not include evidence to indicate that social support is related to the psychological health of parents and other primary caregivers of children with different disabilities and health conditions or in households with children at-risk for poor outcomes. One meta-analysis included studies of persons with disabilities and medical conditions but the study participants were mostly adults (Chronister et al., 2008). Two meta-analyses focused specifically on the relationships between social support and the psychological health of only parents and other primary caregivers of children with autism spectrum disorders (Schiller, 2019; Schiller et al., 2021). These two meta-analyses, however, included only a few studies where measures of perceived family social support were used to investigate the relationship between social support and health-related outcomes.

## Family Social Support

Family social support, a particular type of social support (Pinkerton et al., 2015), refers to the support provided to parents and other primary caregivers of children and adolescents by informal and formal social network members that bolters healthy family and family member functioning which in terms increases positive family member interactions (Dunst, 2017; Bronfenbrenner, 1979; Pinkerton et al., 2015). A social systems perspective of family social support emphasizes the importance of sources of social support at different ecological and systems levels (Bronfenbrenner, 1999). Family social support in households with children and adolescents is hypothesized to lessen stress and promote the personal well-being of parents and other primary caregivers so that they can engage in family routines, interactions, and activities in a health-producing and competent manner (Bronfenbrenner, 1992; Garbarino & Benn, 1992). Bronfenbrenner (1979), for example, noted that parents' health and well-being related to their abilities to carry-out parenting responsibilities depends on the social support available from social network members in the microsystem (e.g., immediate family members), mesosystem (e.g., relatives and friends), and exosystem (e.g., child care and health care providers) social systems levels.

There are more than a dozen scales that measure different types of family social support. Most of these scales, however, include items that measure perceived family social support from only family members or friends (e.g., Darghuth et al., 2015; Shinn et al., 1989; Uddin et al., 2021) or are scales completed by adolescents about social support provided by their family members (e.g., Celik & Ayna, 2014; Perkins & Jones, 2004; Procidano & Heller, 1983). Additionally, none of these scales assess family social support in terms of carrying out parenting roles and responsibilities. In contrast, the F*amily Support Scale* (Dunst et al., 1984a, 1984b) measures family social support from five different social network sources (nuclear family, blood and marriage relatives, friends and coworkers, parent groups, parent organizations, and professional helpers and organizations) specifically in terms of helpfulness related to raising a young child.

The *Family Support Scale* (FSS) is one of the most widely used instruments for measuring perceived family social support (see e.g., Mantri-Langeveldt et al., 2019). Bronfenbrenner's (1979) ecological systems theory was used to guide the selection of scale items to measure family support from a broad range of informal and formal social network sources. The FSS includes 18 items where perceived family social support is measured in terms of the helpfulness of support to parents or other primary caregivers related to rearing a child. The 18 items include spouse or partner, one's parents, spouse or partner's parents, parent's children, relatives, friends, other parents, co-workers, clerics or church members, parent groups, social groups, family or child's physician, childcare or preschool programs, early childhood intervention programs, professional helpers, and professional agencies or organizations. Each source of support is rated on a 5-point Likert scale ranging from *not-at-all-helpful* to *extremely helpful*. The sum of the 18-item ratings is used as a global measure of the perceived helpfulness of family social support.

The psychometric properties of the FSS have been extensively examined in different studies with different parents and caregivers in households of children and adolescents with and without child-related conditions or concerns. The scale has been found to be both a reliable and valid instrument for measuring perceived family social support in different countries with parents of children with and without disabilities or medical conditions (e.g., Almasri et al., 2014; Crowley, 1995; Dunst et al., 1994; Hanley et al., 1998; Hoang, 2018; Littlewood et al., 2012; Taylor et al., 1993). Coefficient alpha for the total scale score has ranged between .67 and .89 (Median = .80). In studies examining the predictive validity of the FSS, the total scale score was related to different measures of parent, family, and child functioning (Almasri et al., 2014; Crowley, 1995; Dunst et al., 1994; Taylor et al., 1993).

Searches for systematic reviews or meta-analyses of FSS studies found no research syntheses of investigations of the relationships between perceived family social support and the psychological health of parents and other caregivers. Two meta-analyses of family support studies include a few FSS investigations but only for children with autism spectrum disorders (Schiller, 2019; Schiller et al., 2021). A narrative review of the relationships between social support and parent, family, and child health of children with different developmental disabilities and medical conditions included a few FSS studies but there was no attempt to meta-analyze the results from the studies (Dunst et al., 1997). We, therefore, do not know if perceived family social support in households with children and adolescents with disabilities, medical conditions, or other child-related at-risk factors behaves in the same way as perceived social support with other populations of study participants.

### Purpose of the Study

The purpose of the systematic review and meta-analysis described was to ascertain the strength of the relationships between the helpfulness of family social support and the psychological health of parents and other primary caregivers of young children and adolescents with and without identified disabilities or medical conditions. There were four aims of the research synthesis:

1. Determine if the sizes of effect between family social support and psychological health were the same or different for different domains of psychological functioning (depression, stress, well-being, etc.).
2. Determine if the sizes of effect between family social support and psychological health were the same or different for different groups of children (disabilities, medical conditions, at-risk, etc.).
3. Determine if the sizes of effect between family social support and psychological health were the same or different for different groups of caregivers (mothers, fathers, grandmothers).
4. Determine if the sizes of effect between family social support and psychological health were moderated by child age, caregiver age, caregiver education, and caregiver marital status.

The systematic review and meta-analysis is part of a line of research by the author and his colleagues investigating the basic tenets of an applied family social systems intervention model where family supports, family strengths, family needs, and family resources are hypothesized to be family and social systems variables that are related to family and family member healthy functioning (Dunst, 2017). The results were expected to confirm or refute the hypothesis that family social support would be related to attenuated negative psychological health and enhanced positive psychological health. The results were also expected to ascertain the conditions under which family social support has optimal positive psychological health benefits.

## METHOD

### Approach

The guidelines for conducting a systematic review described by Siddaway et al. (2019) were used to identify, select, and appraise the results in FSS studies. The *American Psychological Association* reporting standards for meta-analyses were used to describe the method and the results of the meta-analysis (Appelbaum et al., 2018).

### Search Strategy

Five primary (PsycNet, PubMed, ProQuest Central, ProQuest Dissertations and Theses, ERIC) and six secondary (Google Scholar, JSTOR, DOAJ, BASE, CORE, and Research Gate) databases were searched for FSS studies. (Google was used to locate unpublished research reports not available in other sources.) Natural language searches were conducted since *family support* is not a controlled vocabulary term in the thesauri of any of the primary search sources and because none of the secondary sources have thesauri.

An iterative search method was used to locate FSS studies. First, searches were conducted using *Family Support Scale* as the search term. If a search identified more than a thousand papers in any one source, the search was repeated by combining “family support scale” with helpfulness or helpful* (depending on the search source) to identify only studies of perceived family social support. Second, FSS studies were identified using “family support” AND “questionnaire OR instrument OR measure” because some investigators used these terms rather than the term *scale* when describing or citing the FSS. Third, the term “family social support scale” was used to locate FSS studies after it was determined that this is how the scale was described by some investigators.

