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Family-Based Support as Social Determinants of Health Protective Factor on Depression of
Parents of Children with Autism Spectrum Disorder

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy in Education with a concentration in Counselor Education and Supervision at
Virginia Commonwealth University

By

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Table of Contents

List of Tables	xi
List of Figures	xii
Abstract	xiii
Chapter One: Introduction	1
Theoretical Approach.....	3
Statement of Problem.....	7
Purpose Statement.....	10
Research Questions	11
Methodological Overview	12
Study Significance	14
Limitations	16
Definition of Key Terms.....	17
Chapter Summary	18
Chapter Two: Literature Review	19
Autism Spectrum Disorder	20
Diagnostic criteria.....	21
Prevalence	22
Social Determinants of Health as a Framework	23
SDOH: Risk and Protective Factors	25
SDOH Domains	29

Community and Social Contexts of Parents of Children with ASD.....	29
Social Integration: Community Engagement.....	30
Support System.....	32
Family Resilience.....	36
Health and Health Care System & parents of children with ASD.....	38
Health Coverage: Provider Availability, Competence, and ASD Severity	38
Quality of Life.....	42
Mental Health Challenges: Depression.....	44
Economic Stability and Parents of Children with ASD.....	46
Employment Status.....	46
Financial Resources and Cost of ASD.....	48
Socioeconomic Status.....	50
Counselors-in-Training Preparedness to Work with Parents of Children with ASD ...	51
Chapter Summary	52
Chapter Three: Research Design And Methodology	54
Positionality Statement	54
Research Design.....	55
Research Questions.....	56
Sampling	57
Data Collection	58

Measures	59
Demographic Questionnaire	59
Child ASD-Symptom Severity scale	60
Multidimensional Scale of Perceived Social Support.....	60
Patient Health Questionnaire-8.....	61
Family Adjustment Measure.....	62
Variables	63
Data Analysis Plan.....	64
Data Cleaning and Assumptions.....	65
Confirmatory Factor Analysis.....	67
Structural Equation Modeling.....	68
Moderation Analysis.....	70
Ethical Considerations	71
Chapter Summary	72
Chapter Four: Data Analysis.....	73
Data Cleaning and Assumption Testing	73
Missingness.....	74
Test of Invariance	75
Assumptions Testing.....	75
Descriptive Statistics.....	76

Instruments Measures of Central Tendencies	79
Instrument Psychometrics	81
Properties and Structure of the MSPSS Significant Other Subscale	83
Properties and Structure of the MSPSS Family Subscale.....	84
Properties and Structure of the MSPSS Friend Subscale.....	85
Family Adjustment Measure Family Based Support Subscale.....	86
Social Determinants of Health Protective Factor.....	87
Structural Equation Model Analysis.....	88
Indicators of Latent Variables.....	89
Correlations among all the Variables.....	90
Goodness of Fit indices and Parameter Estimates of Latent Variable.....	92
Social Determinants of Health Protective Factors Predict Depression.....	92
Exploring Moderators of SDHPF and Depression.....	94
Moderation Analysis.....	94
Child Symptom Severity as a Moderator.....	96
Income as a Moderator.....	97
Post-Hoc SEM and Simple Slope of Moderation Effect	99
Chapter Summary	101
Chapter Five: Discussion	103
Study Summary.....	103

Descriptive Data Statistics 105

 Social Determinants of Health Protective Factors 106

 Child Symptom Severity..... 107

 Financial resources..... 108

Protective SDOH for Parent Depression..... 108

 Measurement of Social Determinants of Health-Protective Factors..... 109

 Social Determinants of Health Protective Factors and Depression 109

 Moderating Effect of Child Symptom Severity on SDOH and Depression 110

 Moderating Effect of Income on SDHPF and Depression..... 111

Limitations 112

Implications..... 114

 Counselor Educators 115

 Practicing Counselors 117

 Social Justice Advocate 119

Future Research 121

Chapter Summary 123

REFERENCES **Error! Bookmark not defined.**

APPENDIX A..... 12557

List of Tables

Table 1: Participants Demographic Characteristics	77
Table 2: Measure of Central Tendencies	80
Table 3: Latent Variable for MSPSS Significant other subscales	85
Table 4: Latent Variable for MSPSS Family subscale	85
Table 5: Latent Variable for MSPSS Friend subscale	86
Table 6: Latent Variable for Family Based Support Subscale	87
Table 7: Factor Loadings and Error Variances of the Indicators of Latent Variables.....	90
Table 8: Correlations Matrix of all Variables in the Model	92
Table 9: SDHPF Standardized Solutions of Parameter Estimates	95
Table 10: Child symptom severity interaction effect	98
Table 11: Income Interaction effect	99

List of Figures

Figure 1: Social Determinants of Health Factors	6
Figure 2: Social Determinants of Health Theoretical Model	31
Figure 3: Conceptual Model for Moderation Analysis	67
Figure 4: Income Outliers	76
Figure 5: Income Score Distribution	81
Figure 6: CFA Family Based Support Subscale	88
Figure 7: SEM model with standardized solutions and mean-centered variables	93
Figure 8: Child symptom severity SEM moderation analysis	96
Figure 8.1: Financial resources SEM moderation analysis	96
Figure 9: Income Simple Slope	101
Figure 9.1: Child Symptom Severity Simple Slope	102

Abstract

FAMILY-BASED SUPPORT AS SOCIAL DETERMINANTS OF HEALTH PROTECTIVE FACTOR ON DEPRESSION OF PARENTS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

By Bisola E. Duyile, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Education at Virginia Commonwealth University.

Virginia Commonwealth University, 2023

Major Director: Naomi J. Wheeler, Ph.D. Assistant Professor, Department of Counseling and Special Education, School of Education

All parents experience challenges in their caregiving roles (Barańczuk & Pisula, 2020). However, parents raising a child/children with disabilities experience different social barriers (Oliver, 1996) that may also contribute to additional stressors in their caregiving role (Tomeny, 2016). Although these parents, on average, have reported greater symptoms of depression than parents of typically developing children, research shows that parents who reported receiving social support had lower symptoms of depression and stress (Das et al., 2017; Singh et al., 2017). Through the social determinants of health (SDOH) framework (ODPHP, 2022), the present study investigated informal/family-based support and its protective impact on depression reported by parents of children with autism spectrum disorder (ASD). The study used existing data (N = 199) for a non-experimental, multivariate, cross-sectional design that utilized a convenience sampling approach. On average, participants self-identified as a biological parent, female, White, Non-Hispanic, college educated, and married. I used factor analyses to examine the psychometric properties of the Family Adjustment Measure family-based support subscale (FAM; Daire et al., 2014) and the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), including family, friend, and significant other support as manifest variables for informal/family-

based support. I then used a structural equation model (SEM) to examine the association between informal/family-based support with depression (Patient Health Questionnaire-8; Kroenke et al., 2009) to conceptualize social determinants of health-protective factor (SDHPF) as a latent variable that predicts depression. Finally, in moderation analyses, I examined how a parent's income and a child's symptom severity influenced the strength of the association between SDHPF and depression.

Findings showed a single-factor structure, good model fit, and internal reliability for the FAM and MSPSS. Informal/family-based support significantly predicted the presence of depression in parents of children with ASD, whereas higher informal and family-based support predicted lower depression. Income and CSS did not significantly moderate the relationship between informal/family-based support and depression. Results of the present study inform implications for counselor educators, practicing counselors, policy, and research that may help enhance the lives of families that include a child with ASD.

Chapter One

INTRODUCTION

The family environment, including interactions with a parent or caregiver, plays a critical role in a child's development (Sharabi & Marom-Golan, 2018). All parents experience challenges in their caregiving roles (Barańczuk & Pisula, 2020). However, parents raising a child/children with disabilities experience additional social barriers (Oliver, 1996) and may also experience additional stressors in their caregiving role (Barańczuk & Pisula, 2020; Pisula, E., & Porębowicz-Dörsmann, A., 2017; Tomeny, 2016). Parents of children with autism spectrum disorder (ASD) reported disproportionately more significant challenges in terms of financial, employment, or a time-related burden when compared to parents of children with other developmental disorders or mental health conditions (Vohra et al., 2014). Likewise, parents of children with ASD are more likely to report symptoms of depression (Cohrs & Leslie, 2017; Kozachuk, 2020; Scherer et al., 2019), which in turn predicts higher intensity ASD symptoms in their child (O'Connor, Langer, & Tompson, 2017). Therefore, understanding the needs of parents of children with ASD is essential for the mental health of parents but also vital to the success and development of the child with ASD. Yet, few resources exist to support the mental health challenges experienced by parents of children with ASD, and many parents report feeling socially isolated (Meadan et al., 2010). Conversely, social support seems to protect parental mental health (Ekas et al., 2016; Merz & Huxhold, 2010). Further investigation is warranted to understand the associations between social and family support, child symptom presentation, and parental depression.

Autism spectrum disorder (ASD) affects nearly 1 in every 54 children (Maenner et al., 2020) – a three-fold increase in the prevalence of ASD over the past 20 years (Centers for

Disease Control, 2020). Parental involvement with a child with ASD can promote children's developmental and educational outcomes (Sharabi & Marom-Golan, 2018). Nevertheless, most research focuses on children with ASD compared to the parents of children with ASD (Catalano et al., 2018). Therefore, it is important to understand the challenges that families experience and how they can be supported in achieving healthy mental health as well as in their role as parents of children with ASD.

According to Yorke et al. (2018), parents reported that as the severity of their child's symptoms increased, so did their personal need for support. Families that include a child with ASD are better equipped to navigate life transitions together when personal perceptions of a supportive family unit are high and when the child's behavior problems are low (O'Brien, 2016). Also, parents who reported receiving social support had lower symptoms of depression and stress (Das et al., 2017; Singh et al., 2017). Similarly, financial instability (Rogge & Janssen, 2019), low family-based support (i.e., support from friends and family), and passive-avoidance coping predicted higher rates of parental burden (Yu et al., 2018). What is less known is how family-based social support (as a protective social determinant of health; SDOH) and financial resources of parents of children with ASD can enhance the well-being of parents with autistic children. Recent research in the area of family-based support and financial resources has been conducted in places such as Lebanon (Obeid & Daou, 2015), Northeast India (Das et al., 2017), and India (Singh et al., 2017), but there is very little research conducted in the US. Given the growing population of children with ASD (Maenner et al., 2020) and the demonstrated social influence of child ASD on family stress and stability (Cohrs & Leslie, 2017; Kozachuk, 2020; Vohra et al., 2014), the present study aims to identify the influence of family-based support as an SDOH protective factor for depression among parents of children with ASD and the moderating role of

(a) severity of symptoms associated with a child's disability and (b) financial resources for this association. Lastly, the language used in the present study is person-first and reflective of the current APA standard that expresses that individuals use person-first or identity-first language as is appropriate for the community or person discussed (APA, 2022).

Theoretical Approach

The social determinants of health (SDOH) model serve as the theoretical foundation for the present study. SDOH refers to the various aspects of an individual's life that can impact their overall health (CDC, 2020). The SDOH framework illustrates structural stratifiers and their proxy indicators, such as income, education, occupation, social class, gender, and race/ethnicity (WHO, 2012). SDOHs are defined as conditions in the environments in which people live that affect a wide range of health, functioning, and quality-of-life outcomes and risks (CDC, 2020). SDOH impacts various world health inequities and individuals' increased risk of mental health disorders, access to resources, and improved outcomes (Alegría et al., 2018). Thus, it is important to understand the SDOH factors and how they can contribute to the mental health challenges of parents of children with ASD.

