

ASSOCIATIONS BETWEEN CAREGIVER DEPRESSION AND SOCIAL SUPPORT
AMONG DIVERSE CAREGIVERS OF CHILDREN WITH DEVELOPMENTAL
DELAY AND AUTISM

by

ABIOLA OLUBUNMI TAIWO

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Student: Abiola Olubunmi Taiwo

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This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Special Education and Clinical Sciences by:

Laura Lee McIntyre, PhD	Chairperson
Geovanna Rodriguez, PhD	Core Member
Wendy Machalicek, PhD	Core Member
Bertranna Muruthi, PhD	Institutional Representative

and

Krista Chronister	Vice Provost for Graduate Studies
-------------------	-----------------------------------

Original approval signatures are on file with the University of Oregon Division of Graduate Studies.

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DISSERTATION ABSTRACT

Abiola Olubunmi Taiwo

Doctor of Philosophy

Department of Special Education and Clinical Sciences

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Title: Associations Between Caregiver Depression and Social Support Among Diverse Caregivers of Children with Developmental Delay and Autism

Caregivers of children with developmental delay (DD) or disabilities are at a higher risk of developing mental health problems like depression when compared to caregivers of children who are typically developing. Several factors, including child diagnosis and child challenging behavior, have been known to exacerbate caregiver risk for mental health problems. Social support has been investigated as a way to cope with caregiver depression, but limited research has examined these associations in the DD population, particularly among diverse caregivers. This exploratory study sought to provide information about the association between types of social support and caregiver depression in a sample of 175 ethnically and linguistically diverse caregivers who have children with DD or autism spectrum disorder (ASD). The following research questions were addressed: (1) Which types of social support (family, informal, formal) are viewed as helpful to caregivers of young children with DD/ASD? (2) Does utilization of social support vary by ethnicity (Latinx, non-Latinx)? (3) Which types of social support (family, informal, formal) are associated with caregiver depression? (4) Is the association between social support and caregiver depression moderated by child challenging behavior, child diagnosis (ASD vs DD), or ethnicity (Latinx vs. non-Latinx)? (5) After accounting for

family sociodemographic variables (i.e., income, caregiver education, and ethnicity) is social support associated with caregiver depression?

Study results for the first research question demonstrated that caregivers rated formal support as most helpful, and informal support as less helpful. The second research question indicated that caregivers' ratings of the utilization of support did not vary by ethnicity. Results for research question 3 revealed that 1) total and family based supports were associated with caregiver depression and 2) neither formal nor informal supports were associated with caregiver depression. The fourth research question showed that the relation between social support and caregiver depression was not moderated by child challenging behavior, child diagnosis, or caregiver ethnicity. The fifth research question indicated that after controlling for caregiver income, education, and ethnicity, social support explained unique variance in caregiver depression scores. The results of this study have implications for professionals and clinicians, particularly when working with Latinx families during the early childhood period, as well as implications for effectively and efficiently accessing interventions aimed at improving access to support, and caregiver depression when parenting children with developmental delays and disabilities.

CURRICULUM VITAE

NAME OF AUTHOR: Abiola Olubunmi Taiwo

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon (APA- and NASP-accredited), Eugene, OR
September 2018- June 2023 (Expected)
Ph.D., School Psychology

University of Central Oklahoma (BACB-accredited), Oklahoma City, OK
August 2015- May 2018
M.A., Psychology & Applied Behavioral Analysis

University of Central Oklahoma, Oklahoma City, OK
August 2012- May 2015
BA., Psychology

DEGREES AWARDED:

Doctor of Philosophy in School Psychology, 2023, University of Oregon
Master of Arts in Psychology, 2018, University of Central Oklahoma
Bachelor of Arts in Psychology, 2015, University of Central Oklahoma

AREAS OF SPECIAL INTEREST:

My professional interests focus on assessment and intervention for diverse children and their families with intellectual and developmental disabilities (IDD).

Within these broad interests, two specific lines of research emerge 1) medical and school-based models of assessments and interventions for autism spectrum disorder (ASD) and other IDD, and 2) parent and teacher behavioral training to improve child outcomes.

My clinical interest clusters on enhancing outcomes for diverse children with intellectual and developmental disabilities and their families through evaluation, diagnosis, and treatment of behavioral and learning challenges.

PROFESSIONAL EXPERIENCE:

Pre-doctoral Psychology Intern, Kennedy Krieger Institute/Johns Hopkins,
Summer 2022- Summer 2023

Advanced Practicum Student, Child Development and Rehabilitation Center,
Pediatric Psychology Assessment Clinic, Summer 2021 - Summer 2022

Youth Skills Coach, Oregon Social Learning Center/ODI
SWIFT, Summer 2021 - Summer 2022

Tele-KEEP Group Facilitator, Oregon Social Learning Center/ODI
KEEP, Summer 2020 – Summer 2021

GRANTS, AWARDS, AND HONORS:

Graduate Teaching Fellowship, University of Oregon 2019 - 2021
College of Education Doctoral Conference Award, University of Oregon, 2021
College of Education Travel Award, University of Oregon, 2019
Promising Scholar Fellowship, University of Oregon, 2018-2019

PUBLICATIONS:

Glenn, E., **Taiwo, A.**, Arbuckle, S., Riehl, H., & McIntyre, L. L. (2022). Self-directed web-based parent-mediated interventions for autistic children: A systematic review. *Review Journal of Autism and Developmental Disorders*. <https://doi.org/10.1007/s40489-022-00307-9>

Muruthi, J., Muruthi, B., Cañas, R. T., Romero, L., **Taiwo, A.**, & Ehlinger, P. (2021). Discrimination, church support, personal mastery, and psychological distress among Black people in the United States. *Innovation in Aging*, 5(Supplement_1), 399-399. <https://doi.org/10.1093/geroni/igab046.1543>

Muruthi, B. A., Watkins, K., McCoy, M. A., White, K. J., McRell, A. S., Thomas, M., & **Taiwo, A.** (2020). Save, even if it's a penny": Transnational financial socialization of Black immigrant women. *Journal of Financial Therapy*, 11(2). <https://doi.org/10.4148/1944-9771.1234>

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DISSERTATION DEDICATION

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I: INTRODUCTION

Maternal Depression

Maternal depression has been widely studied in mothers of children with developmental delay (DD) or disabilities, such as autism spectrum disorder (ASD), given they are more likely to experience depression than other caregivers (Bailey et al., 2007; Cumming & Davies, 1994). Depression broadly refers to everyday experiences that consist of sad mood or dysphoria, triggered by an adverse experience that is typically transient (Bailey et al., 2007). Depression is part of several mood disorders (e.g., major depressive disorder, persistent depressive disorder) with features including, “sad, irritable mood, accompanied by somatic and cognitive changes that significantly affect the individual’s capacity to function” (DSM-5; American Psychiatric Association, APA, 2013, p. 155). Parenting a child with DD or a disability can contribute to elevated levels of parenting stress (Masefield et al., 2020; Yorke et al., 2008), contributing to depression and other negative impacts on caregiver psychological well-being (Ollson & Hwang, 2011).

Indeed, research has suggested that mothers of children with developmental disabilities are increasingly at risk for mental health problems like depression (Jeans et al., 2013; Smith & Grzywacz, 2014; Taylor & Warren, 2011). Impact on mental health has been attributed to characteristics and behaviors associated with child disability (Bailey et al., 2007; Olsson & Hwang, 2001). Maternal depression is a particular area of concern because of its impact on parenting practices and child development (Bailey et al., 2007; Goodman et al., 2011). The impact of maternal depression could start as early as during pregnancy and continue throughout a child’s development. When depression is present during pregnancy, it has been closely associated with later developmental problems in children (Deave et al., 2008), likely through a

combination of genetic and environmental mechanisms. Maternal depression not only increases the risk of developmental problems in children but is also linked to decreased positive interactions between mother and child and increased negative parenting practices (Ewell Foster et al., 2007; Goodman et al., 2011). When compared to non-depressed mothers, depressed mothers tend to be less responsive, more hostile, and are more likely to disengage from their children (Murray et al., 1996).