## Inclusion and Exclusion Criteria

Studies were included if the FSS was used to measure the helpfulness of family support, one or more self-report scales were used to measure psychological health, the correlations between measures were reported, and the participants were the parents or primary caregivers of children birth to 18 years of age (with or without disabilities or medical conditions). In studies where FSS subscale scores were used to measure family support, the average correlation was used as the best estimate of the total scale scores. No limitation was placed on the type of research report, where the research studies were conducted, or the type of research report. Searches were conducted between the year of the first publication of the FSS (Dunst et al., 1984a, 1984b) to the end of 2021.

Papers were excluded if the FSS was not used to measure family social support, no correlations were reported between family support and psychological health, a subset of FSS scale items was only used to measure family support, or the study participants were not parents or primary caregivers of the children or adolescents in the studies. Research reports were also excluded if insufficient information was included to determine the direction of effect between family support and psychological health.

## Methods of Analysis

*Meta-Essentials* was used to conduct the analyses of the relationships between the total FSS scores and different dimensions of the psychological health of parents and other primary caregivers (Suurmond et al., 2017; Van Rhee et al., 2015). This software package includes seven open-source workbooks for conducting meta-analyses programmed in Microsoft Excel. Workbook 5 for correlation-based meta-analyses was used in the study.

### *Data Preparation*

The zero-order correlations between the total FSS scores and the psychological health measures and the sample sizes in each study were imputed in the *Meta-Essentials* Excel spreadsheets. The moderator variables of interest were also imputed into the spreadsheets. These included the children’s ages; child conditions; caregiver age, education, and marital status.

### *Average Effect Size Estimates*

The average, weighted zero-order correlations between the FSS scores and different dimensions of psychological health were used as the sizes of effects between measures. Random effects models were used to perform the analyses. The correlations between measures were converted to Fisher *z* indices for the analyses and transformed back to correlation coefficients for reporting purposes. Each analysis includes tests for the statistical significance of the average, weighted sizes of effect and tests for between-study variability in the correlation coefficients.

### *Publication Bias*

The Egger regression test and the Begg and Mazumber rank-order correlation test were used to assess the presence of publication bias (van Aert et al., 2019). Non-significant test results indicate minimal asymmetry in distribution of the funnel plot effect sizes. A between type of research report (published vs. nonpublished) comparison was also performed to assess the presence of publication bias.

### *Moderator Analyses*

$Q_{\text{Between}}$ ($Q_B$) or linear meta-regression analyses were used to determine if the sizes of effects differed by the moderator variables. $Q_B$ is a nonparametric version of a one-way between-group ANOVA for comparing the sizes of effect for different subgroups of study participants (Lipsey & Wilson, 2001). Meta-regression analyses were used to determine if any continuously scored moderator variables were related to differences in the sizes of effects between the FSS scores and the psychological health measure (Thompson & Higgins, 2002).

## RESULTS

### Study Selection

The flow chart for locating studies meeting the inclusion criteria is shown in Figure 1. The studies excluded at the screening stage included either between-group comparisons where the FSS was a dependent measure or there was just a reference to family support or the FSS. The different reasons studies were excluded when full-text reports were assessed are shown in Figure 1. The final sample included 39 research reports and 51 independent samples of study participants. The studies were conducted between 1985 and 2020 and included 4,540 participants.

### Study and Participant Characteristics

Table 1 shows selected characteristics of the FSS studies. The total number of study participants was 4540. The number of participants in the 51 samples ranged between 21 and 480 (Median = 67). Most studies (85%) were conducted in the United States, two were conducted in Australia, and one each in Lebanon, South Africa, Taiwan, and the United Kingdom. Twenty-three of the studies were published in peer-reviewed journal articles and 16 studies were unpublished research reports (dissertations or theses).

The stressful child or family conditions of the participants' children included developmental disabilities or delays (N = 18 samples), health-related concerns (N = 7), autism spectrum disorders (N = 6), and at-risk for poor outcomes (N = 14). Six samples of children had no identified disability or medical condition and were also not at risk for poor outcomes.

Selected characteristics of the study participants are shown in Table 2. Mothers were the primary study participants in 29 samples (57%). Fathers were the study participants in nine samples (18%) and grandmothers were the study participants in eight samples (16%). Four samples include a mix of mothers and fathers (8%).

Mothers' average ages ranged between 27 and 43 years (Median = 35), fathers' average ages ranged between 32 and 42 years (Median = 35), and grandmothers' average ages ranged between 53 and 65 (Median = 57). The participants completed, on average, 10 to 18 years of formal education (Median = 13). Nine samples completed, on average, less than a high school education (18%), and nine samples completed, on average, at least an undergraduate university degree (19%). The percentage of participants who were married or living with a partner ranged between zero and 100 (Median = 79%).