Healthy People 2030, a U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion (ODPHP) initiative that identifies target goals and objectives for public health utilizes the SDOH model as a framework including five domains (See Figure 1): economic stability, education access, and quality, social and community context, health and health coverage, and neighborhood and built environment (ODPHP, 2022). The present study focused on sub-features from three domains from the SDOH model, including (a) social and community context (i.e., family-based support), (b) health (i.e., child symptom presentation severity), and (c) economic stability (i.e., family financial resources). that are

further broken down into sub-constructs and how these domains impact the symptoms of depression reported by parents of children with ASD. Thus, the current investigation examines the relationship between SDOH factors (i.e., financial stability, the severity of a child's disability, and social support) and mental health challenges (i.e., depression and stress) of parents of a child diagnosed with ASD.

Figure 1



Note. Healthy People 2030, U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. Retrieved [August 2022], from <https://health.gov/healthypeople/objectives-and-data/social-determinants-health>].

Researchers demonstrated the importance of examining SDOH risk and protective factors as they contribute to the health inequities and mental health concerns of parents of children with ASD (Julihn et al., 2018; Logrieco et al., 2022; Machado Junior et al., 2014). Protective factors alleviate mental health symptoms, while risk factors deteriorate mental health concerns (Machado Junior et al., 2014). Protective factors include societal experiences such as satisfaction with informal support (Fong et al., 2020) that positively correlate with positive

emotional symptoms such as hope, courage, and trust (Durlak, 1998). Protective factors include the ability to problem-solve, good temperament, coping skills, as well as resources such as cohesive family relationships and patterns, and access to an effective support system (Plumb, 2011). Risk factors align with higher reports of negative emotional symptoms such as fatigue, feeling guilty, helpless, or hopeless, and avoiding family and friends (Durlak, 1998). Overall, several studies identified links between SDOH factors (protective and risk) and individual mental health.

Additionally, the connection between SDOH factors (protective and risk) exists among parents of children with ASD. For instance, researchers identified significant associations between socioeconomic disparities in the quality of and access to services among children with ASD and increased stress and distress for parents of children with ASD (Jafarabadi et al., 2021). Another study found that parents with a higher level of SDOH were more likely to seek help and treatment for their child with ASD (Zuckerman et al., 2015). They found that compared with parents of children with intellectual disability/developmental delay (ID/DD), parents of children with ASD were less likely to receive proactive responses to their concerns and more likely to receive reassuring/passive responses. Therefore, parents' willingness to seek and receive treatment was based on their level of access to providers who proactively responded to parental concerns about their child's development. In addition, informal social support as an SDOH factor was significant in family quality of life (QOL) and parental well-being, although occasionally inconsistent based on gender (Marsack & Samuel, 2017). This study expanded on the greater role of women as caregivers for their child with ASD and the caregiver burden's negative impact on QOL. Although reducing the caregiving burden through informal social support was significant for the family, it only partially mediated the relationship between caregiver burden and parents'

QOL for caregivers who identify as women. Similarly, Picardi et al. (2018) reported that mothers of children with ASD reported a more significant subjective burden than fathers in their caregiving role, and social support significantly correlated with family coping strategies. Social support as an SDOH protective factor can increase well-being, QOL, and coping skills for parents with children with ASD.

Finally, Andermann (2016) purports the importance of the SDOH model in clinical practice. The researcher identified income, education, and social status as significant predictors of health. Through a comprehensive literature review, the researcher provided ways to identify SDOH in clinical practice and its impact on clients. In addition, they described the best ways to provide tailored care and evidence-based practice, such as being alert to clinical flags associated with SDOH, inquiring about patients' SDOH in a sensitive and caring way, providing access to benefits and support services, offering cultural safe space, increasing accessibility to address inequity, partnership with the local community, and advocating for a supportive health environment (Andermann, 2016). Because of the critical role that SDOH factors play in the lived experiences of the clients we work with, a lack of knowledge about SDOH factors will be of disservice to counselors and counselor educators. For example, Johnson and Brookover (2021) assessed the knowledge and experience of 11 school counselors addressing SDOH with their students and families. They found that the awareness of SDOH was low, and the responsibility to seek help for SDOH needs was placed on the student and their parents.

Further, Waters et al. (2022) examined the motivation and challenges experienced by 12 counselor educators in teaching SDOH. In this study, counselor educators reported no formal learning of SDOH. Consequently, counselor educators addressed SDOH in their curriculum and teaching based on their personal experiences and values, which provides variation in their

interaction about SDOH with their students. Similarly, counselor educators emphasized the importance of developing students' skills to discuss and assess SDOH; they could not provide ways to develop those skills with their students (Johnson & Robin, 2021). These findings highlight the need to populate the counseling field with more research using the SDOH framework. The SDOH model highlights several contributing factors to mental health and underscores the benefit of identifying its inequities in clinical practice (Andermann, 2016). Therefore, the SDOH model is a valuable framework for the continued examination of systemic and structural factors in predicting parental mental health.

Statement of Problem

Raising a developing child has its level of responsibilities as it is generally demanding and presents parents with related challenges as they navigate this role (McStay et al., 2013). However, raising a child with ASD in an ableist society (Oliver, 1996) presents additional stress and challenges for parents (Bonis, 2016; Tomeny, 2016). For example, parents navigate the expectation to fully understand different disability policies and the impact on their child's ability to receive special education services (Burke et al., 2018). They are responsible for advocating for their children in schools and may be faced with additional social barriers associated with access in the environment, discriminatory attitudes of others, or strict organizational practices/procedures. This level of advocacy can conflict with school administrators, leading to frustration and stress for parents (Burke et al., 2018). The responsibilities of parents as caregivers and an increased duty and expectation to advocate for their child with ASD in different spaces can influence parents' mental health.

In addition, parents encounter varying levels of therapy and diagnostic assessment for their child and risk cases of misdiagnosis of their child with ASD (Hosozawa et al., 2020;

Magaña et al., 2012), resulting in feelings of frustration, disappointment, exhaustion, and lack of trust in the healthcare system to care for their child. Also, based on the severity of the child's symptoms of ASD, there might be frequent visits to the doctors and therapists, significantly increasing parents' financial and time constraints (Daire et al., 2011). The financial burden parents experience from medical visits, therapy, and various monetary interactions with healthcare providers can be overwhelming and increase mental health concerns for parents of children with ASD (Delobel-Ayoub et al., 2015). Likewise, the social lifetime cost of raising a child with ASD from 1990 to 2029 is an average of \$3.6 million. Based on the severity of the child's symptom presentation, there is an estimated increase in the cost of care (Cakir et al., 2020). Therefore, the bid and pressure on parents of children with ASD to provide time and financial support can increase feelings and reports of depression.

Parents of children with ASD have reported higher levels of depression than parents of typically developing children or children with other health conditions (Al-Farsi et al., 2016; Kozachuk, 2020). Notably, parents have reported feelings of exhaustion, frustration, anger, and irritability in their role as parents (Drogomyretska et al., 2020); such distresses often fall under the umbrella of depressive illness. In addition, the divorce rates among parents of children with ASD, which presents additional stress and financial burden, may also contribute to the depressive symptoms experienced by parents of children with ASD. Thus, the mental health concern mostly experienced by parents of children with ASD is depression (Ross, 2018; Singh et al., 2017). Major depressive disorder is one of the most prevalent mental disorders in the United States. For some individuals, depression can result in severe impairments that impact or limit their ability to complete significant life activities (National Institute of Mental Health, 2022). It is important to become aware of the numerous impacts of symptoms of depression and stress on

families of children with ASD and the different results when not appropriately addressed.

Other factors that can predict parents' symptoms of depression include the severity of the child's symptoms and the availability of family-based support. The severity of a child's disability-related symptoms predicts increases in the mental health concerns of parents of children with ASD (Yorke et al., 2018). Research shows that the problematic behaviors of the child, especially hyperactivity, largely explain differences in parental stress (McStay et al., 2014b). In addition, Miranda et al. (2019) reported that parenting stress positively correlated with their children's ASD symptoms and behavioral problems, and depression was higher among parents of children with more problematic behaviors (Lovell & Wetherell, 2020). The child's aggressive behavior, the perceived external locus of control, and lower social support predicted depression in mothers (Marsack & Samuel, 2017). Therefore, the more severe the child's ASD symptoms, the higher the parental stressors and feelings of depression experienced. Although researchers have found the core deficits of autism to be associated with increased feelings of parental distress, they can also be the propellant for families seeking supportive networks.

Furthermore, social support as a factor is critical when discussing the mental health of parents of children with ASD. Prior research shows that higher levels of social support have been associated with lower levels of negative impact (Bishop et al. 2007), psychological distress (Bromley et al. 2004), negative mood (Pottie et al. 2009), and depressive symptoms (Benson & Karlof 2009; Ekas et al. 2010; Weiss 2002). Also, Merz & Huxhold (2010) reported the association between social support and the various aspects of mental health and coping. They found an association between instrumental support from kin with a high-quality relationship and increased well-being of adults, thus, highlighting the vitality of family support. Parents and caregivers of children with ASD have better QOL when access to support is high Marsack &

Samuel, 2017). Likewise, parental involvement in their child's life has also been shown to be contingent on their level of access to social support (Sharabi & Marom-Golan, 2018). It is important to research, bring awareness, and understand some SDOH factors that can influence parents' higher access to family-based support, as the level of support available can impact the feelings and symptoms of depression experienced.

Parents of children with ASD experience SDOH regarding family income, employment status, socioeconomic status (SES), and severity of the child's symptoms. For example, studies report that family income level is significant in access to social support (Luther, 2005), and increased childcare burden negatively correlates with caregivers' QOL (Marsack & Samuel, 2017). Consequently, parents who reported a lack of these SDOH factors experienced increased levels of depression. However, parents who exhibit and have access to more social support may adapt better to life and the challenges associated with being a parent and caregiver for a child with ASD. A paucity of literature acknowledges the importance of family-based support in relation to SDOH factors.

Purpose Statement

High social support predicts lower levels of depressive symptoms (Benson & Karlof, 2009; Ekas et al., 2010; Weiss, 2002), yet parents of children with ASD report significantly less support and increased mental health challenges than parents of typically developing children or children with other health challenges (Luther, 2005). SDOH factors such as income/financial resources, access to health and health care, and social and community context can significantly impact parents' ability to care for themselves and their children with ASD (ODPHP, 2022). In sum, parents' lack of access to family-based support, the passive response from providers about their child's behavioral symptoms, lower income opportunities, and lower access to

neighborhood opportunities are aspects of SDOH that can determine mental health outcomes. Therefore, research is needed to increase understanding of the significance of family-based support as an SDOH protective factor for depression in relation to other SDOH factors such as child symptom severity and financial resources of parents of children with ASD. Previous research identified social support as an essential factor in alleviating depression and anxiety in parents of children with ASD (Ekas et al., 2016). Social support, specifically family-based support, may be an important protective factor for parents to combat symptoms of depression. There might be immeasurable benefits of family-based support on health, coping skills, and involvement in a child with ASD's life. However, little is known about the contributors to increased family-based support or its relationship with the depression of parents of children with ASD. Therefore, the present study utilized two primary analyses to examine how family-based support influences symptoms of depression experienced by the parents of children with ASD and how financial resources or the severity of the child's disability-related symptoms may moderate this association.