Maternal Risk Factors for Depression

Studies to date have indicated some risk factors that increase the likelihood of maternal depression. These include SES factors (income), social support, and marital status. For example, income is strongly associated with the risk for maternal depression (Hall et al., 1985; Liaw & Brook-Gunn, 1994). Mothers with young children who had low income or experienced economic stress related to income reported higher depressive ratings when compared to their higher-income counterparts (Cheng et al., 2015; Peterson & Albers, 2001; Taylor & Warren, 2011). In addition, single parenting, or lack of a partner in the home has also been linked to higher ratings of depressive symptoms (Bromley et al., 2004; Cheng et al., 2015).

Parenting a child with a disability has also been found to increase mothers' risk for depression. Studies show that parents of children with DD are at a higher risk of developing mental health problems (depression and anxiety) when compared to parents of typically developing children (Gallagher et al., 2008; Smith & Grzywacz, 2014). A plethora of research has shown that mothers of children with delay or disabilities endorse higher ratings of depressive symptoms and are more likely to meet the cut-off score for clinical depression when compared to mothers of children without delay or disabilities (Feldman et al., 2007; Jeans et al., 2013). In a recent meta-analysis, there was a strong association found between caregiving for a child with

DD and a higher risk of maternal depression compared to caring for children without any special health needs (Masefield et al., 2020). Furthermore, child characteristics, such as child challenging behavior is associated with poorer parental well-being and mental health (e.g., Estes et al., 2013).

Child Challenging Behavior and Depression

Child challenging behavior contributes to maternal depression (Estes et al., 2013), and child challenging behavior is common in children with DD and disabilities. A robust literature supports that children with DD, in contrast to other children without delays or disabilities, experience more challenging behavior (Baker et al., 2003; Boyd, 2002; Herring et al., 2006). In their literature review, Simo-Pinatella et al. (2019) observed that child challenging behavior was prevalent across different developmental disabilities, with the highest prevalence found in children who have ASD and intellectual disability (ID) (Simo-Pinatella et al., 2019). Both internalizing and externalizing behaviors are rated higher in children with DD when compared to their typically developing same-age peers (Baker et al., 2003). The literature has shown that these challenging behaviors often limit children's ability to access educational and social opportunities, impact the family's quality of life (Machalicek et al., 2007), and appear to play a significant role in parenting stress and negative mental health outcomes for caregivers (Lindsey & Barry, 2018; Yorke et al., 2008).

Child challenging behaviors are significant predictors of parenting stress (Lindsey & Barry, 2018; Tervo, 2012; Yorke et al., 2018). In their study, Baker et al. (2003) suggested that parenting stress was highly correlated with child challenging behavior, and this stress was uniquely associated with challenging problem behavior, more than the intellectual or developmental disability per se. Additionally, a strong association has been found between child

challenging behavior, parenting stress, and parent mental health problems, such as depression (Yorke et al., 2018).

Parents of children with challenging behavior are at an elevated risk of developing depression (Ewell Foster et al., 2007; Halstead et al., 2017; Hastings et al., 2006). There is evidence that mothers of children with challenging problems report higher rates of depression in children with developmental disabilities compared to children without disabilities (Bailey et al., 2007; Feldman et al., 2007). Feldman et al. (2007), for example, concluded that caregivers who had children with challenging behaviors scored above the clinical cut-off for depression, and higher ratings of depression were positively correlated with higher ratings of child challenging behavior. Furthermore, child challenging behavior is a unique factor that was significantly associated with parental mental health difficulties and reduced well-being (Salmone et al., 2017). There is some evidence that the onset of depression among caregivers of children with DD begins early, often overlapping with diagnosis and early intervention.

ASD and Maternal Depression

One developmental disability often diagnosed in early childhood is autism spectrum disorder (ASD). ASD is a neurodevelopmental disability characterized by differences in social communication and the presence of restricted and repetitive behaviors and sensory sensitivities (APA, 2013). This combination of features makes challenging behaviors more common in this disability group in contrast to other disability groups (e.g., McClintock et al., 2003). For example, Estes et al. (2009) noted that parents with children with ASD rated their children as having more challenging behavior than parents with children with other disabilities. Some studies have shown strong associations between both internalizing and externalizing challenging behaviors and maternal depression (Taylor & Warren, 2011), with higher challenging behaviors

positively correlated with higher ratings of depressive symptoms among mothers with children who have ASD.

According to the Centers for Disease Control and Prevention, ASD is one of the most often diagnosed developmental disabilities in childhood, with current prevalence estimates of about 1 in 54 U.S. children (CDC, 2020). Studies have reported that parents who have children diagnosed with ASD have higher levels of mental health problems (stress, anxiety, and depression) when compared to parents of other developmental disabilities (e.g., Down syndrome) or typically developing children (Bailey et al., 2007; Jeans et al., 2013; Olsson & Hwang, 2001; Taylor & Warren, 2011; Verduyn et al., 2003).

In their meta-analysis, Bailey and colleagues (2007) reported that mothers of children with ASD reported higher rates of depression when compared to mothers of children without disabilities. Using a large national claims database, Cohrs and Leslie (2017) also found that parents who had a child with ASD reported high depressive ratings, and ratings were positively correlated with the child's age. Their results also showed that having a child with ASD tripled the likelihood of the parent depression, and the odds increased with having more than one child diagnosed with ASD (Cohrs & Leslie, 2017). New evidence suggests that shared genetic risk may be implicated, although perhaps not for all cases of ASD and maternal depression (Wiggins et al., 2019). Regardless of the underlying mechanism that explains the association between ASD and maternal depression, how parents cope with depression may be impacted, in part, by their access to social support.

Social Support Among Caregivers

Social support can be conceptualized as “support access to an individual through social ties to other individuals, groups, and the larger community” (Lin et al., 1979). Social support is a

multidimensional construct that has been categorized in previous studies as types of support and functions of support. Types of support could be grouped into formal (agencies, health care providers), family (partners), and informal (friends, extended families, neighbors, church) (Beckman, 1991), while functions of support could include emotional and instrumental support (Guralnick et al., 2008). There are noted benefits of social support with improvements linked to both physical (Masfield et al., 2020) and mental health (Oh & Lee, 2009; Smith & Grzywacz, 2014). Specifically, the evidence of the positive and protective effect of social support on mitigating overall mental health problems in caregivers has been well documented (Ault et al., 2021; Bailey et al., 2007; Laxman et al., 2014). Social support has been investigated broadly in families with developmental disabilities, and there is a moderate body of research that has evidence for social support buffering the effect of stress on parents of children with ASD (Boyd, 2002; Drogomyrestska et al., 2020; Glazzard & Overrral 2012; Guralnick et al., 2008; Hall, 2012; Lin et al., 2008; Plant & Sanders, 2007; Robinson et al., 2016; Yorke et al., 2008). For example, in a literature review, evidence suggests that social support was the most frequently used coping strategy for parents who had children with developmental disabilities (Yorke et al., 2008).

There is some evidence to show that social support can reduce the risk of mental health problems as well. Social support has been associated with a reduction in maternal depression ratings among mothers of children with challenging behaviors, with greater levels of social support associated with lower ratings of mental health problems in mothers (Bromley et al., 2004). For example, research suggests that higher levels of social support predict better mental health ratings over time (Feldman et al., 2007; Smith & Grzywacz, 2014). Additionally, there are differences between the effects of support for mothers and fathers. Mothers of children with DD

are more susceptible to mental health problems than fathers (Bailey et al., 2007; Laxman et al., 2014; Ollson & Hwang, 2001), and paternal support has been associated with reduced maternal depression levels (Laxman et al., 2014; Oh & Lee, 2009). There are conflicting findings on the types of social support that are more advantageous to parents. Informal social support has been strongly associated with decreased parental stress and depression (Boyd, 2002; Drogomyrestska et al., 2020; Mendoza and Dickson, 2010; Plants & Sanders 2007). In contrast, other studies show family supports to be more helpful (McIntyre & Brown, 2018), and formal support has been associated with lower stress and depression than informal support (Bailey et al., 2007). In their research critique, Wachs et al. (2009) concluded that overall social support could reduce the risk of subsequent maternal depression. Further, the presence of maternal depression could increase the risk of paternal depression (Wachs et al., 2009).