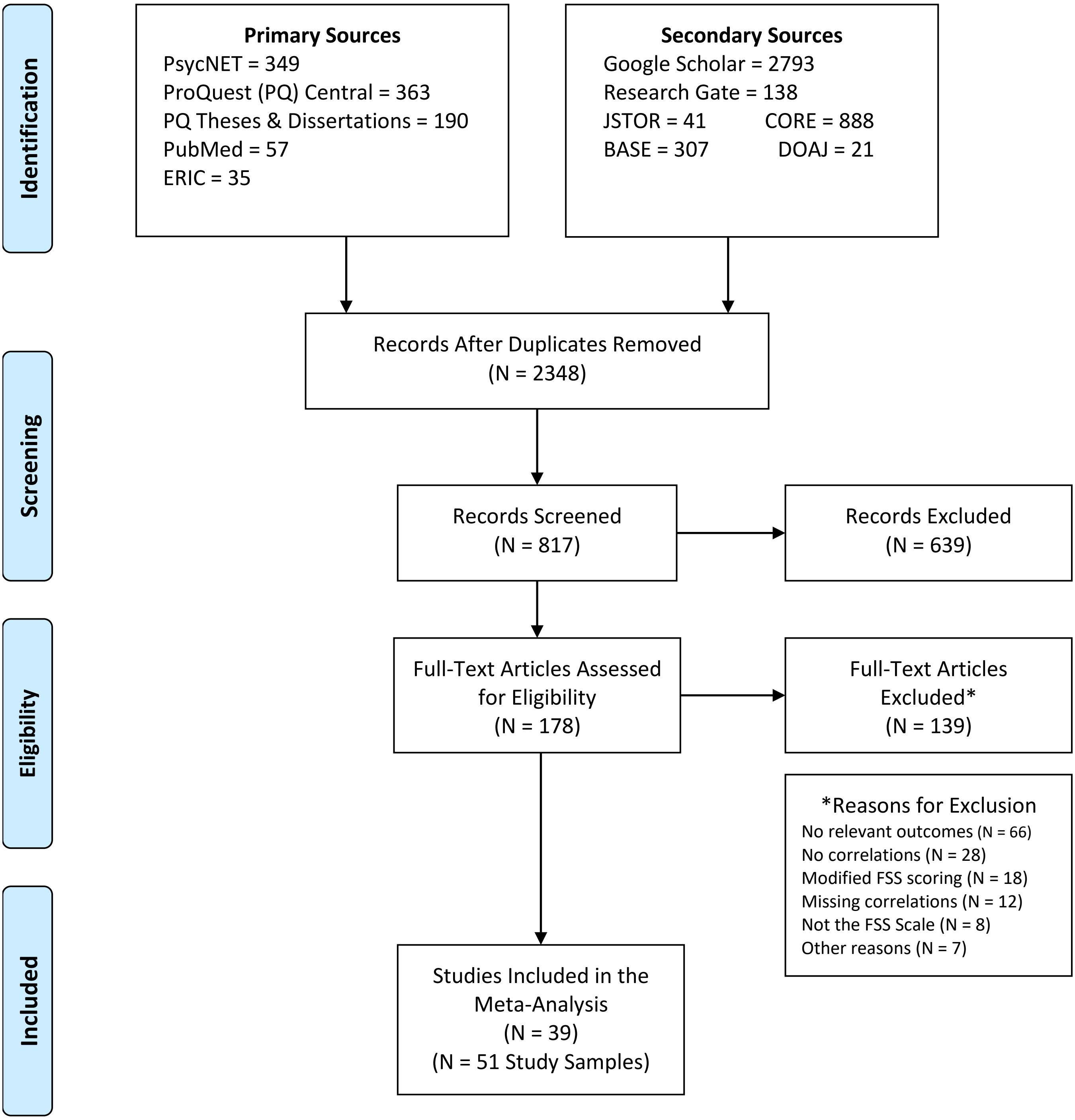

Figure 1. Flow chart for the identification of studies reporting the correlations between the Family Support Scale (FSS) and parents' and primary caregivers' psychological health. (Adapted from Moher et al., 2009).

The children's average ages ranged from less than one year to 15 years of age (Median = 7). Twenty-four samples were preschoolers (47%), 17 samples were elementary-age children (33%), and nine samples included preschool, elementary, and adolescent-age children (18%). One sample included only adolescents.

**Table 1: Selected Characteristics of the Family Support Scale Studies**

| Study | Sample | Country | Source | Child Conditions |
|---|---|---|---|---|
| Anderson et al. (2005) | 127 | USA | Journal Article | At-risk (low income) |
| Bachanas et al. (2001) | 68 | USA | Journal Article | With and without HIV |
| Benson (2006) | 68 | USA | Journal Article | Autism spectrum disorder |
| Brown (2014) | 60 | USA | Dissertation | Autism spectrum disorder |
| Brown et al. (2000) | 55 | USA | Journal Article | Sickle cell diseases |
| Candelaria et al. (2006) | 103 | USA | Journal Article | Premature birth |
| Cantonis (2016) | 110 | USA | Dissertation | At-risk (recent immigrants) |
| Cheesman (2009) | 30 | South Africa | Honor's Thesis | Autism spectrum disorder/ADHD |
| do Amaral (2003) Sample 1 | 23 | USA | Dissertation | Developmental disabilities |
| do Amaral (2003) Sample 2 | 23 | USA | Dissertation | Developmental disabilities |
| do Amaral (2003) Sample 3 | 22 | USA | Dissertation | No delay or at-risk condition |
| do Amaral (2003) Sample 4 | 22 | USA | Dissertation | No delay or at-risk condition |
| Donovan et al. (1998) | 55 | USA | Journal Article | No delay or at-risk condition |
| Dunst (1985) Sample 2 | 34 | USA | Journal Article | Developmental disabilities |
| Dunst (1985) Sample 3 | 60 | USA | Journal Article | Developmental disabilities |
| Dunst (1985) Sample 4 | 65 | USA | Journal Article | Developmental disabilities |
| Dunst (1985) Sample 6 | 103 | USA | Journal Article | Developmental disabilities |
| Eid (2016) | 54 | Lebanon | Master Thesis | Autism spectrum disorder |
| Ellis (2020) | 161 | USA | Dissertation | Intellectual disabilities |
| Frey et al. (1989) Sample 1 | 48 | USA | Journal Article | Developmental disabilities |
| Frey et al. (1989) Sample 2 | 48 | USA | Journal Article | Developmental disabilities |
| Gavidia-Payne & Stoneman (1997) Sample 1 | 75 | USA | Journal Article | Developmental disabilities |
| Gavidia-Payne & Stoneman (1997) Sample 2 | 67 | USA | Journal Article | Developmental disabilities |
| Harrington et al. (1998) | 121 | USA | Journal Article | At-risk (child neglect) |
| Hill (2010) | 57 | USA | Dissertation | At-risk (kinship care) |
| Ho (2013) | 121 | Taiwan | Dissertation | Developmental disabilities |
| Hoard & Anderson (2004) | 127 | USA | Journal Article | At-risk (low income) |
| Jones et al. (2009) | 50 | Australia | Journal Article | Premature birth |
| Kelley et al. (2000) | 102 | USA | Journal Article | At-risk (kinship care) |
| Kelley et al. (2011) | 230 | USA | Journal Article | At-risk (kinship care) |
| Kelley et al. (2013) | 480 | USA | Journal Article | At-risk (kinship care) |
| Kersh et al. (2006) Sample 1 | 67 | USA | Journal Article | Developmental disabilities |
| Kersh et al. (2006) Sample 2 | 67 | USA | Journal Article | Developmental disabilities |
| Leder et al. (2007) | 42 | USA | Journal Article | At-risk (kinship care) |
| Letiecq & Koblinsky (2003) | 61 | USA | Journal Article | At-risk (neighborhood violence) |
| Littlewood (2008) | 175 | USA | Dissertation | At-risk (kinship care) |
| McCarthy et al. (2006) Sample 1 | 39 | Australia | Journal Article | Fragile X syndrome |
| McCarthy et al. (2006) Sample 2 | 28 | Australia | Journal Article | Fragile X syndrome |
| Miller et al. (1992) Sample 1 | 69 | USA | Journal Article | Developmental disabilities |
| Miller et al. (1992) Sample 2 | 63 | USA | Journal Article | No delay or at-risk condition |
| Phetrasuwan (2003) | 108 | USA | Dissertation | Autism spectrum disorder |
| Robitaille (2012) | 21 | USA | Dissertation | At-risk (kinship care) |
| Rodgers (1993) | 85 | USA | Journal Article | No delay or at-risk condition |
| Salzer (2005) | 59 | USA | Dissertation | At-risk (kinship care) |
| Small (2010) Sample 1 | 92 | USA | Dissertation | Developmental disabilities |
| Small (2010) Sample 2 | 98 | USA | Dissertation | No delay or at-risk condition |
| Stein (2018) | 231 | USA | Dissertation | Mental health |
| Tetenbaum (2010) | 101 | USA | Dissertation | Autism spectrum disorder |
| Tyler (2004) | 308 | USA | Dissertation | At-risk (neighborhood violence) |
| Wheeler et al. (2007) | 24 | USA | Journal Article | Fragile X syndrome |
| White & Hastings (2004) | 33 | United Kingdom | Journal Article | Intellectual disabilities |

## Study Measures

### *Family Support Scale*

The FSS in all of the studies used the 5-point Likert scale measuring the helpfulness of social support from informal and formal social network members (Dunst et al., 1984a, 1984b). Investigators in a few studies excluded a few FSS scale items that were not relevant to the study participants and a few investigators added a few items that were considered important sources of support to the study participants. English versions of the scale were used in all but three studies. Investigators of the latter three studies translated the FSS into the primary languages of the study participants.