Research Questions

Research Question 1: How do Social Determinants of Health Protective Factors (SDHPF), as measured by the subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988) for friends, family, and significant other support as well as the family-based support subscale of the Family Adjustment Measure (Daire et al., 2014), predict depression in parents of children with ASD?

Hypothesis: SDHPF will predict a negative association with depression in parents of children with ASD.

Null Hypothesis: SDHPF will not predict a negative association with depression in

parents of children with ASD.

Research Question 2: How do child symptom severity influence the strength of association between SDHPF and depression of parents of children with ASD?

Hypothesis: Child symptom severity will significantly predict the strength of association between SDHPF and depression of parents of children with ASD.

Null Hypothesis: Child symptom severity will not predict the strength of association between SDHPF and depression of parents of children with ASD.

Research Question 3: How do financial resources influence the strength of association between SDHPF and depression of parents of children with ASD?

Hypothesis: Financial resources will significantly predict the strength of the association between SDHPF and depression of parents of children with ASD.

Null Hypothesis: Financial resources will not predict the strength of the association between SDHPF and depression of parents of children with ASD.

Methodological Overview

The study used existing data for a non-experimental, multivariate, cross-sectional design that utilized a convenience sampling approach (McMillan, 2016). Researchers from the FReSH lab collected data in the fall of 2018 and spring of 2019 to fulfill the requirement of a university-level internally funded grant that aimed to validate a measure of family adjustment in parents of children with ASD. The research lab submitted a university IRB that was reviewed and accepted by Virginia Commonwealth University. The lab also partnered with the Autism Center for Excellence for participant recruitment and interpretation of the data. All participants provided informed consent for this study. Although not included in the data collection process, I am a member of the research lab that conducted this study. Therefore, the present study utilized a

preliminary analysis that examines the factor structure of the Family Adjustment Measure (FAM) and Multidimensional Scale of Perceived Social Support (MSPSS). The researcher conducted two primary analyses to (a) investigate Social Determinants of Health-Protective Factors (SDHPF) as predictors of parents of children with ASD symptoms of depression, and (b) assess the strength of association between Social Determinants of Health-Protective Factors and depression using the Child Symptom Severity (CSS) measure and financial resources as moderating variables.

Inclusion criteria for the study required that participants were 18 years of age and older and identify as a parent or primary caregiver of a child with a formal diagnosis of ASD. Individuals who completed the 109-item survey were eligible to receive a five-dollar Walmart gift card as compensation for their participation in the study. The instruments used in the current investigation included: (a) a researcher-developed parent and child demographic form, (b) a researcher-developed child ASD-symptom severity scale based upon diagnostic criteria from the DSM 5 (APA, 2013), (c) the *Multidimensional Scale of Perceived Social Support* (MSPSS; Zimet et al., 1988), (d) the *Family Adjustment Measure* (FAM; Daire et al., 2014), and (e) the *Patient Health Questionnaire-9* (PHQ-8; Kroenke et al., 2001).

The data analysis plan for the current investigation included data cleaning, assumptions testing, preliminary analyses, and primary analyses. Preliminary and primary statistical analyses included: (a) confirmatory factor analysis of the subscales to be used from the FAM and MSPSS, (b) a structural equation model to determine the SDHPF that predicts the presence of depression, and (c) moderation analysis to examine how child symptom severity and financial resources (moderating variables) influence the strength of association between SDHPF and depression of parents of children with ASD.

Study Significance

The present study results showed the negative associations between family-based support (as a protective SDOH construct) and depression. Thus, several implications for professional learning and practice exist. Results from the present study can provide insight into better ways to work with families that include a child with ASD, specifically with parents, as counselors, counselor educators, advocates for policy reform, and in future research.

Counselor educators must understand the significance of SDOH factors in the mental health of parents of children with ASD. Counselor educators, for example, have expressed a lack of awareness of SDOH and an inability to formally assess SDOH with their students (Johnson & Robin, 2021). They have stated that their personal experiences and values motivated them to address SDOH inequities in their counseling programs (Waters et al., 2022). Counselor educators' approaches to SDOH with counselors-in-training can vary due to differences in values and personal experiences. As a result, it is critical to use the SDOH framework to guide the practice, assessment, and resolution of SDOH issues among counselors in training.

In addition, practicing counselors can use the current study's results to inform treatment plans and potentially target SDOH factors that can alleviate depression symptoms in parents of children with ASD. Counselors' understanding of family-based support as a protective factor for depression, for example, can encourage family interaction exploration, such as examining family interactional dynamics, mobilizing the family's internal strength and functional resources, enhancing communication skills, and recognizing family discord and major conflicts (Varghese et al., 2020). The findings may encourage counselors to discuss SDOH factors and provide access to family-based support in safe and therapeutics. Counselors, for example, can facilitate support groups and informal parent support meet-ups for parents of children with ASD to foster

connections and communication.

Further, social justice advocates can use the results of the present study as a basis for advocating for policies at the regional and state levels. Related policies might include those that support increased collaboration between practitioners to increase availability and access to specific ASD programs for parents of children with ASD. There are numerous societal challenges and barriers that exist to parents' access to services. For example, parents have reported concerns about the quality of and access to care management, limited accessibility to a variety of options for combined therapy and care, lack of awareness of access to family leave policies and flexible work options, and lack of family support programs (Houser et al., 2014). In addition, based on the services, health insurance does not always provide coverage for family therapy, and the medical model rarely accounts for family context and support as a recommendation for parents of a child with an ASD diagnosis (Hogan, 2019). Thus, advocating for centers that have case management services with centralized information regardless of changes in providers for parents and their child with ASD can increase stable access to information for parents of ASD.

Consequently, results can bring awareness and interrogation about factors in neighborhoods and communities that can increase parents' access to family-based support. Parents have reported feelings of pressure about their responsibility of caregiving with minimal access to information or support (Houser et al., 2014). Thus, advocating for funded services in community mental health centers that can increase access to information and the opportunity to build relationships through support groups can be helpful for parents in their role as caregivers and in maintaining healthy mental health. Also, advocating for affordable childcare access for parents of children with ASD can allow parents to explore other employment options that can

increase financial resources and reduce the financial burden on parents.

Limitations

Several limitations of the research study exist. As a secondary analysis, researchers have already collected the data, and I have had no input into the design or measurement of constructs. Additionally, the sample consists of predominantly White, non-Hispanic married females who are in the middle to high-income class range (Pew Research Center, 2018). The present study is cross-sectional and correlational; therefore, only relationships between variables were analyzed without reference to the causation of one variable on another (McMillan, 2016). Another limitation is the sampling approach. The original researchers utilized a snowball and convenience sampling approach. Although this approach has been proven effective because of the population's vulnerability and the low response rates (Becerra et al., 2017), it allows for lesser generalizability of the sample as the participant effect may be a threat to internal validity (McMillan, 2016). Further, it is assumed that individuals who participated may have been more motivated to participate because of prior or current relationships with recruiters, which may distort the outcome results for the study. Also, the present study examines the psychometric properties of the FAM assessment and MSPSS via factor analysis to test its reliability and validity with parents of children with ASD. However, further analysis of the psychometric properties of the FAM and MSPSS with a much larger sample would provide more information regarding the external validity of the instruments.

Future Research

Finally, the present study is the initial step to understanding SDOH and family-based support as a construct. It provides a foundation for future research to examine further its impacts on other mental health challenges of parents of children with ASD. Also, the present study uses a

correlational design, i.e., no control group for comparison. Thus, future studies can conduct experimental research with a control group for comparison. Future research can collect longitudinal data to observe study associations over time, especially for the income/financial stability of parents of children with ASD. Also, other SDOH factors, such as neighborhood and built environment and education access and quality, can be explored to identify SDOH influences on the self-advocacy ability of parents for themselves and their children with ASD.

Definition of Key Terms

Autism Spectrum Disorder: ASD is a neurodevelopmental disorder distinguished by difficulties with social communication and interaction (APA, 2013; DSM- 5). ASD also includes the prevalence of patterns in behaviors, interests, and restricted and repetitive activities. The core deficits associated with ASD are impairment in social interaction and communication and the presence of unusual behaviors and/or interests.

Social Determinants of Health: SDOHs are defined as conditions in the environments in which people live that affect a wide range of health, functioning, and quality-of-life outcomes and risks (CDC, 2020). “Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affects a wide range of health, functioning, and quality-of-life outcomes and risks (ODPHP, 2022).” Several factors based on what is made available to us can impact health outcomes. The SDOH is used as a framework for the present study.

Family-Based Support: Family-based support is an informal type of social support that may include parents of children with ASD’s immediate and extended family members, friends, neighbors, and other parents of children with disabilities. This study identifies family-based support as a social determinant of health-protective factor (SDHPF). The FAM and MSPSS

measure the family-based support of parents of children with ASD.

Major Depressive Disorder: Depression, also known as major depressive disorder, is a mood disorder categorized as one of the most prevalent mental disorders in the United States (National Institute of Mental Health, 2022). Depressive symptoms include but are not limited to irritability, brooding, obsessive rumination, and sadness (DSM- 5). Further, parents of children with ASD experience significant stress in their role as caregivers, which can exacerbate the depressive symptoms identified. Stress is a bodily response to external change that requires some emotional and psychological adjustment (Shahsavarani et al., 2015). Depressive symptoms are assessed and measured via reports on the PHQ-8 measurement.

Chapter Summary

In Chapter One, I provided an overview of the present study, including relevant background information, theoretical approach, statement of the problem, purpose, research questions, significance, methodology, and definitions of key terms. Parents of children with ASD are resilient yet face many unique challenges. Limited research examines the influence of SDHPF, specifically family-based support, on the depression of parents of children with disabilities. Nevertheless, family-based support may be a key factor in understanding and responding to symptoms of parental depression. Therefore, the present study introduced an innovative construct, family-based support, as a protective SDOH factor for depression and an assessment of the role of CSS and financial resources as moderating factors with implications for future education, practice, and research.

Chapter Two

LITERATURE REVIEW

In chapter two, I provide an overview of the literature on social determinants of health (SDOH) factors that impact depression and family-based support of parents and caregivers of children with autism spectrum disorder (ASD). First, I discuss the prevalence and symptom presentation of ASD. I elaborate on the common experiences of parents of children with ASD, including the impact of social support, environmental and health factors, and their effects on depression. Next, I discuss the social determinants of health (SDOH) model (ODPHP, 2022), the theoretical framework of the current study. Finally, I highlight the theoretical components of the SDOH model and connect existing literature to demonstrate the implications for depression among parents of children with ASD.