Overall, social support might serve as a protective factor against mental health problems (Halstead et al., 2017; Lindsey & Barry, 2018; Lyons et al., 2005), with high social support being strongly correlated with lower depression ratings, and social support has been found to buffer the effects of child challenging problem behavior on depression ratings (Halstead et al., 2017). Previous research is showing that more types of support and more social networks are associated with better caregiver well-being, reduced ratings of stress and depression, more positive outlooks, and more positive interactions between parent and child (Dunst et al., 1986). However, most studies examining social support in the context of parenting a child with DD utilize predominantly White, English-speaking caregivers, who have high education and high socioeconomic status (SES). The extent to which studies utilize a diverse population including Latinx/Hispanic caregivers is relatively few, particularly, examining the types of social support that are helpful to this population are relatively under-investigated.

Social Support in Latinx/Hispanic Families

While there are numerous studies to show broadly that social support has positive effects on White, primarily middle class, caregivers who have children with DD or disabilities, less is known about the immigrant Latinx/Hispanic caregivers who have children with DD. The term “Latinx” is used as a gender-neutral term used to specify people who are of Latin American origin or descent (Noe-Bustamante et al., 2020). Examining this cultural group is particularly important because the United States is culturally diverse, and Latinx/Hispanics make up the largest minority ethnic group, about 18% of the population (U.S Census Bureau, 2019). Moreover, other contextual factors may make this group more susceptible to poor caregiver mental health. These include neighborhood stressors (i.e., stress that is associated with living in an unsafe neighborhood), lower SES, lower education level, financial stress, immigration, acculturation status, and limited health care services (Ayón & Naddy, 2012; Cohen et al., 2013; Son, 2020). There is some evidence to show that Latinx/Hispanic caregivers with children with ASD/DD experience inferior quality health care services, and lower rates of specialty services (e.g., behavioral interventions, social skills training) when compared to non-Latinx/Hispanic families (Blacher et al., 2014). Therefore, it is imperative to evaluate whether Latinx/Hispanic families who have children with DD have the same experiences or challenges when compared to non-Latinx/Hispanic families.

In congruence with differences found among White mothers based on disability group, Latinx mothers with children who have ASD reported lower quality of life in comparison to Latinx mothers who have children with other types of developmental disabilities (Bailey et al., 2007; Cohen et al., 2013; Olsson & Hwang, 2001). Also, Latinx mothers reported higher ratings of internalizing and externalizing child challenging behavior than non-Latinx White mothers

with children at ages 3 and 5 (Marquis & Barker, 2014). Thus, Latinx caregivers may experience a range of situations that make them more vulnerable to mental health problems.

However, there are some studies to show the buffering effects of social support on maternal mental health, particularly depression. In their study, social support was revealed to be associated with lower psychological distress in a Latinx sample (Bostean et al., 2018). Overall findings suggest that global social support is associated with decreased maternal depressive symptoms (Barnett et al., 2015), with social support serving as a primary protective factor even after accounting for differences in SES and English language abilities (Mulvaney-Day et al., 2007). Moreover, Latinx/Hispanic caregivers are reporting a higher usage of family social support than non-Latinx Whites (Almeida et al., 2009). Social support has also been related to improved overall health outcomes, greater employment opportunities (Mulvaney-Day et al., 2007), and positive parenting practices (Lyons et al., 2005), thus promoting overall family well-being (Serrano-Villar et al., 2016) in Latinx/Hispanic caregivers.

Research evidence has indicated that in general, Latinx/Hispanic social networks primarily include immediate and extended families and friends (Ayón, 2011; Ruiz-Robledillo et al., 2014). In addition, Latinx caregivers were more likely to receive support from family members first, then friends, neighbors, and communities, and these supports included financial, emotional, and instrumental support in addition to information about immigration and community resources (Ayón & Naddy, 2012). Conversely, there might be unintended negative consequences from receiving most of the support from an informal group like families and friends, in particular the possibility of receiving inaccurate information about available services (Ayón, 2011).

Latinx/Hispanic parents who have children with DD or ASD are also at a heightened risk of developing mental health problems like depression, with some evidence suggesting that social

support is associated with fewer depressive symptoms. For example, social support from family members was found to be positively correlated with overall resiliency in parents who have children with ASD (Ruiz-Robledillo et al., 2004). Barnett et al (2014) noted that higher ratings of social support were associated with lower ratings of depressive symptoms (Barnett et al., 2014). Mothers who reported ratings of higher quality of life also reported more social support from family including emotional and instrumental support (DuBay et al., 2018; Cohen et al., 2013). Overall, social support, particularly informal support, serves as a natural protective factor for Latinx/Hispanic caregivers (Ayón & Naddy, 2012; Bolstean et al., 2018). The extent to which other forms of social support (e.g., formal support) benefit this group is relatively under-investigated.

Statement of Problem

Maternal depression is a widely studied topic among caregivers who have children with disabilities; however, there have been fewer studies conducted with caregivers who have children with developmental delay as opposed to intellectual disabilities (e.g., Down syndrome). Additionally, social support among caregivers with children who have disabilities has been investigated broadly, but less is known about social support among caregivers with young children with undifferentiated global DD. In early childhood, families may rely on support and information from professionals more often than later in childhood as they begin to navigate the service delivery system and get connected to services for their child (e.g., Bruder et al., 1997). Thus, the role of formal, professional support may be critical during this developmental period. The extent to which certain types of social support (formal, informal, family) buffer against heightened risk for caregiver depression during the early childhood period is relatively unknown and is generally under-investigated in caregivers with young children with DD and disabilities, as well as those from Latinx/Hispanic backgrounds including immigrant families.

Moreover, specific knowledge about general social support reducing parenting stress is well-researched, but less is known about those effects on caregiver depression, which is often associated with critical child development and parenting outcomes.

Most studies examining caregiver depression and social supports predominantly utilize White, English-speaking caregivers, who have high education and high SES, and with the substantial number of diverse and immigrant families in the United States, more research is needed to examine parents from a diverse sample. There is some evidence to show that informal supports are generally helpful; however, less is known about the effects of formal supports in early childhood, especially with newly diagnosed families or for families who may not have access to information, services, and care due to language barriers (Zuckerman et al., 2017). Cultural identity, immigration status, and acculturation may be related to the likelihood that families may utilize high levels of formal, professional support.

Purpose of the Current Study

The current study aims to examine the association between types of social support and caregiver depression in an ethnically and linguistically diverse sample of caregivers who have children with DD or ASD. Specifically, this study investigates how helpful various types of social support are during the early childhood period and their relation to caregiver mental health (i.e., depression). This study offers a distinctive perspective in examining several demographic factors across a diverse sample and will provide information to inform intervention and clinician practices to promote overall wellbeing for families and their young children with DD and ASD.

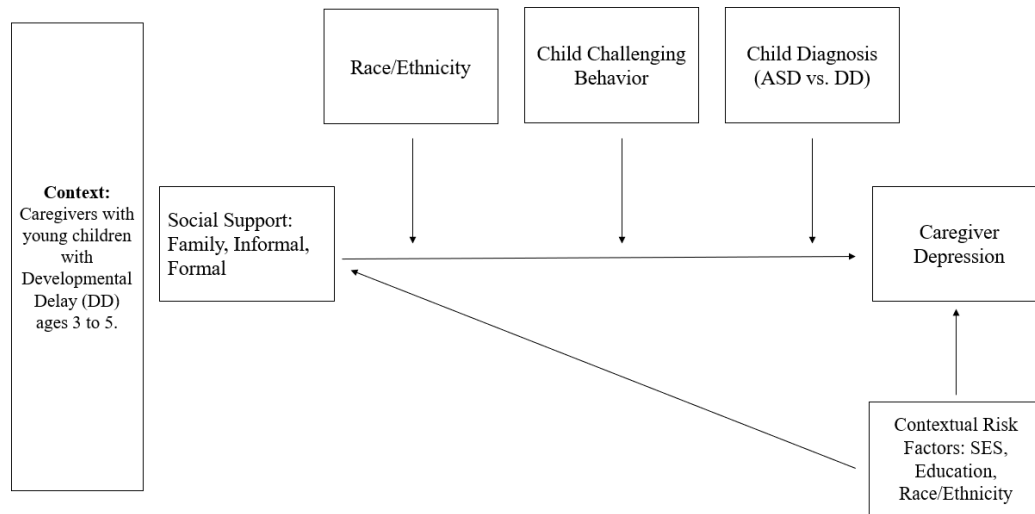


Figure 1. Conceptual Model

Research Questions

The present study examined the association between types of social support and caregiver depression in an ethnically and linguistically diverse sample of caregivers who have young children with global DD and ASD. We will also test a series of moderation hypotheses on caregiver and child variables associated with caregiver depression. Given this understudied area within early childhood, these research questions are exploratory and without any a priori hypothesis. The specific research questions are asked:

1. **Which types of social support (family, informal, formal) are viewed as helpful to caregivers of young children with DD/ASD?**
2. **Does utilization of social support vary by ethnicity (Latinx, non-Latinx)?**
3. **Which types of social support (family, informal, formal) are associated with caregiver depression?**

4. Is the association between social support and caregiver depression moderated by child challenging behavior, child diagnosis (ASD vs DD), or ethnicity (Latinx vs. non-Latinx)?