**Table 2: Selected Characteristics of the Family Support Scale Study Participants**

| | | Participant Characteristics[b] | | | | | Child Age[c] | |
|---|---|---|---|---|---|---|---|---|
| **Study** | **Sample Size** | **Primary Study Participants[a]** | **Percent of Sample** | **Mean Age (Yrs.)** | **Mean Yrs. of School** | **Percent Married** | **Mean Age (Yrs.)** | **Age Range (Yrs.)** |
| Anderson et al. (2005) | 127 | Fathers | 100 | 32 | 11 | 7 | 9 | 1-18 |
| Bachanas et al. (2001) | 68 | Mothers | 54 | NR | 13 | 28 | 10 | 6-16 |
| Benson (2006) | 68 | Mothers | 88 | 38 | 15 | NR | 7 | 4-10 |
| Brown (2014) | 60 | Mothers | 83 | 35 | 11 | 90 | 4 | 2-7 |
| Brown et al. (2000) | 55 | Mothers | 80 | NR | NR | 29 | 9 | 5-16 |
| Candelaria et al. (2006) | 103 | Mothers | 100 | 27 | 14 | 45 | <1 | -- |
| Cantonis (2016) | 110 | Mothers | 100 | 33 | 10 | 74 | 2 | 1-3 |
| Cheesman (2009) | 30 | Mothers | 100 | 40 | NR | 80 | 9 | 6-12 |
| do Amaral Sample 1 | 23 | Mothers | 100 | 34 | 16 | 100 | 2 | 1-3 |
| do Amaral Sample 2 | 23 | Fathers | 100 | 34 | 16 | 100 | 2 | 1-3 |
| do Amaral Sample 3 | 22 | Mothers | 100 | 34 | 16 | 100 | 2 | 1-3 |
| do Amaral Sample 4 | 22 | Fathers | 100 | 34 | 16 | 100 | 2 | 1-3 |
| Donovan et al. (1998) | 55 | Mothers | 100 | 32 | 15 | NR | <1 | -- |
| Dunst (1985) Sample 2 | 34 | Mothers | 100 | 28 | 12 | 100 | 5 | 2-8 |
| Dunst (1985) Sample 3 | 60 | Mothers | 68 | 30 | 12 | 94 | 4 | 1-7 |
| Dunst (1985) Sample 4 | 65 | Mothers | 84 | 29 | 12 | 79 | 3 | 1-5 |
| Dunst (1985) Sample 6 | 103 | Mothers | 100 | 28 | 12 | 79 | 3 | <1-5 |
| Eid (2016) | 54 | Mothers | 100 | 39 | 14 | 85 | 10 | 2-17 |
| Ellis (2020) | 161 | Mothers | 58 | 36 | NR | 71 | 10 | 5-19 |
| Frey et al. (1989) Sample 1 | 48 | Mothers | 100 | 37 | 14 | 100 | 7 | 3-14 |
| Frey et al. (1989) Sample 2 | 48 | Fathers | 100 | 39 | 14 | 100 | 7 | 3-14 |
| Gavidia-Payne & Stoneman (1997) Sample 1 | 75 | Mothers | 100 | 33 | 12 | 100 | 3 | 1-6 |
| Gavidia-Payne & Stoneman (1997) Sample 2 | 67 | Fathers | 100 | 36 | 12 | 100 | 3 | 1-6 |
| Harrington et al. (1998) | 121 | Mothers | NR | 25 | 11 | 12 | 1.5 | <1-3 |
| Hill (2010) | 57 | Grandmothers | 93 | 62 | 13 | 30 | 10 | <1-18 |
| Ho (2013) | 121 | Mothers | 100 | 36 | 13 | 96 | 5 | 3-6 |
| Hoard & Anderson (2004) | 127 | Fathers | 100 | 32 | 11 | 6 | 10 | 1-18 |
| Jones et al. (2009) | 50 | Mothers | 50 | 32 | NR | 100 | <1 | -- |
| Kelley et al. (2000) | 102 | Grandmothers | 95 | 56 | 11 | 18 | 9 | <1-18 |
| Kelley et al. (2011) | 230 | Grandmothers | 96 | 56 | 11 | 24 | 8 | 2-14 |
| Kelley et al. (2013) | 480 | Grandmothers | 100 | 56 | 11 | 19 | 8 | 1.5-16 |
| Kersh et al. (2006) Sample 1 | 67 | Mothers | 100 | 40 | 15 | 44 | 10 | -- |
| Kersh et al. (2006) Sample 2 | 67 | Fathers | 100 | 42 | 15 | 44 | 10 | -- |
| Leder et al. (2007) | 42 | Grandmothers | 93 | 58 | 14 | 67 | 12 | <1-18 |
| Letiecq & Konlinsky (2003) | 61 | Fathers | 100 | 36 | 13 | 46 | 4 | 3-6 |
| Littlewood (2008) | 175 | Grandmothers | 71 | 65 | 13 | NR | 10 | 1-18 |
| McCarthy et al. (2006) Sample 1 | 39 | Mothers | 100 | 40 | NR | 79 | 10 | 4-17 |
| McCarthy et al. (2006) Sample 2 | 28 | Fathers | 100 | 42 | NR | 96 | 10 | 4-17 |
| Miller et al. (1992) Sample 1 | 69 | Mothers | 100 | 32 | 17 | 83 | 5 | <1-7 |
| Miller et al. (1992) Sample 2 | 63 | Mothers | 100 | 32 | 17 | 83 | 4 | 1-7 |
| Phetrasuwan (2003) | 108 | Mothers | 100 | 37 | 14 | 83 | 6 | 3-10 |
| Robitaille (2012) | 24 | Grandmothers | 86 | 60 | 13 | 62 | 9 | 3-15 |
| Rodgers (1993) | 85 | Mothers | 100 | 30 | 13 | 39 | 4 | 3-5 |
| Salzer (2005) | 59 | Grandmothers | 76 | 53 | 11 | 47 | 11 | 1-19 |
| Small (2010) Sample 1 | 92 | Mothers | 100 | 40 | 12 | 0 | 12 | 5-18 |
| Small (2010) Sample 2 | 98 | Mothers | 100 | 35 | 13 | 0 | 10 | 5-18 |
| Stein (2018) | 231 | Mothers | 90 | 36 | 18 | 85 | 8 | 5-13 |
| Tetenbaum (2010) | 101 | Mothers | 100 | 38 | 18 | 100 | 5 | 2-8 |
| Tyler (2004) | 308 | Mothers | 85 | 32 | 12 | 30 | 4 | 3-6 |
| Wheeler et al. (2007) | 24 | Mothers | 100 | 34 | 14 | 88 | 4 | 1-6 |
| White & Hastings (2004) | 33 | Mothers | 88 | 43 | 16 | 88 | 15 | 13-18 |