Parents of children with ASD adjust to a life they may not have expected when they gave birth to their child (Kingsley, 1987). Hence, parents often experience financial distress and social isolation (Meadan et al., 2010). Research shows how parents of children with ASD experience significant mental health symptoms, often greater than their counterparts who have typically developing children (Barańczuk & Pisula, 2020). Based on some of the societal barriers and systemic challenges associated with the caregiving role of parents of children with ASD, parents have reported feelings of depression, pain, and dissociation from their role as caregivers for their children (Heifetz et al., 2019; Resch et al., 2012). In addition, parents of children with ASD reported significantly greater parenting stress than parents of typically developing children. The challenging behaviors of the child, especially hyperactivity (McStay et al., 2014b) and aggressive behavior (Marsack & Samuel, 2017), largely explain differences in parental stress. In agreement with these findings, Miranda et al. (2019) reported that parenting stress positively

correlated with their children's ASD symptoms and behavioral problems, and depression was higher among parents of children with more problematic behaviors (Lovell & Wetherell, 2020). Extant literature examines the causes, predictors, and challenges experienced by parents of children with ASD, yet few explore social determinants of health- protective factors (SDHPF), specifically family-based support, as a protective factor against depression (e.g., Ekas et al., 2016; Martin et al., 2019). Also, no studies explore child symptom severity (CSS) and financial resources as contributing factors to the strength of the association between SDHPF and mental health concerns. The present study provides a foundation for understanding family-based support as SDHPF for depression of parents of children with ASD and how CSS and financial resources contribute to the strength of the relationship.

Autism Spectrum Disorder

The American Psychiatric Association's (American Psychiatric Association, 2013) *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM- 5) defines ASD as a neurodevelopment disorder distinguished by difficulties with social communication and interaction. ASD also includes the prevalence of patterns in behaviors, interests, and restricted and repetitive activities. The core deficits associated with ASD are impairment in social interaction and communication and the presence of unusual behaviors and/or interests (APA, 2013). ASD is four times more likely to occur in boys than in girls, and it occurs across all racial and ethnic groups. It also occurs in different socioeconomic statuses (National Institute of Mental Health, 2022). ASD is considered to be a severe disability secondary to the intense lifelong effects it has on the diagnosed individual and his or her family (Wilder et al., 2004). Parents of children with ASD reported often experiencing social stigma (Pyszkowska et al., 2021), stress (Ilias et al., 2018; Yorke et al., 2018), negative parental self-views, distress, lower satisfaction

with parent-child bonds, and experiences of challenging child behaviors (Da Paz & Wallander, 2017; Hsiao, 2017; Wei et al., 2015). ASD continues to rise, and the symptoms and severity of the child's disability impact the lived experiences and mental health concerns of parents of children with ASD.

Symptoms of ASD impact the daily functioning of a child and are often apparent early on in a child's development. It is classified on a spectrum because of the diversity in diagnostic areas of ASD as well as the variance in the severity and level of functional impairment of ASD symptoms. ASD impacts the child's cognitive, behavioral, and medical health of a child (APA, 2013). The severity and comorbidity of ASD and systemic barriers can make it difficult for parents to navigate their caregiving responsibilities and roles with their child(ren) with ASD. Behavioral difficulties present in the form of the core symptoms of autism (e.g., aggression, disruption, hyperactivity, self-injury, or sensory differences). Ameis et al. (2021) report that executive functioning in kids with ASD is associated with clinical symptoms and academic and adaptive functioning. Families often have to interact with a variety of systems in order to get their children the appropriate educational, medical, and behavioral services. The taxing responsibilities of parents to navigate the different systemic barriers can impact family functioning and parents' mental health depending on their ability to access resources and their socioeconomic health equity.

Diagnostic criteria

To meet diagnostic criteria for ASD according to the DSM-5, a child must have persistent deficits in the areas of social communication and interaction, social-emotional reciprocity, nonverbal communicative behaviors, and deficits in their ability to develop, maintain, and understand relationships. In addition to this deficit, the severity of a child's autism is diagnosed

based on social communication impairments and restricted, repetitive behavior patterns (APA, 2013). Although the DSM-5 is the widely accepted and ultimate means of ASD diagnosis, it is deficient as it only outlines the target symptoms needed to identify the presence of ASD. In addition, the DSM-5 does not provide a formal assessment for ASD. Therefore, studies report the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised as brilliant standards for ASD assessments (McCarty & Frye, 2020). The ADOS is a structured play assessment that allows the examiner to apply different forms of social skills during the assessment to induce social interactions and behaviors. The Autism Diagnostic Interview-Revised (ADI-R) assesses the developmental and behavioral skills of ASD caregivers via a structured interview process. The interrater reliability for the ADI-R ranges from 0.96 and 0.99 (Zander et al., 2017). Although widely accepted and trusted because of the structured nature and intense training of examiners of these tests, assessments like ADOS encapsulate unpredictable factors such as reliance on caregiver memory and thus can be biased (Randall et al., 2018). Unfortunately, to date, diagnosing ASD has proven difficult because of the lack of medical testing, such as blood tests, to diagnose the disorder. Nor are there reliable biological markers to diagnose ASD. Instead, medical practitioners look at the child's observable behaviors and developmental history to make a diagnosis (CDC, 2020). Although not within the scope of the paper, additional screening and diagnostic tools are available to clinicians to screen children for ASD. Naglieri and Goldstein, (2009) present a comprehensive review of assessment instruments.

Prevalence

According to the CDC (2020), 1 out of every 54 children in the United States fulfills the criteria for ASD - a three-fold increase in the prevalence of ASD over the past 20 years (CDC,

2021). In Maenner et al.'s (2018) survey of 11 states in the US, he found that children born in 2014 were 50% more likely to be diagnosed with ASD and receive special education classification in contrast to children born in 2010. Also, race and income significantly impact the diagnosis of ASD. White children reported fewer diagnoses than Black, Hispanic, Asian, or Pacific Islander children (Mandell et al., 2002; Mandell et al., 2009). Furthermore, children in lower-income communities had a higher ASD rate than those in higher-income communities. However, reports show that there are disparities in access to ASD assessments and special education for ASD among ethnic groups, thus impacting early identification of ASD among underrepresented minority groups with lower socioeconomic status (Dickerson et al., 2006; Liptak et al., 2008). For example, Black and Hispanic children without ID were less likely to be identified with ASD than were White children, while Black children were 1.5 times as likely as White children to be identified with ASD and ID. Thus, comorbidity of ASD and ID significantly impacts early identification and diagnosis for Black and Hispanic children (Shaw et al., 2023). ASD is now considered the third most common developmental disability affecting children in the United States (Zablotsky et al., 2019). Therefore, it is critical to be aware of the prevalence of ASD and the impact of social equity in the early identification, diagnosis, and access for children with ASD, as well as the unique experiences of their parents.

Social Determinants of Health as a Framework

The current study used social determinants of health (SDOH) as the guiding conceptual framework. SDOH highlights the various aspects of an individual's life that can impact their overall health. SDOHs are defined as conditions in the environments in which people live that affect a wide range of health, functioning, and quality-of-life outcomes and risks (CDC, 2020). “Social determinants of health (SDOH) are the conditions in the environments where people are

born, live, learn, work, play, worship, and age that affects a wide range of health, functioning, and quality-of-life outcomes and risks (ODPHP, 2022).” Practitioners' understanding of SDOH provides awareness that helps determine the provision of resources that enhance the quality of life and can significantly influence population health outcomes (CDC, 2020). The SDOH framework highlights structural stratifiers and their proxy indicators: income, education, occupation, social class, gender, and race/ethnicity (ODPHP, 2020). Together, context, structural mechanisms, and the resultant socioeconomic position of individuals are what we refer to as the “social determinants of health inequities” (ODPHP, 2020). The underlying social determinants of health inequities operate through a set of intermediary determinants of health to shape health outcomes. Healthy People 2030 identified five domains of SDOH: economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context (ODPHP, 2022). The World Health Organization (WHO) further identifies SDOH in three categories. The WHO's main categories of SDOH are material situations; psychosocial situations; behavioral and biological factors; and the health system as a social determinant. Material situations include affordable housing and neighborhood quality, financial stability, access to nutritious food, and the physical work environment. Psychosocial circumstances include psychosocial stressors, stressful living circumstances and relationships, social support, and coping skills. Behavioral and biological factors include nutrition, physical activity, and drug consumption, which are distributed differently among different social groups. Biological factors also include genetic factors (WHO, 2012).

Socioeconomic equity refers to “the absence of unfair and avoidable or remediable differences in health among population groups defined socially, economically, demographically or geographically” (WHO, 2012). In essence, health inequities are health differences that are

socially produced, systematic in their distribution across the population, and unfair. When discussing SDOH, it is impossible to leave out health equity which is also referred to as socioeconomic health equity. Inequities, such as housing, healthcare, transportation, education, and income, play a prominent role in our client's mental health, stress, and decision-making (Marmot & Allen, 2014). Additionally, the political economy, such as globalization, trade relations, and healthcare systems that promote equity or inequality, are all macro-systemic factors that affect clients' lives (WHO, 2018). Therefore, when highlighting SDOH, it is vital to discuss the different aspects of SDOH. For this research, the following sections will highlight SDOH protective factors and SDOH domains with a focus on specific aspects of SDOH, which are financial resources, family-based support, and the severity of the child's ASD symptoms.

SDOH: Risk and Protective Factors

SDOH risk and protective factors contribute to the health inequities and mental health concerns of parents of children with ASD (Bekhet & Matel-Anderson, 2016; Julihn et al., 2018; Logrieco et al., 2022; Machado Junior et al., 2014; WHO, 2018; Yarger & Redcay, 2020). A common theme throughout the SDOH literature is the global socio-economic disparities that exist in the health and healthcare sector and how that affects children with disabilities, including ASD (Jafarabadi et al., 2021; Owusu-Addo et al., 2018; Pedrana et al., 2016; Zuckerman et al., 2015). In addition, Yarger and Redcay (2020) describe the prevalence of comorbidity of ASD with "internalizing conditions" such as anxiety and depression that significantly impact the child's social and emotional development and complicate early diagnosis and treatment of ASD. Thus, the different areas of SDOH (e.g., biological, environmental, systemic, and societal) can impact parents' ability to face and overcome adversity.

Walsh (2016) discussed effectively dealing with adversity as an interaction of risk and protective factors. Risks are extensively identified as factors that can impact the chance of developing increased negative outcomes such as stress and depression following adverse events (WHO, 2009). Risk-related life events include chronic health issues, financial instability, discrimination and racism, abuse, difficult social interaction and acceptance, and family conflict. Research has shown that parents of children with ASD experience more of these different forms of adverse effects throughout their role as caregivers and parents for their child with autism, which in turn, results in more negative outcomes than other parents of children with developmental disabilities (Hsiao, 2017). Therefore, it is critical to bring awareness to the potential risk factors that parents of children with ASD experience. This study identified child symptom severity and lack of financial resources as SDOH risk factors that can influence the depression of families of children with ASD.

On the other hand, protective factors are societal experiences that positively correlate with lesser emotional symptoms, while risk factors align with higher emotional symptoms (Durlak, 1998). Thus protective factors alleviate mental health symptoms, while risk factors deteriorate mental health concerns (Machado Junior et al., 2014). Protective factors include but are not limited to the ability to problem-solve, good temperament, and coping skills. It also encapsulates resources such as cohesive family relationships and patterns as well as access to an effective support system (Plumb, 2011). Thus, these protective factors increase the emotional regulation of parents and can enable parents of children with ASD to alleviate or navigate the mental health concerns experienced. Consequently, this study identifies family-based support as a social determinant of health-protective factor (SDHPF).