4a. Does child challenging behavior moderate the association between social support and caregiver depression?

4b. Does child diagnosis moderate the association between social support and caregiver depression?

4c. Does ethnicity moderate the association between social support and caregiver depression?

5. After accounting for family sociodemographic variables (i.e., income, caregiver education, and ethnicity) is social support associated with caregiver depression?

As previously stated, evidence shows that caregivers of children with developmental delays experience high levels of stress and depression (Ollson & Hwang, 2011). However, little is known about the extent to which various types of social support could mitigate caregiver depression, particularly amongst Latinx caregivers with preschool-aged children with DD and ASD. The present study seeks to address this gap.

II: METHOD

Participants and Setting

A sample of 175 preschool children with developmental delay and their caregivers who were recruited from early intervention providers and early childhood education centers were participants in this study. At the time of the study, the participants were participating in an ongoing study in Southern California and Northern Oregon as part of a larger, randomized controlled trial study (R01HD093661; PIs McIntyre and Neece). Caregivers were eligible for the larger trial study if they had a child aged 3-5 who had a diagnosis or early childhood special education eligibility of ASD or DD and experienced heightened parenting stress. Study participants were culturally, linguistically, and socioeconomically diverse, with approximately half being monolingual Spanish-speaking.

Caregivers

Table 1 provides the caregiver's demographic information (see Appendix for all tables). Participating caregivers were primarily female (98.3%), on average 38.22 years old ($SD = 8.16$) and living with a partner (85.7%). Many of the caregivers are biological mothers (90.3%) and adoptive mothers (4.6%). Household size varied with caregivers reporting 2 - 3 family members (25.8%), 4 - 5 (57.1%), 6 - 7 (14.3%), and 8 - 9 (2.9%). The sample race was predominantly Hispanic/Latinx (72%), followed by White (25.7%), Black/African American (4.6%), Asian (1.1%), Other (1.7%), and Pacific Islander (.6%). For this sample, Latinx is used as a gender neutral term to describe individuals who are of Latin American origin or descent (Noe-Bustamante et al., 2020). A little over half of the sample reported Spanish as the primary language spoken at home (55.5%), followed by English (43.4%). A majority of caregivers reported their marital status as married 66.9%. Concerning education, 29.5% of caregivers had completed less than a high school education, 21.1% had received a GED or graduated high

school, 9.7% had completed partial college (≤ 1 year), specialized training/Associates degree (16%), or graduated from a 4-year college or university (17.1%), and 5.7% of caregivers had received graduate training or earned a graduate degree. More than half of the caregivers described themselves as full-time homemakers (57.7%), with one-fourth reporting full-time employment (20.6%), part-time (9.1%), unemployed (5.7%), self-employed (2.9%), disabled (1.7%), student (1.1%), retired (0.6%), and other (0.6%). The average reported family income in this study was \$59,986.46 ($SD = 76,195$); however, there was quite a bit of variability. Household income varied extensively, with .6% reporting \$4,999 or less, 1.7% reporting \$5,000 to \$9,999, 6.9% reporting 10,000 to \$14,999, 6.9% reporting \$15,000 to \$19,999, 10.9% reporting \$20,000 to \$24,999, 8.0% reporting \$25,000 to \$29,999, 13.2% reporting \$30,000 to \$39,999, 8.6% reporting \$40,000 to \$49,000, 9.7% reporting \$50,000 to \$59,000, 2.9% reporting \$60,000 to \$69,999, 7.5% reporting \$70,000 to \$79,999, 4.6% reporting \$80,000 to \$89,999, and 18.64% reporting earning \$90,000 or more. Many of the caregivers were biological mothers (90.3%) and adoptive mothers (4.6%). Household size varied with caregivers reporting 2 - 3 family members (25.8%), 4 - 5 (57.1%), 6 - 7 (14.3%), and 8 - 9 (2.9%).

Children

Table 1 provides children's demographic information. Child participants were primarily male (63.4%), on average 3.84 years of age ($SD = .83$). In terms of race, most children were Latinx (71.4%), White/Caucasian (26.9%), Black/African (5.1%), Asian (2.3%), Other (1.7%), Pacific Islander (1.1%), and Native American (.6%). More than half of the caregivers reported that their children received special education services in school (65.1%). Concerning language, 53.1% of caregivers reported English as their child's first language, and 61.7% indicated that their children were bilingual. Relating to diagnosis, 41.1% were diagnosed with ASD, 21.1% with speech/language delay, 11.4% with a developmental delay, 8.0% with a neurogenetic

condition (i.e., down syndrome, fragile x syndrome), 4.0% with a learning disability, 2.3% with a sensory processing disorder, 1.1% with cerebral palsy, 1.1% with motor delay, 1.1% with social-emotional delay, 0.6% Deaf/hard of hearing, and 5.7% classified as “other.” Additionally, child adaptive measures using Vineland Adaptive Behavior Scales -Third Edition (VABS-III) were completed by 78 caregivers and scores ranged from 41 to 99 ($M = 71.62$, $SD = 10.84$).

Protocol

The present study analyzed a subset of data collected from the Partnerships in Research for Optimizing Parenting (PRO-Parenting) Project (R01HD093667, MPIs McIntyre & Neece). The PRO-Parenting Project is an ongoing, federally funded, multi-site randomized clinical trial examining the effects of an intervention on parenting, stress reduction, and child challenging behavior among families with preschool-aged children with DD in Southern California and Oregon. Eligible families provided consent for screening and randomization. The design involved an initial phone screening for eligibility, home and laboratory baseline assessments, random assignment to one of two treatment groups, in-home posttreatment assessments, in-home 6-month assessments, and in-home 12-month follow-up assessments of child and family functioning. Caregivers were asked to complete several self-report measures (i.e., demographic behaviors, and child behavior problems/symptomatology) within a mail-home questionnaire packet. Additionally, families participated in an interview with research assistants to characterize child’s adaptive behavior. The present study utilized baseline/pre-treatment data only: Cohort 1 (summer 2019), cohort 2 (fall 2019/winter 2020), cohort 3 (fall 2019/winter 2020), cohort 4 (fall 2020/winter 2021), cohort 5 (fall 2021/winter 2022).

Measures

Caregiver Measures

Demographic Survey. Primary caregivers completed a researcher developed

demographic form with questions about caregiver and child characteristics. Caregiver variables included in this study were age, gender, SES/household income, education level, race/ethnicity, and primary language. Child demographic variables include age, gender, race/ethnicity, primary language, primary diagnosis, DD status, and special education eligibility category for early childhood special education services.

Child Adaptive Behavior. The Vineland Adaptive Behavior Scales, Third Edition (VABS-III, Sparrow et al., 2016). The VABS-III was used to measure children's overall adaptive functioning in this sample. This is a norm-reference assessment that has established reliability and validity for measuring adaptive behavioral functioning in this population (Sparrow et al., 2016). Caregivers completed the VABS-III using an interview format with a research assistant to report on their child's adaptive functioning. Each item is scored on a 3-point Likert scale: (2) Usually, (1) Sometimes, (0) Never. Scores are aggregated to form subdomain and domain standard scores, as well as an overall Adaptive Behavior Composite (ABC) standard score. The present study utilized the ABC score as a measure of overall adaptive functioning when conducting statistical analyses. The ABC has a standard mean score of 100 and a standard deviation of 15.