[a] Mothers include biological mothers, stepmothers, and adoptive mothers. Grandmothers include maternal grandmothers, paternal grandmothers, and great grandmothers. [b] Participant characteristics for some samples were estimated based on information in the research reports. [c] Mean child age and age range for some samples estimated based on information in the research reports.

NOTES. Married includes living with a partner. NR = Not reported or insufficient information included in the research reports to estimate the participant characteristics.

### *Psychological Health Measures*

Table 3 shows the psychological health measures used in the FSS studies and the number of studies that included each measure. The psychological health measures were limited to ones that have established psychometric properties as reported by the scale developers or in studies of the psychometric properties of the scales cited by the study investigators. Investigator-developed measures in the primary studies were not included in the meta-analysis.

Five different domains of psychological health were measured in the studies. The general health measures all included items measuring different dimensions of psychological health (stress, depression, anxiety, etc.). The depression measures all included different indices of sadness, loss of interest, and feelings of hopelessness. The different stress and anxiety scales each assessed heightened emotional responses to internal or external stimuli. The life events measures each assessed the presence of stressful life events and situations in the participants' lives. The well-being measures all assessed positive aspects of psychological health.

Higher scores on the psychological health measures indexed either poor (negative) functioning or positive functioning. The direction of the correlation coefficients for the relationships between the FSS and the *Health Survey (Short Form)* was reversed when the average effect sizes for general health were computed. The direction of the correlation coefficients for the relationships between the FSS and the well-being measures were also reversed when aggregated with the other psychological health measures.

**Table 3: Psychological Health Measures Used in the Family Support Scale Studies**

| Psychological Health Measures | Higher Scores[a] | Sources | No. of Studies |
|---|---|---|---|
| **General Health Measures** | | | |
| Brief Symptom Inventory | Negative | Derogatis (1993) | 11 |
| Symptom Checklist-90-R | Negative | Derogatis (1992) | 5 |
| General Health Questionnaire | Negative | Goldberg (1978) | 4 |
| Health Survey (Short Form) | Positive | Ware et al. (1993) | 4 |
| **Depression Measures** | | | |
| CES-Depression Scale | Negative | Radloff (1977) | 14 |
| Beck Depression Inventory | Negative | Beck et al. (1961) | 4 |
| PHQ Depression Subscale | Negative | Kroenke and Spritzer (2002) | 3 |
| BSI Depression Subscale | Negative | Derogatis and Spencer (1982) | 2 |
| DASS Depression Subscale | Negative | Lovibond and Lovibond (1995) | 1 |
| **Stress and Anxiety Measures** | | | |
| Perceived Stress Scale | Negative | Cohen et al. (19983) | 2 |
| Beck Anxiety Subscale | Negative | Beck et al. (1988) | 1 |
| Generalized Anxiety Disorder Scale | Negative | Spritzer et al. (2006) | 1 |
| HADS Anxiety Scale | Negative | Zigmond and Snaith (1983) | 1 |
| **Negative Life Events Measures** | | | |
| Hassles and Uplifts Scale | Negative | Kanner et al. (1981) | 3 |
| Life Events Questionnaire | Negative | Sarason et al. (1978) | 2 |
| Effects of Situation Questionnaire | Negative | Yatchmenoff et al. (1998) | 1 |
| **Well-Being Measures** | | | |
| Psychological Well-Being Index | Positive | Bradburn (1969) | 4 |
| WHO Quality of Life Scale | Positive | World Health Organization (1996) | 1 |
| Ryff Well-Being Scale | Positive | Ryff (1989) | 1 |
| Satisfaction with Life Scale | Positive | Diener et al. (1985) | 1 |

[a] Negatively scored scales indicate poorer psychological health and positively scored scales indicate better psychological health.

## Forest Plot Effect Size Data

The Appendix includes the number of participants in each sample, the psychological health measures used in the studies, the zero-order correlations between the FSS total scale scores and each of the psychological health measures, the 95% confidence intervals for the correlation coefficients, and the within psychological health domain weights for computing the average, weighted correlation coefficients between the FSS and the different domains of psychological health. These data together with the data in Tables 1 and 2 were used for performing the analyses reported next.

## Meta-Analysis Findings

Table 4 shows the results for the relationships between the total FSS and scores and each of the five psychological health domains and all measures combined. Family social support was significantly related to all of the outcome measures as evidenced by confidence intervals not including zero and the *Z*-value results. Higher FSS scores were related to attenuated negative psychological health and heightened positive psychological health. There was no statistically significant difference in the sizes of effects between the five dimensions of psychological health, $Q_B = 1.88$, $df = 4, 61$, $p = .758$.

There was low to substantial heterogeneity in the outcomes in the studies. $I^2$ indexes the percentage of variation in the sizes of effects between the FSS scores and the outcome measures in individual studies. Heterogeneity was zero for negative life events; moderate for general health, stress and anxiety, and well-being; and substantial for depression (Higgins & Thompson, 2002). The results indicate, except for stressful life events, that the variation in the sizes of effects in individual studies for the other psychological health measures is not due to chance but rather is associated with other factors (as described below).

**Table 4: Average Weighted Effect Sizes for the Relationships Between the Total Family Support Scale Scores and the Different Dimensions of Psychological Health**

| Psychological Health Measures | k | N | *r* | 95% CI | *Z*-value | *p*-value | $I^2$ |
|---|---|---|---|---|---|---|---|
| All Measures Combined | 66 | 5704 | -.16 | -.21, -.11 | 6.85 | .000 | 61 |
| General Health | 24 | 1962 | -.17 | -.23, -.09 | 4.80 | .000 | 42 |
| Depression | 24 | 2242 | -.14 | -.23, -.04 | 3.05 | .002 | 74 |
| Stress and Anxiety | 5 | 479 | -.16 | -.37, -.06 | 2.03 | .022 | 61 |
| Negative Life Events | 6 | 520 | -.15 | -.21, -.09 | 6.10 | .000 | 0 |
| Well-Being[a] | 7 | 502 | .26 | .07, .43 | 3.37 | .000 | 68 |

NOTES. k = Number of samples, N = Number of study participants, *r* = Average, weighted effect size, CI = Confidence interval, and $I^2$ = Heterogeneity in the sizes of effects in individual studies.