SDOH disparities heighten the risk factors that parents of children with ASD encounter. The CDC (2020) defines SDOH disparities as the underlying factors contributing to health inequities. SDOH disparities include factors such as poverty, unequal access to health care, lack of education, no social support, stigma, and racism (CDC, 2020). Many researchers have highlighted how there have been socioeconomic disparities in the quality of and access to services among children with ASD who use ASD services (Falk et al., 2014; Mailick Seltzer et al., 2001; Whiting & Muirhead, 2019). Jafarabadi et al. (2021) conducted a cross-sectional study in 2019 on 202 children with ASD in two provinces, Ardabil and East-Azerbaijan, in the North-West of Iran and described that children with ASD with SDOH disparities have less access to services and received inferior quality of health services. Also, children with ASD with SDOH disparities experienced problems in access to services, problems with referrals, lack of insurance coverage, cultural and family issues, problems in access to a trusted provider, and long waiting times. Ergo, experiencing this level of consistent concern and risk factors as a caregiver for a child with autism can lead to depression and added stress for parents of children with ASD. Therefore, Jafarabadi and colleagues (2021) suggested that conducting SDOH screening and providing families of low-SDOH status with specific information about the quality of and access to services for children with ASD can be helpful to parents as they navigate through seeking and utilizing quality services for their children.

Moreover, Andermann (2016) expanded on the impact of clinicians' understanding of their patients' complex and intertwined health and social challenges on improving health equity and quality patient care. This level of clinician awareness and evidence-based practice is critical to understand because of the level of depression that parents of children with ASD experience in their roles as caregivers and how various social inequities can increase risk factors and impact

the mental health challenges reported (Barańczuk & Pisula, 2020; Heifetz et al., 2019; Resch et al., 2012). In addition, Zuckerman et al. (2015) examined the variation in parents of children with ASD's protective factors, specifically parents' beliefs about the cause of a child with ASD illness and parents' inclination for treatment according to their social determinants of health. Their primary measures of SDOH included child race/ethnicity, household income, and parent educational attainment. They found that based on the parent's level of SDOH, their beliefs about their child's disability differed, and the need to seek and utilize treatments varied. For example, parents with high SDOH were more likely to seek treatment for their child with autism, while parents with lower SDOH saw their child's illness as mysterious and temporary and felt powerless in seeking treatment (Zuckerman et al., 2015). These findings highlight the importance of SDOH to the beliefs and decision-making of parents of children with ASD about their children with ASD.

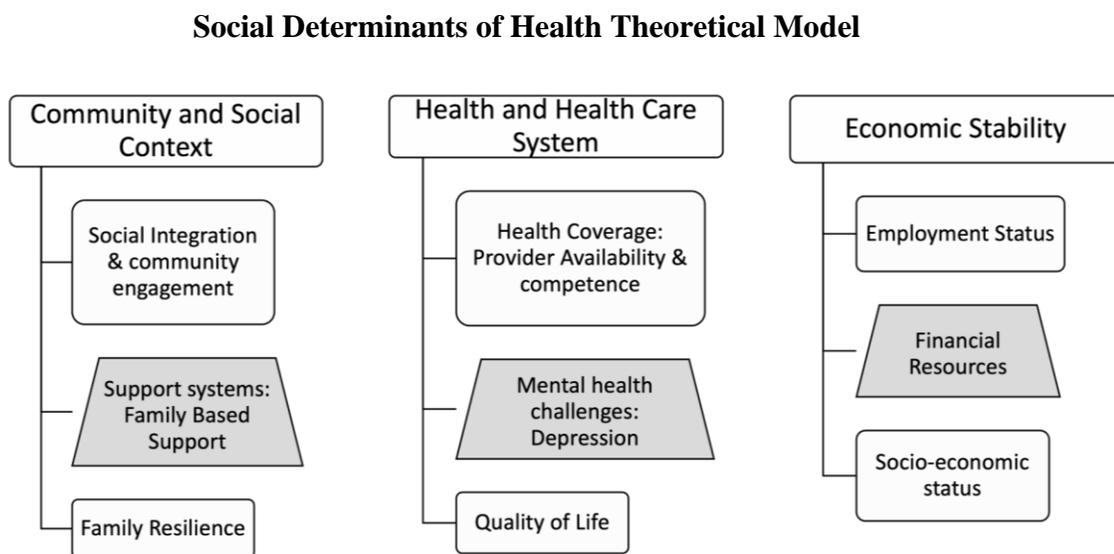
The SDOH risk and protective factors are shaped to identify various socio-economic disparities and confront contributors to parents of children with ASD's mental health concerns (Barańczuk & Pisula, 2020; Pisula, E., & Porębowicz-Dörsmann, A., 2017; Resch et al., 2012; Jafarabadi et al., 2021). Through the lens of multiple systems, it assessed the different aspects of systemic issues and human behavior that contributed to the coping and resilience of parents of children with ASD. For example, the dire impact of SDOH disparities on accurate ASD diagnosis, quality access to care, decision-making process, and depression of parents of children with ASD (Heifetz et al., 2019; Walsh, 2016; Owusu-Addo et al., 2018; Zuckerman et al., 2015). It holistically examined how parents of children with ASD successfully navigates and adjust to difficult situations based on the different historical, cultural, and family life event that they encounter.

SDOH Domains

Healthy People 2030 split SDOH into five domains: economic stability, education, social and community context, health and health coverage, and neighborhood and built environment (ODPHP, 2022). This study focuses on three domains, which are further broken down into sub-constructs, and how these domains impact the symptoms of depression reported by parents of children with ASD. Figure 2 provides a layout of the SDOH factors addressed in the literature review, emphasizing the colored items analyzed as variables in Chapter Three.

Figure 2

Proposed SDOH subconstruct; Adapted from Healthy people 2030 SDOH Model



Community and Social Contexts of Parents of Children with ASD

The community and social context domain is divided into three sub-domains: social integration, support systems, and family resilience. Social integration underscores the impactful nature of community engagement for the health and health care of parents of children with ASD (Blau, 1960). Conversely, the family's resilience can impact navigating life challenges and overcoming adversity. For example, research shows that the effective functioning of a family is

contingent on the type, severity, and chronicity of the adverse challenges faced by families and the family's ability to successfully encounter positive growth and transformation out of adversity (Walsh, 2020). Finally, support systems refer to the different forms of support and how different social support networks in formal and informal settings can be critical to the mental health of parents of children with ASD. For example, family-based support significantly impacted the relationship between caregiver burden and quality of life (Marshack et al., 2017), reduced levels of adverse impact (Bishop et al., 2017), psychological distress (Bromley et al., 2004; Smith et al., 2011), negative mood (Pottie et al., 2009), and depressive symptoms (Benson, 2006; Benson & Karlof, 2009; Ekas et al., 2010; Weiss, 2012). Thus, factors such as social integration, resilience, and support system are vital to discuss when highlighting the factors that potentially contribute to the depression of parents of children with ASD.

Social Integration: Community Engagement

Research has proven that neighborhood structure and social integration in an environment can impact the development, behaviors, and health of community members. Disadvantaged neighborhoods can increase the risk factors of the children living in that environment, while advantaged neighborhoods with social capital can increase the protective factors of children in such neighborhoods (Baxter et al., 2015; Kim et al., 2019; Lavelle et al., 2014). Therefore, it is important to know how social integration through partnership, commitment, and support in a community impacts parents of children with ASD. Research has described the pros experienced by persons with disabilities when they engage in their community and the cons when they are not actively involved in their communities.

Emerson et al. (2020) examined the association between low social connectedness and the well-being of people with disabilities. Their article found that people with disability were

significantly more likely than their non-disabled peers to report loneliness, low social support, social isolation, and exposure to multiple forms of low social connectedness. Individuals who reported experiencing higher levels of loneliness and social isolation were young adults who were economically inactive, had little access to environmental access, and had higher rates of neighborhood deprivation. This study underscores the extent of disadvantage faced by people with disability with regard to low levels of social connectedness and how it impacts the well-being of persons with disabilities. In addition, this study highlights the importance of social capital and advantaged neighborhood for persons with disabilities because of the high social isolation and loneliness experienced by persons with disabilities based on their interaction with their community.

In agreement, Gonyea et al. (2016) described the perceptions of neighborhood safety and depressive symptoms among older minority urban subsidized housing residents and the impact of community belonging as a mediating factor. They found that individuals with a poorer perception of neighborhood safety experienced higher depressive symptoms than those with a positive perception of neighborhood safety. In addition, they found a direct correlation between a sense of community belonging and depression. Also, a sense of belonging mediated perceived neighborhood safety and feelings of depression. Maslow's Hierarchy of needs describes the need to belong as critical in the development of human beings. Hence, a sense of belonging is imperative for psychological well-being (Maslow, 1998).

Further, Massey et al. (2018) described the impact of neighborhood disadvantage on telomere length for fragile families. Telomere is a chromosomal indicator of immune functioning. They protect the chromosome and are critical for cell division. Massey and colleagues analyzed the relationship between exposure to disadvantaged neighborhoods and

residential segregation between Black and White mothers with children with disabilities and telomeres. Their result shows that mothers from disadvantaged neighborhoods from both races experience a short telomere length. However, mothers who identify as Black reported higher exposure to unique “spatially concentrated” disadvantages, which contributed to their racial health disparities.

These findings underscore the importance of investing in social capital for communities to build neighborhood cohesion and create a sense of belonging for their residents. A sense of connection to one’s environment is an SDOH protective factor, as the sense of belonging significantly increases the perception of safety and reduces depressive symptoms (Gonyea et al., 2016). It also increases telomere length for family members (Massey et al., 2018) and perceived social support and reduces social isolation and loneliness (Emerson et al., 2020). Consequently, the present study identifies a sense of social connectedness and belonging from a perception of and interaction with immediate family members and neighbors.

Support System

Being a parent or caregiver for a child with ASD can be a difficult but a rewarding experience for the family. Although studies found the core deficits of autism to be associated with increased feelings of parental distress, they can also be the propellant for families seeking supportive networks. Copious research has shown that parents of children with ASD experience major depressive disorder and that healthy social support can help build coping skills and resilience to mitigate the symptoms of depression reported (Marsack & Samuel, 2017). Support can be in a formal or informal manner, and formal support is captured in innumerable pieces of literature.

Formal Social Support

Mesibov and Schopler, (1984) define *formal social support* as the assistance that is social, psychological, physical, or financial assistance provided either for free or in exchange for a fee through an organized group or agency. Social support has long been recognized as necessary in alleviating stress among parents of children with ASD (Cohen & Wills, 1985; Pearlin, 1989). Herman and Thompson (1995) found that parents report that family-based support provided the most assistance, while formal support opportunities, such as parent groups, social clubs, and daycare centers, were not readily available. In addition, a study examined family hardiness, perceived social support, and parent self-efficacy as predictors of family distress in 138 mothers of individuals with ASD, 4–41 years of age, and found that perceived self-efficacy and social support mediated the link between stressors and family hardiness, and hardiness partially mediated the association between stressors and family distress (Weiss et al., 2013). Given the associations between social support and various aspects of mental health and coping (Merz & Huxhold, 2010; Umberson & Montez, 2010), researchers have begun investigating social support's impact on well-being and alleviating mental health challenges among parents of children with disabilities, including ASD.