Family Support Scale. (FSS; Dunst et al., 1984). Primary caregivers completed the Family Support Scale to measure caregivers' satisfaction with the helpfulness of various forms of social support including spouses, immediate family members, friends, social organizations, and professional services. This is a widely used measure of social support in the literature with established reliability and validity (Dunst et al., 1984; 1988, Frey et al., 1989). This 18-item survey included two open items for caregivers to assess other sources of support. Caregivers used a 5-point Likert scale to rate the sources of support ranging from (1 = Not At All Helpful, 2 = Sometimes Helpful, 3 = Generally Helpful, 4 = Very Helpful, 5 = Extremely Helpful). A score

of 0/NA was assigned if the source of social support was not available to the family. A source of support was considered helpful if caregivers gave the item a numerical score of 3, 4, or 5. A Total helpfulness score was calculated by summing scores on all items rated 3, 4, or 5. Total support scores were calculated by summing all scores on all items. Total scores were further categorized as family, informal and formal supports, per prior research (e.g., McIntyre & Brown, 2018). Caregivers rated the helpfulness of family/kinship support (e.g., parents, spouse), informal support (e.g., co-workers, parent groups), and formal support (e.g., day-care center, professional helpers) within the last 3 to 6 months.

Center for Epidemiologic Studies Depression Scale. (CES-D; Randolff, 1977). The CES-D is a widely used and reliable instrument and was used to measure depressive symptoms of participating caregivers. Caregivers used this 20-item measure to rate in the past week if they experienced symptoms associated with depression, such as feeling restless, poor appetite, and feeling lonely. Each item was scored on a 4-point Likert scale: (0) Rarely or None of the Time, (1) Some or Little of the Time, (2) Moderately or Much of the Time, (3) Most or Almost All the Time. Scores range from 0 to 60, with higher scores indicating greater depressive symptoms. The CES-D includes cut-off scores of 16 or greater indicating that the individual may be at risk of clinical depression. The CES-D has been used with a variety of diverse populations, for example, in India (Seth, 2011) and the United States (Cheng et al., 2015; Laxman et al., 2014; Taylor & Warren, 2012). The CES-D shows good sensitivity, specificity, and high internal consistency (Lewinsohn et al., 1997), and is sensitive to differences between caregivers and non-caregivers (Pinquart & Sörensen, 2006). The CES-D has a high internal consistency of .85 in the general population and .90 in clinical samples, scale reliability is 0.92, and test-retest reliability ranges from .45 to .70 (Randolff, 1977).

Child Behavior Measure

Child Behavior Checklist. (CBCL 1.5-5; Achenbach & Rescorla, 2001). The CBCL, a widely used norm-referenced caregiver rating scale, was used to assess the most frequent emotional and behavioral problems of children (Rescorla et al., 2019). Caregivers used this 99-item measure including one open item to assess child behavior that occurred currently or within the last two months. Items were scored on a 3-point Likert scale: (0) Not True, (1) Somewhat or Sometimes True, (2) Very True or Often True. Achenbach and Rescorla (2001) reported two broadband scales (Internalizing and Externalizing) and eight 7 syndrome scales. The Internalizing broadband scale measures emotional problems and is comprised of five syndrome or narrowband scales: emotionally reactive, anxious/depressed, withdrawn, sleep problems, and somatic complaints. The Externalizing broadband scale measures externalizing behavior problems and includes two syndrome or narrowband scales: attention problems and aggressive behavior. A Total Problem scale includes the sum of all 7 syndrome scales and quantifies overall impairment. Raw scores for each scale are converted to *T*-scores ($M = 50, SD = 10$). *T*-scores ≥ 65 on the broadband and total problem scales represent “Clinically significant.” Authors have reported test-retest reliabilities of 0.68 - 0.92 and inter-rater reliabilities of 0.48 - 0.67.

Data Analysis

Several analyses were used to address the present research questions. Descriptive statistics are displayed in Tables 2 and 3. Study variables were analyzed using Statistical Package for the Social Sciences 26 (SPSS) software package (IBM Corp, 2019). The following analyses were conducted to address each research question.

Research Questions and Corresponding Analyses

Research Question #1. Which types of social support (family, informal, formal) are viewed as helpful to caregivers of young children with DD/ASD?

Analysis. Descriptive statistics (frequency, percentages) were used to evaluate which type of social support caregivers found more helpful.

Research Question #2. Does utilization of social support vary by ethnicity (Latinx, non-Latinx)?

Analysis. Independent sample T-tests were used to evaluate differences in the utilization of social support by ethnicity (Latinx vs. non-Latinx)

Research Question #3. Which types of social support are associated with caregiver depression?

Analysis. Independent sample T-tests were used to evaluate the associations between social support and caregiver depression.

Research Question #4. Is the association between social support and caregiver depression moderated by child challenging behavior, child diagnosis (ASD vs. DD), or ethnicity (Latinx vs. non-Latinx)?

4a. Does child challenging behavior moderate the association between social support and caregiver depression?

4b. Does child diagnosis moderate the association between social support and caregiver depression?

4c. Does ethnicity moderate the association between social support and caregiver depression?

Analysis. To analyze the moderation effects of child challenging behaviors between social support on caregiver depression, a multiple regression was conducted. Block 1 included FSS scores as an independent predictor of caregiver depression using CES-D scores. Block 2 included FSS and CBCL scores as predictors of caregiver depression, and Block 3 included the interaction of FSS and CBCL. This procedure was repeated two more times with the child

diagnosis variable and ethnicity variable.

Research Question #5. After accounting for income, caregiver education, and ethnicity, does social support explain unique variance in caregiver depression?

Analysis. To analyze variable effects, a linear regression was used to predict caregiver depression. Block 1 included the covariates of income, caregiver education, and ethnicity, and Block 2 included social support as a predictor of caregiver depression.

Power

A power analysis using G*Power 3.1 (Faul et al., 2009), was conducted to determine what level of power was achieved with our sample size ($N = 175$). The overall sample size for this study was 175; however, 162 caregivers completed the CBCL (i.e., 13 missing), 143 completed the CES-D and FSS (i.e., 32 missing), 171 reported child diagnosis (i.e., 4 missing), and all caregivers reported ethnicity ($N = 175$). Ethnicity, child diagnosis, and CBCL scores were necessary to complete moderation analysis with three predictors. A sample size of 92 with a two-tailed probability of p values of .05 is needed to reach sufficient power (.80) to detect a medium effect size ($f^2 = 0.15$) for multiple regression analysis with a total of 5 predictors. The sample size of ($N = 175$) provides sufficient power to test the effect of social support on caregiver depression and each of the proposed interactions.

Missing Data

Due to the ongoing pandemic, there are some missing data for the current study. Most assessments utilized mail-home packets and phone calls. Due to regulation changes and the rapid progression of the COVID-19 virus, data collection could not be completed in all cases. Additionally, FSS and CES-D were not the main outcomes for the larger study and are supplemental measures, thus these measures were optional. Although efforts were made to encourage (i.e., text, email, or phone call reminders) caregivers to complete and return all mail-

home assessment measures, there were still some missing data. In this investigation, missing data were handled using pairwise deletion (Peugh & Enders, 2004).

III: RESULTS

The Presence and Distributions of Caregiver Measures

Caregiver Depression

Caregiver depression ratings, as measured by the CES-D, ranged from 0 to 48 ($M=16.43$, $SD = 10.77$). The CES-D was completed by 143 of 175 total participants. The distribution of CES-D scores was unimodal and roughly symmetrical with no severe skew or outliers. See Table 2 for descriptive statistics for caregiver depression ratings.

Caregiver Social Support

Caregiver ratings of the helpfulness of social support as measured using the FSS, scores ranged from 3 to 80 ($M = 32.34$, $SD = 14.48$). The FSS was completed by 143 of 175 total participants. The distribution of FSS scores is unimodal and roughly symmetrical with no severe skew or outliers. See Table 2 for descriptive statistics for social support ratings.

The Presence and Distribution of Child Behavioral Measures

Child Challenging Behavior

Child challenging behavior scores, as measured by the CBCL (Total Problem composite), ranged from 36 to 96 ($M = 68.90$, $SD = 10.51$). The CBCL was completed by 162 out of 175 caregivers. The CBCL also includes broadband scales: Internalizing, and Externalizing behaviors. Internalizing scale scores ranged from 33 to 94 ($M = 66.49$, $SD = 10.63$), and Externalizing scale scores ranged from 28 to 97 ($M = 65.50$, $SD = 10.51$). See Table 3 for descriptive statistics for child challenging behavior.