[a] The direction of the correlation coefficients reversed for computing the *All Measures Combined* effect size.

## Publication Bias

The results from the publication bias analyses are shown in Table 5 for all outcome measures combined and for each psychological health domain. The results indicate that there are differences in the sizes of effects in individual studies for all measures combined and for general health and depression. Comparison of the size of effect for peer-reviewed journal articles, $r = -.16$, 95% CI = -.22, -.09, and unpublished research reports, $r = -.16$, 95% CI = -.22, -.11, found no significant difference in the effect sizes, $Q_B = 0.03$, $df = 1, 63$, $p = .854$, for the two types of research reports. This finding indicates that the differences in individual studies are related to factors other than the type of research report.

**Table 5: Publication Bias Results**

| | Egger Regression Test | | | | Begg and Mazumdar Test | | |
|---|---|---|---|---|---|---|---|
| **Psychological Health Measures** | **$b_0$** | **se** | ***t*-test** | ***p*-value** | **Tau** | ***z*-value** | ***p*-value** |
| All Measures Combined | -1.96 | .49 | 3.98 | .000 | -.26 | 3.12 | .002 |
| General Health Measures | -1.20 | .56 | 1.14 | .040 | -.23 | 1.59 | .113 |
| Depression Measures | -2.72 | 1.14 | 2.38 | .030 | -.31 | 2.13 | .033 |
| Stress and Anxiety Measures | -3.02 | 1.20 | 2.51 | .090 | -.40 | 0.98 | .327 |
| Negative Life Event Measures | 2.03 | 1.92 | 0.99 | .350 | .33 | 0.94 | .348 |
| Well-Being Measures | -3.37 | 2.73 | 1.23 | .270 | -.33 | 1.05 | .293 |

NOTES. $b_o$ = y-axis intercept, Tau = Kendall's rank-order correlation.

## Moderator Analyses

### *Subgroup Results*

Table 6 shows the results for different subgroups of children and different subgroups of caregivers. The sizes of effects for all of the different subgroups of children except for those who were at-risk for poor outcomes were statistically significant as evidenced by confidence intervals not including zero and the Z-value results. The confidence interval for the children who were at risk for poor outcomes included zero and the Z-value was not significant. This is likely due to the different reasons the children were at-risk (Table 1) and the differences in the sample characteristics (Table 2). This is reflected in the substantial heterogeneity in the sizes of effects for the different samples of these children.

Family social support for both mothers and grandmothers was related to psychological health as evidenced by confidence intervals not including zero and the Z-value results. Family social support was not related to fathers' psychological health as evidenced by a confidence interval including zero and a nonsignificant Z-value. There was also substantial heterogeneity in the sizes of effects for the different samples of fathers, indicating the sizes of effect are likely due to factors in addition to parental status.

**Table 6: Average Weighted Effect Sizes for the Relationships Between the Total Family Support Scale Scores and Different Subgroups of Children and Caregivers**

| **Child and Caregiver Subgroups** | **k** | **N** | ***r*** | **95% CI** | ***Z*-value** | ***p*-value** | **$I^2$** |
|---|---|---|---|---|---|---|---|
| Child Condition | | | | | | | |
| At-Risk for Poor Outcomes | 16 | 2077 | -.11 | -.23, .02 | 1.72 | .086 | 77 |
| Developmental Disabilities | 22 | 1831 | -.17 | -.25, -.09 | 3.83 | .000 | 49 |
| Health-Related Conditions | 7 | 371 | -.17 | -.26, -.08 | 4.73 | .000 | 0 |
| Autism Spectrum Disorders | 12 | 990 | -.19 | -.27, -.12 | 6.59 | .000 | 0 |
| No Delay or Risk for Poor Outcomes | 8 | 505 | -.23 | -.39, -.05 | 3.06 | .002 | 58 |
| Caregivers | | | | | | | |
| Fathers | 8 | 517 | -.07 | -.27, .13 | 0.71 | .476 | 81 |
| Mothers$^a$ | 41 | 3493 | -.17 | -.22, -.12 | 7.70 | .000 | 36 |
| Grandmothers | 10 | 1223 | -.19 | -.31, -.05 | 3.11 | .002 | 59 |

NOTES. k = Number of samples, N = Number of study participants, *r* = Average, weighted effect size, CI = Confidence interval, and $I^2$ = Heterogeneity in the sizes of effects in individual studies.

$^a$Samples including 75% or more of mothers.

### *Meta-Regression Results*

Table 7 shows the results for the three caregiver and one child moderator variables. Caregiver marital status was the only moderator variable significantly related to the size of effect between the total FSS scores and psychological health. The larger the percentage of caregivers who were married, the more attenuated was negative psychological health.

**Table 7: Moderators of the Relationships Between Family Social Support and the Caregivers Psychological Health**

| Moderators | $\beta$ | $R^2$ | Z-Value | p-value |
|---|---|---|---|---|
| Mean Caregiver Age | -.04 | <1 | 0.47 | .639 |
| Mean Years of Caregiver Education | -.13 | 2 | 1.62 | .105 |
| Percent of Married Caregivers | -.23 | 5 | 2.84 | .005 |
| Mean Child Age | .07 | <1 | 0.85 | .394 |

NOTES. $\beta$ is the standardized regression coefficient for the moderator effects. $R^2$ is the amount of variance accounted for in the relationship between family social support and the outcome measures by the moderator variables.

## DISCUSSION

Results showed that perceived family social support was related to all five psychological health domains that were the focus of investigation. Higher FSS scores were related to less negative psychological functioning and more positive psychological health of the study participants (Table 4). The sizes of effect for perceived family support were similar to those found in meta-analyses of perceived social support in studies of parents of children with identified disabilities (e.g., Schiller, 2019; Schiller et al., 2021). The sizes of effects were also similar to those reported in meta-analyses of perceived social support when compared to the same dimensions of psychological for other populations of study participants (e.g., Bender et al., 2019; Chu et al., 2010; Rueger et al., 2016). For example, the average effect size between perceived social support and general psychological health was $r = .14$ in the Bender et al. (2019) meta-analysis and was $r = .17$ in the present meta-analysis. Similarly, the average effect size between perceived social support and psychological well-being was $r = .20$ in the Chu et al. (2010) meta-analysis and was $r = .26$ in the present meta-analysis.

Findings showed that perceived family social support was related to female participants (mothers and grandmothers) psychological health but was not related to fathers' psychological health (Table 6). This result is the same as that found in meta-analyses of perceived social support studies (e.g., Chu et al., 2010; Harandi et al., 2017; Schwarzer & Leppin, 1989). The results show that perceived family social support behaves in the same way for mothers and grandmothers of children and adolescents as has been found in studies of perceived social support with other populations of study participants.