Family-Based Support

Informal or family-based support is “a network that may include the immediate and extended family, friends, neighbors, and other parents of children with disabilities” (Mesibov & Schopler, 1984, p. 297). Drogomyretska et al. (2020) investigated the relationship between perceived social support (PSS) and parental stress in a sample of 454 parents of children diagnosed with ASD. Results indicate that PSS derived from friends, significant other, and family were the most important factor in protecting against stress. In addition, family-based supports were a higher predictor of parental stress after controlling for other forms of formal and

professional support (Drogomyretska et al., 2020). Further, in studies of older parents of children with ASD, Marsack & Samuel (2017) investigated the relationship between quality of life (QOL) for parents of adult children with ASD and the level of formal and family-based support available to the parents. Using quantitative correlational research designs, they administered surveys to older parents of children with ASD aged 50-70. In this article, they examine how informal and formal social supports mediate the relationship between QOL for parents of adult children with ASD and caregiver burden, and they found that family-based support significantly impacted the relationship between caregiver burden and QOL. Their study reported that older parents experienced less caregiver burden if they had help from friends and family in providing care to their adult children. These findings indicated that reducing the caregiver burden through family-based support could heighten older parents' QOL. The results from this study underscore the importance of social support and the criticality of informal support to the quality of life of caregivers of children with ASD.

According to Sharabi & Marom-Golan, (2018), parental involvement in a child with ASD's life can be contingent on the level of social support that they receive. Their study surveyed 107 Israeli parents of children with ASD to examine and compare mothers and fathers of children with ASD's social support and education levels in relation to their level of involvement. They found that mothers had more family-based support, i.e., relationships with relatives, and they reported higher levels of involvement than fathers who reported receiving more excellent formal support, e.g., kindergarten teachers, than mothers. Their results show an uneven contribution to the child's care between mothers and fathers, with mothers reporting taking on most of the responsibility. However, mothers who had higher levels of general support, particularly support from informal kinships like friends or other parents of children with ASD,

were more involved in caring for their child with ASD. These findings are germane, as existing literature has shown that higher levels of maternal involvement are associated with higher levels of parental distress (Foody et al., 2014). Conversely, Smith and colleagues (2011) investigate the impact of social support on the psychological well-being of 269 mothers of adolescents and adults with ASD. They reported that social support predicted changes in well-being above and beyond the impact of child behavior problems (Smith et al., 2011). It is salient that we understand the type and level of social support most related to parents' care of their child with ASD.

In studies of parents of children with ASD, higher levels of social support is associated with lower levels of adverse impact (Bishop et al., 2017), psychological distress (Bromley et al., 2004; Smith et al., 2011), negative mood (Pottie et al., 2009), and depressive symptoms (Benson & Karlof, 2009; Ekas et al., 2010; Weiss, 2012). Conversely, recent work has found that parents who experience a higher level of social support also report a higher level of positive mood (Ekas et al., 2010; Pottie et al., 2009). However, most of the past research examining social support among parents of children with ASD has focused on families during early childhood and has used cross-sectional designs with small sample sizes, thus leaving questions regarding the nature of these relationships for families later in life.

Conversely, Luther (2005) used the Social Support Index and the Family Crisis Oriented Personal Evaluation Scales to examine how parents of children with ASD acquired social support and implemented coping skills in their daily lives. They found that social support has been correlated with improved coping for parents. However, parents of children with ASD reported individual differences in accessing support services because of difficulties such as the inability to speak English, lack of transportation for parents, and low-income levels. Even though

research highlights the importance of social support and the immeasurable benefits of social support on health, coping skills, and involvement in a child with ASD's life, there are barriers that parents of children with ASD experience in acquiring and using formal social support in their role as caregivers for the child.

Family Resilience

Family resilience (FR) as a concept is another critical factor to understand when discussing the impact of SDOH on parents of children with ASD. It moves away from a deficit orientation and mindset about families of children with ASD to a more holistic and contextualized approach that focuses on the strength and transformation of a group of people. This theory is a dynamic system model that looks at how highly stressful events impact the family and how the family can withstand and bounce back from adversity (Walsh, 1996, 2002, 2003, 2016a, 2016b, 2020). Lawson et al. (1999) defines family resilience as “characteristics, dimensions, and properties of families which help families to be resilient to disruption in the face of change and adaptive in the face of crises” (p. 247). The concept of resilience has roots in two bodies of literature: the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer, 2004).

In the mid-1970s, “childhood resilience” emerged as a major theoretical and empirical topic of study. The research predominantly focused on identifying qualities characteristic of “resilient children.” This work catalyzed further research into understanding individual variations in response to adverse situations. In 1971, Werner conducted a study of 700 children in Hawaii that examined multiple adverse conditions impacting adaptation. Areas of focus included socioeconomic disadvantages and associated risks such as maltreatment, poverty, violence, chronic illness, and other catastrophic life events (Werner, 1990). These socioeconomic

factors are part of the SDOH disparities that can impact families' experiences and their ability to develop resilience (CDC, 2020). Werner's (1990) work is often hailed as the groundbreaking study of resilience in children. Researchers began to acknowledge the role of external and environmental factors on resilience in children. Masten and Garmezy (1985) described three sets of external factors implicated in the development of resilience: attributes of the children themselves, aspects of their families, and characteristics of their wider environment (Werner, 1990). Thus, neighborhood context, family functioning, and the traits, characteristics, and severity of a child's ASD symptoms can play a role in their resilience development.

A resilience-oriented lens is unequivocal because it highlights how families handle adversities. However, resilience involves the ability of an individual to encounter positive growth and transformation out of adversity (Walsh, 2020). Conversely, the family resilience framework underscores that effective functioning is contingent on the type, severity, and chronicity of the adverse challenges faced by families. In addition, the family's resources, constraints, and goals in its social context and life passage can impact the ecosystemic and developmental dimensions of the family's experience (Walsh, 2020). For example, Behket et al., (2012) in their comprehensive literature review of twenty-two articles found that parents of children with ASD possess indicators of resilience such as self-efficacy, acceptance, sense of coherence, optimism, positive family functioning, and enrichment were better able to manage the adversity associated with caring for children with ASD. In addition, a study examined the role of informal support as a predictor of resilience among families of children with ASD among 153 caregivers of children with ASD between the ages of two and 18. They found that satisfaction with informal support significantly predicted family resilience among parents of children with ASD (Fong et al., 2020). Therefore, these findings highlight the importance and innumerable benefits of family-based

support as an SDOH protective factor for overcoming adversity for parents of children with ASD.

Health and Health Care System & parents of children with ASD

The health and health care system highlights the progression of parents of children with ASD's health experiences. In addition, it underscores the experiences of parents of children with ASD with healthcare providers and the impact on their quality of life and feelings of depression. Also, the researcher emphasizes the severity of the child's disability and their level of access to health care coverage. For example, research has shown that stigmatization, the severity of a child's disabilities, and societal expectations of parents of their child, as well as the definition of the role of a parent without adequate access to resources, can put self-imposed pressure on parents to figure it out on their own (McStay et al., 2014; Ali et al., 2013; Weiss et al., 2012). Therefore, understanding these health disparities is vital in assessing and treating parents of children with ASD depression.

Health Coverage: Provider Availability, Competence, and Severity of Child's Autism

Parents of children with ASD must provide adequate care for their child with ASD because of the incomparable benefits that the children experience from the care from their parents. In their study of 107 parents (61 mothers, 46 fathers) of children with ASD aged 2 to 7 years. They measured parents' involvement, formal and informal social support, and education levels and emphasized the importance of parental care, availability, and competence in the developmental and educational outcomes of the child with ASD (Sharabi & Marom-Golan, (2018). In addition, understanding the relationship between health coverage and the severity of a child's symptoms can help inform the role of health care in parents' willingness to seek care for their child with ASD.

Horlin et al. (2014) describe the horror that parents of children with ASD encounter when seeking help and diagnosis for their child and the impact of the delayed diagnosis on the lifetime outcome of their child with ASD. They share that receiving a diagnosis of ASD is usually associated with substantial lifetime costs to an individual, their family, and the community. Nonetheless, the cost of obtaining a diagnosis is very expensive and inaccessible. Surveying 317 families with a total of 527 diagnosed children with ASD in Western Australia, Horlin et al. (2014) found that children with a delay in diagnosis indirectly increased the financial burden of their families, and early and appropriate access to early intervention significantly improved a child's long-term outcomes as well as reduced lifetime costs to the families. Also, they found a significant association between increased costs and ASD symptom severity. Thus, when parents are unable to access early diagnostic services, intervention, and health care provision for their child with ASD, the child's disability significantly impacts the family's productivity and improvement.

Furthermore, Zuckerman et al. (2015) used the 2011 survey of pathways to diagnosis and treatment data to assess the differences between a child's age at the parental first concern of developmental and behavioral issues of their child and the age at which parents bring up the discussion of concerns with a healthcare provider among children with ASD spectrum disorder (ASD). Among 1420 children with ASD and 2098 children with ID/DD, they assessed whether provider response to parental concerns is associated with delays in ASD diagnosis. Although the literature suggests that early signs of ASD may be difficult for parents to detect (Johnson & Myers, 2007), they found that parents of children with ASD reported concerns to healthcare providers about their child's symptoms and concerns early in the children's lives and when they were younger. However, these parents received less proactive responses to the concerns shared

but instead received reassuring/passive responses from providers. Also, the higher the reassuring/passive response received, the higher the chances of a long delay in a child's ASD diagnosis. Children with ASD receive a diagnosis on average age 5.2 and 6 years compared to kids with ASD and ID/DD. This study shows that 44.0% of children with ASD experience a delay of three years between parents' first discussion of concern with a provider and the year of diagnosis (Zuckerman et al., 2015). Unfortunately, regardless of the early ability of parents to seek help and treatment for their child with ASD, they end up experiencing delays in diagnosis, which speaks to the competence and focus of the healthcare providers on the concern of parents of children with ASD. Providers may have different reasons for not acting on parents' developmental concerns, such as lack of screening, referral, diagnostic resources, or underestimating parents' concerns (Guerrero et al., 2011; Zuckerman et al., 2015). Nonetheless, having a misdiagnosis or delayed diagnosis of a child with ASD can cause significant distress and stress for parents as they navigate the different symptoms of their child's disability, which can impact the parental level of care. Moreover, the competence and availability of healthcare providers are paramount to the growth of children with ASD. Healthcare providers must become aware and take into consideration the concerns of parents.

Accordingly, in examining the determining factors associated with health care providers' attention and action on the report of parents' developmental concerns among 20,543 children in the US, Guerrero et al. (2011) described the disparities that parents encounter in access to diagnosis and treatment for their child. Their findings show that parents who identify as African American (41%) and Latino (49% in households with English as the primary language and 33% with a non-English primary language) reported significantly less "elicitation" from health care providers than White parents (55%) when they reported concern about their child's

developmental issues. Equally, compared with White children, African American and Latino children were more likely to be poor, uninsured, and without a medical home. In addition, minority children were more likely to have a moderate or high risk for a developmental or behavioral disorder. Further, racial, ethnic, and linguistic identities are significantly associated with disparities experienced by parents, which impact access to health coverage for their children with developmental concerns.