Research Question 1: Types of Social Support and Caregivers Ratings

To examine the results of the first question, “Which types of social support (family,informal, formal) are viewed as helpful to caregivers of young children with DD/ASD?”, descriptive statistics were conducted (see Table 4). Results indicated that

50.3% of caregivers rated formal supports (i.e., physicians, pediatricians) as helpful ($M = 13.47, SD = 6.52$), 43.3 %rated family supports (i.e., spouse, parents) as helpful ($M = 12.49, SD = 5.88$), and 17.8 % rated informal supports (i.e., co-worker, friends) as helpful ($M = 5.94, SD = 5.90$).

Research Question 2: Social Support and Caregivers Ethnicity

To examine the second research question, “Does utilization of social support vary by ethnicity (Latinx vs. non-Latinx)?”, independent samples t -tests were conducted to examine mean differences in the utilization of support by caregiver’s ethnicity (see Table 5). Ethnicity was dichotomized into two categories, 1) Latinx, and 2) non-Latinx. Results show that there were no significant differences between Latinx and non-Latinx in their rating of total supports $t(104.5) = -.59, p = .56$, family supports $t(108.7) = -.67, p = .50$, formal supports $t(91.5) = -.83, p = .41$, and informal supports, $t(84.38) = .08, p = .94$.

Research Question 3: Social Support and Caregiver Depression

To examine the third research question, “Which types of social support (family, informal, formal) are associated with caregiver depression, an Independent T-test was conducted to examine meaningful associations between caregiver FSS scores and caregiver CES-D scores (see Table 6). Total social support scores were associated with caregiver depression scores $t(140.7) = 2.15, p = .03$, such that higher ratings of total social support scores were associated with lower depression scores. Additionally, differences were found between types of social support and depression. Higher ratings of family support scores were associated with lower depression scores $t(140.8) = 1.97, p = .05$. There were no significant differences between informal supports scores $t(140.7) = 1.84, p = .07$ and formal supports scores $t(134.1) = .82, p = .42$.

Research Question 4: Moderation Analyses

To examine the fourth research question, “Is the association between social support and

caregiver depression moderated by child challenging behavior, child diagnosis (ASD vs. DD), and ethnicity (Latinx vs. non-Latinx)?”

Child Challenging Behavior as a Moderator

To test whether child challenging behavior moderated the relationship between social support scores (FSS) and caregiver depression scores (CES-D), a multiple linear regression analysis was conducted. In the first step, two variables were included: FSS and CES-D scores. FSS scores did not significantly predict depression scores $b = -.11$, $t(139) = -1.60$, $p = .11$ and did not explain a significant proportion of variance in caregiver depression scores, $R^2 = .02$, $F(1, 139) = 2.52$, $p = .11$. Next, child CBCL Total scores and FSS were added to the model, these variables did not account for a meaningful variance in caregiver depression scores $R^2 = .04$, $F(2, 138) = 2.83$, $p = .06$. An interaction term between social support and child challenging behavior was added to the regression model, which did not account for a meaningful proportion of variance in caregiver depression scores, $R^2 = .05$, $F(3, 137) = 2.22$, $p = .09$, $b = -.01$. See Table 7 for multiple regression results related to social support, child challenging behavior, and caregiver depression.

Child Diagnosis as a Moderator

To test whether child diagnosis (ASD vs. DD) moderated the relation between social support and caregiver depression, a multiple linear regression analysis was conducted. In the first step, two variables were included: Child diagnosis and CES-D scores. Child diagnosis did not significantly predict depression scores $b = 1.60$, $t(141) = .88$, $p = .38$ and did not explain a significant proportion of variance in caregiver depression scores, $R^2 = -.00$, $F(1, 141) = .78$, $p = .38$. Next, we added child diagnosis (ASD vs. DD) and support scores to the model. These variables did not account for a meaningful variance in caregiver depression scores $R^2 = .03$, $F(2, 140) = 2.28$, $p = .11$. Finally, an interaction term between child diagnosis and social support was added to the

regression model, which did not account for a meaningful proportion of variance in caregiver depression scores, $R^2 = .03$, $F(3, 139) = 1.55$, $p = .20$, $b = .04$. See Table 8 for multiple regression results related to social support, child diagnosis, and caregiver depression.

Ethnicity as a Moderator

To test whether caregiver ethnicity (Latinx vs. non-Latinx) moderated the relation between social support and caregiver depression, a multiple linear regression analysis was conducted. In the first step, two variables were included: Ethnicity and CES-D scores. Ethnicity did not significantly predict depression scores $b = 1.55$, $t(141) = .79$, $p = .43$ and did not explain a significant proportion of variance in caregiver depression scores, $R^2 = .00$, $F(1, 141) = .63$, $p = .43$. Next, ethnicity and social support scores were added to the model. These variables did not account for a meaningful variance in caregiver depression scores $R^2 = .03$, $F(2, 140) = 2.15$, $p = .12$. Finally, an interaction term between ethnicity and social support was added to the regression model, which did not account for a meaningful proportion of variance in caregiver depression scores, $R^2 = .03$, $F(3, 139) = 1.43$, $p = .25$, $b = .02$. See Table 9 for multiple regression results related to social support, ethnicity, and caregiver depression.

Research Question 5:

To examine the fifth research question, “After accounting for caregiver income, education, and ethnicity, does social support explain unique variance in caregiver depression?”, multiple regression was used to predict caregiver depression. Block 1 included the covariates of income, caregiver education, and ethnicity, and Block 2 included social support scores as a predictor of caregiver depression. After accounting for caregiver income, education, and ethnicity in the first block, Social support explained 30% of the unique variance in caregiver depression scores for, $\Delta R^2 = .3$ $F(1, 137) = 3.99$, $p = .05$. See Table 10 for multiple regression results related to covariates, social support, and caregiver depression.

IV: DISCUSSION

The present study sought to investigate associations between types of social support and caregiver depression in a diverse sample of caregivers of preschool-aged children with DD and ASD.

Research Question 1: Types of Social Support and Caregiver Ratings

The first research question was “which types of social support (family, informal, formal) are viewed as helpful to caregivers of young children with DD/ASD?” Results indicate that the most helpful types of support were both formal and family based in nature. Formal supports (i.e., family doctor, pediatricians) were reportedly helpful by 50.3%, family based supports (i.e., spouse, parents of spouse) were reported to be helpful by 43.3%, and finally, 17.8% reported informal supports as helpful (i.e., co-workers, friends).

Finding suggests that about half of the caregivers reported formal support as helpful, while a little under half reported family support as helpful, while informal support was reported as less helpful. This is inconsistent with the broader literature on social support (Boyd, 2002) where families reported more reliance on family and informal support than formal support (Mendoza and Dickson, 2010). Perhaps given the age of the children in the current study (3-5 years of age), formal support is especially beneficial to families so that they can be connected to services and receive information for their newly diagnosed children. However, given the modest gap in caregivers' ratings of formal and family support, results are still consistent with the literature that attributes family support as positive and helpful (McIntyre & Brown, 2018).

Research Question 2: Social Support and Caregivers Ethnicity

The second research question was, “Does utilization of social support vary by ethnicity (Latinx vs. non-Latinx)?” Results indicate that there were no meaningful differences between Latinx and non-Latinx caregivers on their ratings of total support, family, formal, and informal

support; thus both groups found all support to be similarly useful.

Previous literature suggests higher utilization of family support by Latinx caregivers (Almeida et al., 2009; DuBay et al., 2018), however, it is well established that overall social support is the most frequently used coping strategy among all caregivers of children with developmental disabilities (Yorke et al., 2008), with higher levels of support serving as a protective factor against mental health problems (Ruiz-Robledillo et al., 2004). Additionally, within the current sample, about three-fourths of the caregivers identified as Hispanic/Latinx (72%), as a result, the lack of differences between groups could be attributed to the current sample demographics.

Research Question 3: Social Support and Caregiver Depression

The third research question was, “Which types of social support are associated with caregiver depression?” Results indicate: 1) total support was meaningfully associated with decreased caregiver depression and, 2) higher ratings of family based supports was meaningfully associated with lower depression scores, 3) neither informal nor formal supports were meaningfully associated with depression scores.

Total supports were significantly associated with caregiver depression and this finding is congruent with previous research on caregivers of typically developing children and children with developmental delays and ASD. The research on social support is overwhelmingly clear that social support is important in the well-being of caregivers of children with delays and disabilities (Ault et al., 2021). Social support serves as a protective factor against mental health problems like stress, anxiety, and depression (Bailey et al., 2007), with lower levels of social support serving as a powerful predictor of depression in mothers of children with challenging behavior and developmental disabilities (Bromley et al., 2004). Moreover, researchers have found that higher levels of social support predict better overall mental health over time and are

associated with overall resiliency (Smith & Grzyacz, 2014).