The results add to our understanding of the importance of perceived family social support in households with children with and without identified disabilities or medical conditions. Child condition moderated the relationship between family social support and parents' and caregivers' psychological health for all groups of children except children who were at risk for poor outcomes for environmental factors (Table 6). The lack of a relationship between perceived family social support and the psychological health of parents and caregivers in households where children were at-risk for poor outcomes is similar to that found in meta-analyses of other family systems variables (Dunst, 2021d) and is likely due to parents and other primary caregivers not having other resources that buffer families from the negative effects of family and neighborhood risk factors (Brooks-Gunn, 1995; Shonkoff & Phillips, 2000).

Marital status was the only other moderator variable related to the study participants' psychological health. Participants who were married or living with a partner reported less psychological distress and more positive psychological health. The marital status variable most likely is a proxy for spousal or partner support. Marital status, however, only accounted for five percent of the variance in the psychological health measures. This is the case because the quality of spousal or partner support is more important than marital status or living arrangements in explaining psychological well-being (Nomaguchi & Milkie, 2020).

## Contributions to Theory and Research

In contrast to social support theories that focus on the identification of the different dimensions of support that explain variations in healthy psychological functioning (e.g., Kent de Grey et al., 2018), family social systems theories consider family social support a family systems variable that contributes to positive psychological health (e.g., Broderick, 1993; Bronfenbrenner, 1992; Garbarino, 1992). Positive psychological health in turn is considered a factor contributing to positive family interactions and parenting (Cox & Paley, 1997).

Applied family social systems theory focuses on systems variables than can be operationalized as interventions to improve the health and well-being of parents, the family unit, and children (Dunst, 2017). These intervention-related variables include unmet family needs (Farmer et al., 2004), the family resources for achieving needs satisfaction (Hesse-Biber & Williamson, 1984), and the family strengths used to obtain needed family resources (DeFrain & Stinnett, 2002). Findings from meta-analyses of family needs, family resources, and family strengths studies by the author and his colleagues (e.g., Dunst, 2021b, 2021c, 2021d; Dunst, 2022a, 2022b) indicate that these family systems constructs are related to attenuated poor psychological health and enhanced positive well-being. Results from the meta-analysis in this paper add to this research by showing that family social support lessens the negative effects of rearing a child with a disability or medical condition and enhances positive psychological health in a manner similar to that for parents and other primary caregivers of children without disabilities or medical conditions.

A next step in this applied line of research is to identify if social support provided by different social network members is differentially related to positive psychological health. There is evidence, for example, that informal social support has more positive effects on different domains of psychological health and functioning than does formal support (e.g., Benson, 2006; Letiecq & Koblinsky, 2003). Meta-analyses of the relationships between different sources of support and different dimensions of psychological health would permit the identification of which types of support could be targeted for enhancing which types of psychological health. Findings from meta-analyses of the other systems constructs in the applied family social systems theory (Dunst, 2017) showed that different types of family needs, family strengths, and family resources are differentially related to different dimensions of parent, family, and child functioning (Dunst, 2021a, 2021e).

Another line of potentially fruitful investigation is how the combination of perceived family social support and other family systems variables account for additional variability in the psychological health of parents and other primary caregivers of children and adolescents. Findings from studies that included the results from regression analyses of two or more applied family social systems variables indicate that different combinations of variables account for larger amounts of variance in psychological health outcomes. Findings from a number of studies indicate that a combination of family systems variables (e.g., social support and family resources) account for more variance in the psychological health of parents and other primary caregivers than do individual family systems variables (e.g., Kelley et al., 2011; Littlewood, 2008; Weiss et al., 2013). Meta-analyses of these studies would provide evidence for which combinations of which family systems variables account for the largest amounts of variance in which dimensions of psychological health.

## Limitations

There are several limitations of the meta-analysis that need to be considered in interpreting the results. First, the data in the primary studies are correlational and therefore cause-effect conclusions may not be warranted. Second, The FSS measures a particular type of perceived family social support and there may be other types that also are important covariates of psychological health (see Schiller et al., 2021). Third, the heterogeneity found in the relationships between perceived family social support and the different dimensions of psychological health (Table 5) indicates that moderators other than child and caregiver differences (Table 6) may account for the variability in the findings in the primary studies. Fourth, the small effect sizes found between the total FSS scores and the different dimensions of psychological health may indicate that other social support dimensions not measured by the FSS could account for additional variance between family social support and psychological health.

## CONCLUSION

Perceived helpfulness of family social support was related to the less negative and more positive psychological health of parents and other primary caregivers of children and adolescents with and without developmental disabilities or chronic health conditions but not for parents and other primary caregivers in households of children and adolescents at-risk for poor outcomes for family and neighborhood risk factors. Research is needed for determining how perceived family social support in combination with other applied family social systems variables (family needs, strengths, and resources) account for variations in the psychological health of parents and other primary caregivers of children and adolescents.

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**Appendix**

*Forest Plot Data for Evaluating the Relationships Between Family Social Support and the Psychological Health of Parents and Other Primary Caregivers*