According to Taghizadeh et al. (2019), the level of care and attention given to parents and caregivers of children with ASD during hospital visits impacts their perception of their child's quality of care and willingness to seek help. In this study, Taghizadeh et al. (2019) used a mixed-method approach to explore the experiences of children with ASD and their caregivers during attendance for day procedures in two hospitals in Melbourne, Australia. They also explored the perception of their healthcare providers. Parents of children with ASD reported that limitations of staff awareness of special needs, lack of suitable equipment and environment, prolonged waiting times for surgery appointments, surgery wait time on the day of operation, lack of privacy, lack of good communication skills, and inadequate training of staff about autism spectrum disorder were barriers to seeking help.

Providing the evidence-based best care for children with ASD spectrum disorder requires a multifaceted approach that requires changes to regular hospital schedules, staff training, technological access, and premedication (Taghizadeh et al. (2019). Thus, good communication and flexibility are key areas of importance when working with children with ASD and their parents. Long admission and pre-surgery wait times can trigger a range of behaviors in children with ASD who experience more severe symptoms in unfamiliar or surgical settings. Also, the availability of creative check-in processes, quiet waiting areas, and priority surgery schedule for

children are strategies that can decrease challenging behaviors. Healthcare providers need to be knowledgeable of the symptoms of ASD and how to navigate providing help and care to children with ASD when they visit medical centers. Further, linking healthcare providers to community resources may help provide better ways to identify and refer at-risk children to receive help from an evidence-based practitioner. In addition, healthcare providers should be provided with support from policy and stakeholders to provide early access and diagnosis to children with ASD.

Quality of Life

Umpteen literature emphasizes various factors and their impact on the quality of life of parents of children with ASD. According to WHO (2008), quality of life (QoL) is how individuals perceive their position in life in relation to their cultural values, goals, expectations, standards, and concerns. It is the standard of health, ease, and happiness experienced by an individual or group. Hsiao (2017) studied the pathways to mental health-related quality of life of 429 parents of children with autism spectrum disorder aged 6–17 years in the United States. The study found that factors such as parental stress, the severity of the child's disability, and medical and neighborhood support significantly predicted the QoL of parents of children with ASD. Parents of children with ASD that reported high parental stress and more severe symptoms of the child's disability encountered poor mental health related QoL. In support, Marsack & Samuel (2017) reported that social relationships and social support are essential factors for the general health, well-being, and QoL of parents of children with ASD.

Further, Pisula & Porębowicz-Dörsmann (2017) assessed the family functioning, parenting stress, and quality of life in mothers and fathers of Polish children with high-functioning autism or Asperger syndrome. Using the General Scale and Self-Rating Scale, and Dyadic Relationships Scale of FAM-II, they found that parents of children with ASD reported

lower levels of family functioning, cohesion, and adaptability compared to parents of children without autism and their family's expressive feelings as lower due to their child's communication difficulties. They also reported lower QoL as there is an increase in additional childcare burden on parents of children with ASD and perceived insufficiency of resources required to pay more attention to other family members. Neglecting other responsibilities, such as providing financially for the family, maintaining social relations, and organizing leisure and recreation, leads to a less favorable perception of themselves as family members and a sense of not investing enough in family relations.

In addition, Kuru and Piyal. (2018) investigated perceived social support and QoL among 90 biological parents (31 mothers; 59 fathers) of children with ASD in Turkey. Using the EUROHIS Quality of Life Scale (EUROHIS QOL-8) and the Multi-Dimensional Scale of Perceived Social Support (MSPSS) for data collection, they assessed the impact of education level, gender, and employment status on QoL. As chronicled by other authors, researchers observed a positive relationship between perceived social support and QoL in parents of children with ASD. Also, there was a significant correlation between social support and QoL and the father's employment status. Official officers and highly educated fathers reported high QoL and perceived social support. In addition, they found that the higher the perceived social support of families of children with ASD, the higher their reported QoL. Also, women detailed that they were predominantly the primary caregivers of children with ASD and reported lower QoL than men.

As shared above, parents of children with ASD QoL are contingent on various factors regardless of the parent's country of origin. Parental distress, stress, social support, family income, the severity of the child's disability, and access to resources are all significant factors in

achieving high and desired QoL for parents of children with ASD. Further, having a good sense of coherence, coping skills, and social support (Eapen et al., 2014; Siah & Tan, 2016) is resourceful for parents' well-being and QoL. Therefore, becoming more aware of the family experiences of parents of children with ASD is germane. Also, having health practitioners implement appropriate programs and provide support that focuses on determining the specific needs of families according to plan may aid in developing appropriate interventions to further support parents of children with ASD.

Mental Health Challenges: Depression

Parents of children with ASD experience unique challenges not often faced by those without a child with disabilities. For example, these groups of parents are more likely to experience divorce (Hartley et al., 2010), financial distress, and social isolation (Meadan et al., 2010). Research shows that parents of children with ASD experience more significant mental health symptoms than their counterparts who have developing children (Barańczuk & Pisula, 2020). Parents have reported feelings of depression, pain, and dissociation from their role as caregivers for their children (Bob, 2008; Heifetz et al., 2019; Resch et al., 2012). Barańczuk & Pisula (2020) examined the relationship between parental stress and depressive symptoms among 39 mothers of children with ASD. They found that stress from being a parent and caregiver for a child with ASD not only exacerbates the depressive symptoms, but it also increases cognitive deficits and a lack of energy, thinking about death, pessimism, and a feeling of alienation, anxiety, and guilt symptoms, psychosomatic symptoms and a loss of interest, and lower self-regulation abilities. Further, parental self-regulating impacts a child's ability to regulate emotions and behaviors (Graziano et al., 2010). Thus, highlighting and addressing the symptoms and

feelings of depression experienced by parents of children with ASD is important because of the important role of parents' self-regulation abilities on the child's ability to self-regulation.

In addition, several factors contribute to the essentially explained differences in parental depression, and one of these factors is the severity of the child's disability and intricate behaviors of the child, especially hyperactivity (McStay et al., 2014). Looking at 150 parents of children with ASD, McStay et al. (2014) examined the impact of child characteristics (age, autism severity, child quality of life, and problem behavior) on parenting stress. They found that the significant parenting demands by children with ASD problematic behaviors and outsiders' perceptions of their parenting skills significantly increased the stress level and depression of parents of children with ASD. In agreement with the findings, Miranda et al. (2019) reported that parenting stress positively correlated with their children's ASD symptoms and behavioral problems, and depression was higher among parents of children with more problematic behaviors (Lovell & Wetherell, 2020).

In an international Australian sample, Jellet et al. (2014) explored the relationship between child behavior problems and family functioning among 97 families with a pre-schooler diagnosed with ASD. Parent mental health difficulties, including stress, fatigue, and depressive symptoms, were investigated as mediators in this relationship. Their result showed that depressive symptoms mediated child behavioral problems and family functioning. Therefore, the more severe the child's disability, the higher the depressive symptoms parents experience. Further, the child's aggressive behavior, perceived external locus of control, and lower social support predicted depression in mothers. For fathers, lower social support, low satisfaction with parenting, and a lower perceived ability to set limits predicted depression, stress, and anxiety (Falk et al., 2014). Despite this, parents of children with ASD have less access to resources for

their socioeconomic, mental, and physical health needs (Mailick Seltzer et al., 2001). Having a robust understanding of the mental health challenges experienced by parents of children with ASD can help mental health practitioners create specific and unique interventions for parents of children with ASD. It will also enable counselor educators to prepare spaces for discussion and enhanced curriculums that train counselors-in-training to become aware of disabilities and their impact on parents, families, and caregivers of children with disabilities.

Economic Stability and Parents of Children with ASD

An individual's ability to provide for themselves and their families can significantly impact their health. Therefore, economic stability is included as one of the key domains of SDOH (ODPHP, 2022). Specific factors such as unemployment, food insecurity, housing instability, financial instability, and poverty are key challenges caused by economic stability inequities (ODPHP, 2022). This section highlights what the literature says about the impact of ASD on employment and the family income stability of parents of children with ASD. The challenges related to economic stability can be detrimental to the well-being and mental health of parents of children with ASD and their children with ASD. In counseling literature, economic stability has been researched in relation to socio-cultural disparities and how they negatively impact mental health and increase the likeliness of poverty (Braveman et al., 2017). Thus, specific SDOH factors that contribute to economic stability emphasized in this section include employment, the financial cost of ASD, and socioeconomic status.

Employment Status

Employment is linked with the ability of a person to have some level of financial safety. Studies report that lack of employment correlates with SDOH risk factors which in turn impact mental health challenges. For example, a mental health counselor might have a client that is

currently unemployed and is also a parent and/or caregiver for a child with ASD; long-term unemployment is related to depression, anxiety, low self-esteem, and demoralization (ODPHP, 2022) and ASD has been studied to be associated with severe unemployment and financial burdens for parents and caregivers (Ou et al., 2015).

Cidav et al. (2012) investigated the Implications of childhood autism on parents' employment status and earnings. Surveying to probe parents of children with ASD income outcomes, they found that mothers of children with ASD earn 35% (\$7,189) less than the mothers of children with other forms of health disabilities and 56% (\$14,755) less than the mothers of healthy developing children. They are 6% less likely to be employed and work an average of 7 hours less per week. Children with ASD are 9% less likely to have both parents working. Family earnings of children with ASD are 21% (\$10,416) less than those of children with other forms of health disabilities and 28% (\$17,763) less than those of healthy developing children. Family weekly hours of work are an average of 5 hours less than healthy developing children's. The significant economic overburden experienced by families of children with ASD increases the substantial health concerns and challenges reported by caregivers and parents of children with ASD.

Ganz (2007), in his study, reported on the distribution of societal costs of ASD distributed throughout the lifespan of a child with ASD. He estimated that families experience a significant level of unemployment, with fathers of children with moderate to severe autism unemployed 20% of a full-time equivalent, while 60% of mothers were unemployed and 30% worked part-time or a full-time equivalent. With these estimates, family income can be severely impacted throughout the lifespan because of the presence of a child with ASD. Also, caring for a child with ASD can project into adulthood. Further, adults with autism are afforded limited

opportunities for competitive employment (Jacob et al., 2015). Inevitably parents of adults with ASD may face a significant financial strain when providing services for their adult children with lesser opportunities to save or invest in long-term benefits due to reduced possibilities to work full time.

Also, this is reflected by the finding by Montes and Halterman (2008) that the largest cost reported by parents was a loss of income from reduced working hours. This is consistent with a previous report stating that a loss of approximately 14% of family income with a combined 29% household loss is often the consequence of having a child with ASD. These findings show the need for societal and systemic support that allows family members of children with ASD to work more may effectively assist families with children with ASD by lessening the financial burden and improving the well-being of all family members.

Financial Resources and Cost of ASD

The cost of caring for a child with ASD significantly impacts how a family navigates the challenges that they experience. It carries a lifetime of direct and indirect costs (Cakir et al, 2020; Ganz, 2007; Horlin et al., 2014; Knapp et al., 2009). Rogge & Janssen (2019) shared in their study the economic cost of ASD after analyzing the cost of healthcare, therapy, special education, production loss, formal and informal care from family/caregivers, and accommodation, respite care, and out-of-pocket expenses in more or less 50 articles from multiple countries. They found that ASD is associated with a high financial burden in a multitude of domains, resulting in overall lifetime costs of ASD for the average individual with ASD (or family with a child with ASD) that are substantial. Also, in comparison to all other disability groups in the study, individuals with ASD were among the most expensive in terms of cost per

capita for vocational rehabilitation. Thus, parents of children with ASD need financial resources to care for their child with ASD.