Furthermore, there were meaningful differences between the types of support and caregiver depression. Particularly, family support was associated with caregiver depression, such that higher ratings of family support were associated with lower ratings of depression. This finding is congruent with previous research on caregivers of children with developmental delays and disabilities. A plethora of studies agree that higher levels of family support are positively correlated with lower depression ratings (Barnett et al., 2014; Oh & Lee, 2009). Thus, findings continue to support the larger literature that family supports buffer against the effect of depression on caregivers.

Research Question 4: Child Challenging Behavior, Diagnosis, and Ethnicity as Moderators

The fourth research question was, “Is the association between social support and caregiver depression moderated by child challenging behavior, child diagnosis (ASD vs. DD), and ethnicity (Latinx vs. non-Latinx)?” Results indicate that the relation between social support and caregiver depression was not moderated by child challenging behavior, child diagnosis, or ethnicity.

Previous studies have demonstrated that child challenging behaviors have been significant predictors of parent mental health concerns, impacting the overall family quality of life (Yorke et al., 2008). Additionally, caregivers of children with ASD often report higher levels of challenging behaviors (Simon-Pinatella et al., 2019), with caregivers experiencing high levels of stress and depression when compared with caregivers of typically developing children, or children with developmental delays (Jeans et al., 2013). Within the current sample, caregivers are reporting high levels of child challenging behavior (CBCL: $M = 68.90$, $SD = 10.51$), perhaps with minimal variability in this sample, challenging behavior is not affecting the relationship between social support and caregiver depression. There is evidence to explain the positive

effects of social support on caregiver stress (Boyd, 2002), and possibly caregivers experience stress and depression through different processes (Bailey et al., 2007); therefore, the positive effect of social support on these processes can differ.

Although most caregivers of children with developmental disabilities have similar experiences in terms of the overall stress and lower quality of life (Cohen et al., 2013), Latinx caregivers also have unique experiences such as financial stress and limited health care services (Son, 2020). In addition, Marquis and Baker, 2014 found that Latinx mothers reported higher levels of challenging behavior than non-Latinx caregivers. So, the lack of moderating effects of challenging behavior could suggest that caregivers, irrespective of ethnicity are reporting similar levels of challenging behavior.

Research Question 5: Covariates, Social Support and Caregiver Depression

The fifth research question was, “After accounting for caregiver income, education, and ethnicity, does social support explain unique variance in caregiver depression?” Results indicated that social support did explain 30% of the variance in depression scores which was significant ($p = .05$).

This finding is consistent with current research. There are risk factors that increase the likelihood of maternal depression in caregivers of children with typically developing children and children with developmental disabilities, such as SES, education level (Cheng et al., 2015; Liaw & Brook-Gunn, 1994), whereby mothers with low-income status report higher depression scores than mothers with high-income status (Taylor & Warren, 2011). Current findings continue to suggest that when these are accounted for, social support still predicts caregiver depression. Consistent with the larger literature, caregivers with high levels of support are reporting lower depression scores.

Limitations

Although this study sheds light on the caregiver depression and helpfulness of social supports in a sample of caregivers who are diverse in terms of SES, education, and language, several limitations should be considered. First, this is a cross-sectional study including primary caregivers and their young children drawn from one geographic region. This study does not include longitudinal data, therefore, when examining the associations between caregiver depression and social support (considering other family factors: children's age, disability status, other caregiver factors), it is important to note that the sample of data was collected over a single time period. We cannot ascertain long-term predictors or determine if associations will be meaningful over time. Given that cross-sectional data at best yields bidirectional effects, future longitudinal studies are needed to determine the impact of social support on caregiver depression over time.

The study primarily utilized self-report measures via a mail-home questionnaire packet. Self-report measures have an inherent bias, whereby individuals under or over report behaviors measured (Bauhoff, 2011; Chan, 2009). Caregivers might likely be biased in their reporting of depression and social support when they perceive and report some answers as "correct", perhaps to increase their chances of being in the intervention arm of the study. Their ratings might also be influenced by their general mental well-being, including other environmental effects such as COVID-19, and child well-being. Despite these limitations, gathered caregiver information is perceived to be indicative of their current situation, albeit variable. In addition, this study was not underpowered, but there were some missing data for social support and depression measures ($N = 32$). These measures were not the main focus (outcomes) for the larger study and were considered supplemental measures, so caregivers were not required to complete the measures. Although efforts were made to foster the completion and return of all measures, missing data

could have accounted for variability in results. However, a pairwise deletion procedure was used to minimize effects of missing data.

Other variables not included in this present study could explain the perceived helpfulness of social support. Child-related factors such as other medical concerns, and current access to services could influence the interaction between the helpfulness of both family and informal supports. Additionally, caregiver-related factors such as language, acculturation status, and other stressors could contribute to higher levels of depression and lower access to support. Indeed, Son (2020) found that Latinx caregivers reported neighborhood stress, acculturation status, and limited health care services as risk factors for poor caregiver mental health.

Future Directions

To better understand the associations between caregiver depression and social support, future research could utilize a longitudinal and multi-modal approach to collecting data. Perhaps including depression and social support measures as a main outcome of the study, using multiple measures over a period of time to best characterize the severity and persistence of support and depression. For example, using a clinician-administered depression rating scale such as Hamilton Depression Rating Scale (HDRS), to better conceptualize caregiver depression (Hamilton, 1960). In addition, using an interview format to gather information on the functions of support (i.e., instrumental, emotional) could perhaps help differentiate the impacts of support on caregiver depression.

Given no differences between the effects of challenging behavior between main variables, future research could consider using a direct observational method to better supplemental self-report measures of child challenging behaviors. Further, there was no difference found between Latinx and non-Latinx in their rating of social support. Since the majority of the caregivers in this study were Latinx, primarily speaking Spanish speaking, a

larger sample size including non-Latinx families should be included in future research to better characterize the difference between both groups in what types of support works best and for whom. Furthermore, levels of acculturation could impact access to support and levels of depression, hence future studies should examine these cultural variables to further tease apart their influences on current study variables (Cohen et al., 2020).

Social support and parent mental health are assessed in the larger trial at baseline and post-treatment follow-up assessments. Future research could assess if changes in social support (through group-based intervention delivery) improves caregiver depression over time. Relatedly, intervention could target social support directly and determine the effects on caregiver depression. For example, group based intervention could include psychoeducation on the types of support caregivers have access to and provide opportunities to practice requesting and accessing supports. Additionally, individuals involved in childcare could be invited to participate in these interventions.

Finally, given that data from parents were collected both before and during the COVID-19 pandemic, it would be worthwhile to explore differences in caregivers' mental health status, and access to supports before, during and after COVID-19 pandemic; to better differentiate how supports and mental health status vary based on environmental factors.

Implications for Practice

The main findings from this study suggest that to improve mental health for parents who are caring for young children with disabilities one thing to target is social support. Although research and current findings are still mixed on which types of support (i.e., formal, informal, family) are found to be most helpful, it has been consistent that social support, in general, is a robust predictor of anxiety and depression. That is, low levels of support are associated with high levels of depression. To better serve these groups of families, clinicians should work with them

to map out supports that are and are not available to them and how they can effectively access and utilize available supports. Additionally, professionals can work with families on strategies to solicit support in their context and/or guide them in searching for alternatives.

In the current sample, families found formal support to be more helpful than informal, thus professionals in early intervention services must ensure that formal supports and services are available, relevant, and tailored to families and their needs. More so, early in the diagnosis period where families might need support going through the experience of having their child receive a formal diagnosis. While families are finding formal support to be helpful at this developmental stage, professionals can help families tailor and target which type of support is most helpful, given different developmental stages. Clinicians need to work with families collectively, ensure that information is shared equally among family members directly involved with childcare, and that information is aligned with family values. Particularly, when working with Latinx families that already have added barriers (i.e., language, income, education) to accessing health care services, professionals should establish and maintain a positive rapport and flow of information to these caregivers, while being considerate of their barriers.