| | | | | | 95% CI | |
|---|---|---|---|---|---|---|
| **Study** | **N** | **Psychological Health Measures** | **Weight** | ***r*** | **Lo CI** | **Hi CI** |
| General Health Measures | | | | | | |
| Bachanas et al. (2001) | 68 | Brief Symptom Inventory | 4.58 | -.20 | -.42 | .04 |
| Brown et al. (2000) | 55 | Symptom Checklist-90-R | 3.97 | .08 | -.20 | .34 |
| do Amara (2003) Sample 1 | 23 | Symptom Checklist-90-R | 1.92 | -.05 | -.47 | .39 |
| do Amara (2003) Sample 2 | 23 | Symptom Checklist-90-R | 1.92 | -.21 | -.59 | .25 |
| do Amara (2003) Sample 3 | 22 | Symptom Checklist-90-R | 1.84 | -.34 | -.68 | .12 |
| do Amara (2003) Sample 4 | 22 | Symptom Checklist-90-R | 1.84 | -.45 | -.75 | -.01 |
| Eid (2016) | 54 | General Health Questionnaire | 3.92 | -.09 | -.35 | .1 |
| Frey et al. (1989) Sample 1 | 48 | Brief Symptom Inventory | 3.60 | -.51 | -.70 | -.26 |
| Frey et al. (1989) Sample 2 | 49 | Brief Symptom Inventory | 3.65 | -.29 | -.53 | .00 |
| Hill (2010) | 57 | General Health Questionnaire | 4.07 | -.29 | -.52 | -.03 |
| Ho (2013) | 121 | Health Survey (SF) | 6.33 | .19* | .01 | .36 |
| Jones et al. (2009) | 50 | General Health Questionnaire | 3.71 | -.01 | -.29 | .28 |
| Kelley et al. (2000) | 102 | Brief Symptom Inventory | 5.81 | -.11 | -.30 | .09 |
| Kelley et al. (2011) | 230 | Brief Symptom Inventory | 8.17 | -.19 | -.31 | -.06 |
| Kelley et al. (2013) | 480 | Brief Symptom Inventory | 9.78 | -.08 | -.17 | .01 |
| Leder et al. (2007) | 42 | Health Survey (SF) | 3.25 | .25* | -.52 | .07 |
| Littlewood (2008) | 175 | General Health Questionnaire | 7.42 | .05 | -.10 | .20 |
| McCarthy et al. (2006) Sample 1 | 39 | Brief Symptom Inventory | 3.06 | -.20 | -.49 | .13 |
| McCarthy et al. (2006) Sample 2 | 28 | Brief Symptom Inventory | 2.31 | -.16 | -.52 | .24 |
| Miller et al. (1992) Sample 1 | 69 | Brief Symptom Inventory | 4.62 | -.09 | -.32 | .15 |
| Miller et al. (1992) Sample 2 | 63 | Brief Symptom Inventory | 4.36 | .08 | -.18 | .33 |
| Robitaille (2012) | 21 | Health Survey (SF) | 1.76 | .60* | .20 | .83 |
| Rodgers (1989) | 85 | Brief Symptom Inventory | 5.25 | -.33 | -.51 | -.12 |
| Salzer (2005) | 36 | Health Survey (SF) | 2.87 | .18* | -.49 | .17 |
| Depression Measures | | | | | | |
| Anderson et al. (2005) | 127 | CES-Depression Scale | 4.87 | .30 | .13 | .45 |
| Benson (2006) | 68 | CES-Depression Scale | 4.12 | -.26 | -.47 | -.02 |
| Brown (2014) | 60 | CES-Depression Scale | 3.94 | -.08 | -.33 | .18 |
| Candelaria et al.(2006) | 103 | Beck Depression Inventory | 4.64 | -.19 | -.37 | .01 |
| Cantonis (2016) | 110 | PHQ Depression Scale | 4.72 | -.01 | -.20 | .18 |
| Cheesman (2009) | 30 | CES-Depression Scale | 2.82 | -.06 | -.42 | .32 |
| Donovan et al. (1998) | 54 | CES-Depression Scale | 3.78 | -.41 | -.61 | -.15 |
| Ellis (2020) | 161 | DASS Depression Subscale | 5.09 | .09 | -.07 | .24 |
| Hoard & Anderson (2004) | 127 | CES-Depression Scale | 4.87 | .30 | .13 | .45 |
| Kersh et al. (2006) Sample 1 | 67 | CES-Depression Scale | 4.09 | -.28 | -.49 | -.04 |
| Kersh et al. (2006) Sample 2 | 67 | CES-Depression Scale | 4.09 | -.08 | -.32 | .17 |
| Letiecq & Koblinsky (2003) | 61 | CES-Depression Scale | 3.96 | -.12 | -.37 | .14 |
| Miller et al. (1992) Sample 1 | 69 | BSI-Depression Subscale | 4.14 | -.16 | -.39 | .08 |
| Miller et al. (1992) Sample 2 | 63 | BSI-Depression Subscale | 4.01 | .08 | -.18 | .33 |
| Phetrasuwan (2003) | 108 | CES-Depression Scale | 4.70 | -.31 | -.47 | -.13 |
| Robitaille (2012) | 21 | CES-Depression Scale | 2.23 | -.58 | -.82 | -.17 |
| Salzer (2005) | 59 | CES-Depression Scale | 3.91 | -.27 | -.50 | -.01 |
| Small (2010) Sample 1 | 92 | Beck Depression Inventory | 4.51 | -.16 | -.36 | .05 |
| Small (2010) Sample 2 | 98 | Beck Depression Inventory | 4.59 | -.29 | -.46 | -.09 |
| Stein (2018) | 231 | PHQ Depression Scale | 5.36 | -.07 | -.20 | .06 |
| Tetenbaum (2010) | 101 | CES-Depression Scale | 4.62 | -.29 | -.46 | -.10 |
| Tyler (2004) | 308 | CES-Depression Scale | 5.53 | -.07 | -.18 | .04 |
| Wheeler et al. (2007) | 24 | Beck Depression Inventory | 2.45 | -.41 | -.71 | .02 |
| White & Hastings (2004) | 33 | PHQ Depression Scale | 2.98 | -.42 | -.67 | -.08 |
| Stress and Anxiety Scales | | | | | | |
| Small (2010) Sample 1 | 92 | Perceived Stress Scale | 23.06 | -.10 | -.30 | .11 |
| Small (2010) Sample 2 | 98 | Perceived Stress Scale | 23.50 | -.24 | -.42 | -.04 |
| Stein (2018) | 231 | Generalized Anxiety Scale | 29.49 | .02 | -.11 | .15 |
| Wheller et al. (2007) | 24 | Beck Anxiety Scale | 10.55 | -.24 | -.60 | .20 |
| White & Hastings (2004) | 33 | HADS Anxiety Scale | 13.40 | -.45 | -.69 | -.11 |

**Appendix,** continued.

| Study | N | Psychological Health Measures | Weight | r | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | **Lo CI** | **HI CI** |
| Negative Life Events Measures | | | | | | |
| Bachanas et al. (2005) | 68 | Hassles and Uplifts Scale | 12.95 | -.17 | -.40 | .08 |
| Benson (2006) | 68 | Effects of Situation Questionnaire | 12.95 | -.10 | -.33 | .15 |
| Candelaria et al. (2006) | 103 | Life Events Questionnaire | 19.92 | -.16 | -.34 | .04 |
| Gavidia-Payne & Stoneman (1997) Sample 1 | 80 | Hassles and Uplifts Scale | 15.34 | -.04 | -.26 | .18 |
| Gavidia-Payne & Stoneman (1997) Sample 2 | 80 | Hassles and Uplifts Scale | 15.34 | -.18 | -.40 | .03 |
| Harrington et al. (1998) | 121 | Life Events Questionnaire | 23.51 | -.19 | -.36 | -.01 |
| Well-Being Measures | | | | | | |
| Cheesman (2009) | 30 | WHO Quality of Life Scale | 10.20 | .28* | -.11 | .59 |
| Dunst (1985) Sample 2 | 34 | Psychological Well-Being Index | 10.95 | .36* | .01 | .63 |
| Dunst (1985) Sample 3 | 60 | Psychological Well-Being Index | 14.16 | .44* | .20 | .63 |
| Dunst (1985) Sample 4 | 65 | Psychological Well-Being Index | 14.57 | .41* | .18 | .60 |
| Dunst (1985) Sample 6 | 103 | Psychological Well-Being Index | 16.66 | -.11* | -.30 | .09 |
| Phetrasuwan (2003) | 109 | Ryff Well-Being Scale | 16.89 | .18* | -.01 | .36 |
| Tetenbaum (2010) | 101 | Satisfaction with Life Scale | 16.58 | .29* | .10 | .46 |

*Indicates that the direction of effect was reversed when combined or compared with other outcome measures.