In addition to formal support, family support was found to be helpful to caregivers. To better serve caregivers and their children with DD and ASD, professionals need to utilize evidence-based family-centered interventions incorporating positive parenting skills to help families identify strengths, improve their parenting, and decrease child challenging behaviors. Historically within Latinx families, caregivers tend to depend more on family support (Ruiz-Robledillo et al., 2014), thus professionals can assist Latinx families in soliciting for other support such as formal support and guiding them on effectively and efficiently targeting and utilizing family support. Interventions that support co-parenting, effective problem-solving with spouse/partner, and effective communication with family members may be especially valuable.

It is well established that caregiver depression is associated with poor parenting and poor parent-child relationship (Goodman et al., 2011). Thus, professionals can interrupt this cycle by helping families to establish and maintain social support networks, which in turn could improve parents' mental health and have a downstream effect of improving parent-child relationships and child behavioral and social outcomes. Furthermore, when working with Latinx caregivers, professionals should utilize culturally responsive interventions and consider family values, while working to eliminate barriers to accessing services (i.e., Magaña et al., 2021; Vanegas et al., 2022). Treating mental health directly through the provision of evidence-based interventions may also improve other aspects of family dynamics and parenting.

Conclusions

The current study sought to provide an exploratory analysis of the associations between caregiver depression and social support among diverse caregivers' young children with developmental delay and autism. Results indicated that 1) caregivers found formal supports to be more helpful and informal supports to be less helpful, 2) utilization of supports did not differ by ethnicity, and 3) total and family support was negatively associated with caregiver depression scores. Moderation analyses indicated that the relation between social support and depression was not moderated by child challenging behavior, child diagnosis, and caregiver ethnicity. After controlling for caregiver education, income, and ethnicity, social support explained significant variance in depression scores.

Limitations notwithstanding, this study contributes to our knowledge of understanding and characterizing families of young children with disabilities, particularly Latinx, primarily Spanish-speaking families, with highly variable language, SES, and education. This sample is understudied in the literature and historically underserved. Although findings are well established in the literature, it is important to investigate these associations in this sample to

better understand interventions and supports that are based in cultural humility. The study findings demonstrate important associations between social support and caregiver depression that will be useful for clinicians and advise future research.

APPENDIX: TABLES

Table 1. Demographic Information for Caregivers and Children (N = 175)

Caregiver		Children	
Characteristic	<i>M</i> or % (<i>SD</i>)	Characteristic	<i>M</i> or % (<i>SD</i>)
Age (years)	38.22(8.16)	Age (years)	3.84(.83)
% Female	98.3	% Female	36.6
% White/Non-Latinx	28.0	% White/Non-Latinx	26.9
% Latinx	72.0	% Latinx	71.4
% Monolingual- Spanish	55.5	% SPED eligibility	68.7
% Partner in the home	85.7	% Bi-lingual	62.4
% < 4 years in college	76.3	% Primary diagnosis	
% Employed full-time	20.6	ASD	42.1
% ≤ 50,000	56.7	Speech lang. delay	21.6
% PC relationship (bio mom)	90.3	Other	36.3
% Household size ≥ 5	42.9	Vineland (ABC)	71.62(10.84)

Note. “Other” = developmental delay, learning disability, social-emotional delay, genetic disorder/syndrome, sensory disorder, learning disability, motor delay, deaf/hearing, and/or cerebral palsy. Vineland-III ABC (*M* = 100, *SD* = 15).

Table 2. Descriptive Statistics for Caregiver Composite Scores

Variable	<i>n</i>	<i>M</i>	<i>SD</i>
CES-D (Total)	143	16.43	10.77
High ≥ 16	63	26.10	8.89
Low ≤ 15	80	8.82	3.65
FSS (Total Sum)	143	32.34	14.48
Family		12.49	5.88
Informal		5.94	5.90
Formal		13.47	6.52

Note. The range of possible scores for caregiver depression rating (CES-D) is 0 - 60. The range of possible scores for caregiver social support (FSS) is 0 - 100.

Table 3. Descriptive Statistics for the Child Behavior Checklist T-Score (CBCL)

Subscales	<i>n</i>	<i>M</i>	<i>SD</i>
CBCL (Total)	162	68.90	10.51
Internalizing		66.49	10.63
Externalizing		65.50	10.51

Note. Distributions are unimodal and approximately symmetrical with no severe skew and no severe outliers.

Table 4. Descriptive Statistics for Helpfulness of Social Support (FSS)

Types Helpful	<i>n</i>	%
Formal	71	50.3%
Family	62	43.3%
Informal	24	17.8%

Table 5. Differences in Ethnicity and Utilization of Social Support

	Latinx		non-Latinx		<i>df</i>	<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Total	32.77	15.48	31.36	12.05	104.5	-.59	.59
Family	12.69	6.34	12.05	4.73	108.7	-.67	.50
Formal	13.76	6.73	12.82	6.02	91.5	-.83	.41
Informal	5.92	5.96	6.00	5.82	84.4	.08	.94

Table 6. Associations Between Social Support and Caregiver Depression

	High Dep.		Low Dep.		<i>df</i>	<i>t</i>	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Total	29.51	12.70	34.56	15.46	140.7	2.15	.03*
Family	11.44	4.88	13.31	6.48	140.8	1.97	.05*
Formal	12.97	6.47	13.86	6.57	134.1	.82	.42
Informal	4.95	5.21	6.73	6.31	140.7	1.84	.07

Note. * $p < .05$

Table 7. Regression Results for Predicting Caregiver Depression: Social Support^a and CBCL Scores^b (N = 175)

Variables	Model 1				Model 2				Model 3			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Social Support	-.11	.07	-1.60	.11	-.12	.07	-1.89	.06	.27	.40	.68	.50
Child CBCL scores					.16	.09	1.75	.08	.34	.21	1.65	.10
Child CBCL score x Social Support									-.01	.01	-1.0	.32

Note. Model 1 $R^2 = .02$, $F = 2.55$, $p = .11$. Model 2 $\Delta R^2 = .21$, $\Delta F = 3.01$, $p = .08$. Model 3 $\Delta R^2 = .01$, $\Delta F = 1.01$, $p = .32$.

^a n = 162. ^b n = 143.

Table 8. Regression Results for Predicting Caregiver Depression: Social Support^a and Child Diagnosis (N = 175)

Variables	Model 1				Model 2				Model 3			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Child Diagnosis	1.60	1.82	.88	.38	1.85	1.81	-1.89	.06	.52	4.43	.12	.91
Social Support					-.12	.06	-1.95	.05	-.14	.09	-1.59	.11
Child Diagnosis x Social Support									.04	.13	.33	.74

Note. Model 1 $R^2 = .00$, $F = .79$, $p = .38$. Model 2 $\Delta R^2 = .03$, $\Delta F = 3.79$, $p = .05$. Model 3 $\Delta R^2 = .03$, $\Delta F = .11$, $p = .74$.

^a n = 162. ^b n = 171.

Table 9. Regression Results for Predicting Caregiver Depression: Social Support^a and Caregiver Ethnicity (N = 175)

Predictors	Model 1				Model 2				Model 3			
	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Caregiver Ethnicity	1.55	1.96	.79	.43	1.71	1.94	.88	.38	1.23	5.21	.24	.81
Social Support					-.12	.06	-1.91	.06	-.13	.14	-.96	.34
Caregiver Ethnicity x Social Support									.02	.15	1.0	.92

Note. Model 1 $R^2 = .00$, $F = .63$, $p = .43$. Model 2 $\Delta R^2 = .03$, $\Delta F = 3.66$, $p = .06$. Model 3 $\Delta R^2 = .03$, $\Delta F = .01$, $p = .92$.

^a n = 162. ^b n = 175.

Table 10. Regression Results for Predicting Caregiver Depression: Covariates and Social Support (N = 175)

Block	Model 1				Model 2			
	ΔR^2	<i>b</i>	<i>t</i>	<i>p</i>	ΔR^2	<i>b</i>	<i>t</i>	<i>p</i>
Covariates	.01			.55				
Ethnicity		1.64	.66	.51		1.77	.71	.47
Household Income		-.29	-.83	.41		-.36	-1.04	.30
Education		.45	.97	.34		.55	1.19	.24
Social Support					.03	-.13	-2.0	.05*

Note. Model 1 $R^2 = .01$, $F = .65$, $p = .59$. Model 2 $\Delta R^2 = .3$, $F = 3.99$, $p = .05$.

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