For further analysis, Cakir et al. (2020) examined the lifetime social cost of having a child with autism from 1990 to 2029. They estimated approximately \$3.6 million in lifetime social cost for an individual with an ASD, and based on the severity of autism, the cost goes up. Cakir et al. (2020) estimate is based on studies of actual expenditures or productivity losses. Other studies have corroborated these findings. For example, Buescher et al. (2014) estimated the cost of ASD at \$1.4 million for individuals with less severe autism and \$2.4 million for individuals with a co-occurring ID (\$1.6 and \$2.7 million in 2019 dollars), and Ganz (2007) estimated \$3.2 million (\$4.4 million in 2019 dollars). Although the calculations reflect the lifelong costs associated with ASD based on estimated cases of ASD, Individual family costs can be higher and can differ depending on access to community services, type of health insurance, the severity of the child's autism, and the presence of a variety of co-morbidity of disorders.

Moreso, Horlin, et al. (2014) explored the association between increased costs and ASD symptom severity. They suggest that effective and early interventions that result in the reduction of expressed symptoms may have a significant impact on improving a family's productivity and their resultant financial situation. In their findings, they established that there were no statistically significant differences in costs related to receiving an early or late diagnosis of ASD. However, a delay in diagnosis was associated with an indirect increased financial burden on families. Early and appropriate access to early intervention improves a child's long-term outcomes and reduces lifetime costs to the individual, family, and society.

Socioeconomic Status

Research has shown that the socioeconomic condition of parents affects the diagnosis and prevalence of ASD. For example, some have shared that there is a high prevalence and diagnosis for children with ASD among parents with high socioeconomic status (SES) because parents with a high income and education are much more aware of the problems and are close to essential services. Therefore, compared to other countries, the prevalence of ASD is much higher in developed countries (Adak & Halder, 2017; Delobel-Ayoub et al., 2015)

Adak and Halder (2017) reported in their systematic review of the literature that there is a higher estimation and prevalence rate of ASD in developed or affluent countries as well as urban areas. They also found a positive correlation between parents with high SES and the prevalence of ASD, which is attributed to the improvements in diagnostic criteria and screening instruments among individuals with high SES. In agreement, Yu et al. (2021) examined the parental socioeconomic status and ASD in their children in Taiwan. They studied 706,111 singleton births from 2004 to 2007 and followed them until 2015. Their study identified 7,323 ASD cases and 7,438 intellectual disability (ID) cases; 17% of ASD cases had co-occurring intellectual disabilities (ID). Parents' SES was determined by monthly salary at the time of childbirth. They discovered that higher SES was independently associated with a higher risk of ASD and a lower risk of ID. They concluded that parents with higher SES had access to other social, environmental, biological, and immunological factors positively impacting diagnosis and care for their child with ASD.

Conversely, Delobel-Ayoub et al. (2015), in their study in the US, found that lower SES correlates with high ASD with co-occurring ID. They reported that the prevalence of ASD with associated ID was higher in areas with the highest level of deprivation and the highest percentage

of unemployed adults, no education, immigrants, and single-parent families. They also found a higher prevalence of ASD without ID in areas with the largest percentage of immigrants. The prevalence of isolated severe ID was likely higher in the most disadvantaged groups defined by all indicators. They concluded that there seems to be a higher prevalence of severe ASD with co-occurring ID in areas with lower SES and a high level of deprivation. Considering these levels of socioeconomic disparities and the high-risk factors experienced by children with ASD is critical for health practitioners when discussing intervention and planning preventive measures.

Counselors-in-Training Preparedness to Work with Parents of Children with ASD

Limited research studies discuss counselors-in-training preparedness and self-efficacy in working with children with ASD and their families. Even though disability is considered a multicultural concern, counselors in training need to build specific competencies around Multicultural competence (MCC) and disability competence (DC) skills to work with clients with ASD and their families (Smith et al., 2008; Sue et al., 1982). For example, Constantine (2001) observed 52 practicum trainees involving actual counseling situations with clients using the MCC methods and found that the higher levels of multicultural counseling training, the greater the observer-rated MCC of practicum trainees. In addition, Kemp and Mallinckrodt (1996) examined the influence of previous training in disability issues on case conceptualization, evaluation of symptom severity, and treatment planning for the client who appears to have a disability of 47 practicing counselors and students. They used the Attitudes toward Disabled Persons Scale- Form A (ATDP-A), which consists of 30 statements that measure attitudes towards those with a disability, and found that 23 participants reported no training in disability issues and a small amount of training on issues with persons with disabilities were associated with decreased bias in client case conceptualization and treatment planning. The MCC and DC

skills are vital for counselors' awareness, knowledge, and skill to meet the needs of diverse clientele with disabilities. Thus, teaching disabilities in counselor education and embracing an interdisciplinary approach to counseling can prepare counselors-in-training to work with clients and their families with ASD

Chapter Summary

This chapter reviewed the theoretical and empirical research on the experiences of parents and caregivers of a child with autism spectrum disorder (ASD). A plethora of research has explored either social support or economic stability and its impact on QOL or family resilience of parents of children with ASD. However, no empirical studies in the US examined these two constructs and their relation to precisely depressive symptoms of parents of children with ASD. It is critical to research these phenomena as their lack may serve as risk factors for parents, which can further compound their role as caregivers for their child with ASD.

The present study explores SDOH factors that impact the depression of parents and caregivers of a child with ASD. Specifically, it highlights the association between financial resources, the severity of a child's disability, family-based support, and parents' depressive symptoms. Depression is prevalent among parents (e.g., Scherer et al., 2019); however, not all families experience depression. This present study identifies SDOH protective factors, specifically family-based support, as an identified strength within families that include a child with ASD. Yet, researchers know little about the combined SDOH factors that impact and exacerbate parents of children with ASD depression. Understanding SDOH protective factors within a family context may provide a more ecological view of parental well-being and mental health concerns. Furthermore, with an improved understanding of SDOH protective factors, counselors and counselor education programs can increase awareness and adjust mental health

services provided to parents of children with ASD to better meet their unique concerns and skills. Therefore, the present study utilizes multivariate regression analyses using the SDOH framework as predictors of depression and assesses the relationship between financial resources, the severity of a child's disability, SDOH protective factors, and depression among parents of children with ASD.

Chapter Three

RESEARCH DESIGN AND METHODOLOGY

In chapter three, I specify the current investigation's research design, methodology, and procedures. The correlational research design investigates and explores the relationships between various forms of informal and family-based support as indicators of social determinants of health-protective factors (SDHPF) with symptoms of depression. In this study, I examine how SDHPF, as reported by the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) and Family Adjustment Measure family-based support subscale (FAM; Daire et al., 2014) predict depression as reported by the Patient Health Questionnaire-8 (PHQ-8) of parents of children with ASD. Additionally, I examine the moderating influence of child symptom severity and financial resources for the strength of the association between SDHPF and depression. Firstly, I outline the research design for the present study, including sampling methods. Secondly, I elaborate on the data collection procedures, measures, and variables of the study. Lastly, I outline the data analysis plan and justify using structural equation modeling and moderation analyses to answer the study research questions. Finally, I discuss the ethical considerations of the present study.

Positionality Statement

As the lead investigator, my positionality and professional experience inform my decisions and interpretation of the phenomena of interest in the present study. I developed an interest in learning about disabilities because of my relationship with my family in Nigeria, who experiences the challenges of being a parent to a child with developmental disabilities. I am familiar with the systemic barriers that contributed to the family's struggle with access to varying resources and support and how that impacted their mental health concerns and marital

relationship. Additionally, through my Human Resource Service Administration (HRSA) VaLend fellowship, I have been fortunate to be mentored and uniquely know a family that included two children with ASD who shared their challenges, including access to basic health needs for their children as well as the minimal family and social support that is available to them as parents and the impact on their mental health, marriage and relationship. As a result of these experiences, I have become more aware that the more SDOH disadvantaged you are, the higher your SDOH inequities and the more compounded your unaddressed mental issues become. However, my relationship with my aunt and her family and the consistency of support and communal effort from my extended and nuclear family made a lot of difference in my aunt and her family's ability to raise her child with a disability. Hence, my interest in family-based support as an SDOH protective factor for depression of parents of children with ASD emerged.

I identify as able-bodied, and I have benefitted from immense family support throughout my life in new and scary spaces. I have also been a resource and family support to my family members. I am a certified rehabilitation counselor and licensed graduate professional counselor. I have clinical experience working with individuals with disabilities and their parents. I am a member of the research lab that collected the data to be analyzed for the present study as a secondary dataset; however, I was not a part of the data collection process. Also, I acknowledged any preconceived notions of the topic that can influence the data analysis process and interpretation. Consistent consultation with my dissertation chair and in-depth statistical analysis was utilized to bracket biases and assumptions.

Research Design

The present study is a non-experimental, multivariate, and secondary data analysis of a cross-sectional quantitative study that used a convenience sampling approach (McMillan, 2016).

Researchers collected the survey data as part of a school-level internally funded grant initiative. The original study aimed to determine the psychometric properties and test the validity of the Family Adjustment Measure (Daire et al., 2014) assessment with a diverse sample of adults parenting a child with ASD and provide more detailed information regarding parents raising children with ASD. I serve as a member of the research lab that collected the data. Thus, the present study uses a secondary data analysis approach. The original study was approved by the university's Institutional Review Board (IRB) and required no further action for the present study.

Research Questions

Preliminary Analysis: What are the psychometric properties of the Family Adjustment Measure (FAM), and the Multidimensional Scale of Perceived Social Support (MSPSS)?

Research Question 1: How do SDHPF as reported on the subscales of the MSPSS (i.e., Friends, Family, Significant Others) and family-based support subscale of the FAM, predict depression in parents of children with ASD?

Hypothesis: SDHPF will predict a negative association with depression in parents of children with ASD.

Null Hypothesis: SDHPF will not predict a negative association with depression in parents of children with ASD.

Research Question 2: How do child symptom severity (moderating variable) influence the strength of association between SDHPF and depression of parents of children with ASD?

Hypothesis: High child symptom severity will significantly influence the strength of association between SDHPF and depression of parents of children with ASD.

Null Hypothesis: Child symptom severity will not influence the strength of association

between SDHPF and depression of parents of children with ASD.

Research Question 3: How do financial resources, as reported by family income (moderating variable), influence the strength of association between SDHPF and depression of parents of children with ASD?

Hypothesis: Financial resources will significantly predict the strength of association between SDHPF and depression of parents of children with ASD.

Null Hypothesis: Financial resources will not predict the strength of association between SDHPF and depression of parents of children with ASD.

Sampling

The data collection inclusion criteria required that participants be (a) at least 18 years of age, (b) currently parenting a child diagnosed with ASD, and (c) able to read English. During data collection, which occurred from November 2018 to May 2019, 253 individuals agreed to participate in the study. However, 56 of those individuals exited the survey before completing any items. One participant did not meet the criteria and was thus excluded from the study, resulting in 196 total participants. The research team utilized convenience sampling in recruiting participants in partnership with a university-affiliated organization that provides resources and conducts autism-related research and programming. Research recruitment efforts with parents of children with ASD often report low response rates (Becerra et al., 2017).

I used the G*Power 3 software (Faul et al., 2007) to determine the sample size required for sufficient power for the moderation analysis and the Daniel Soper a-priori sample size calculator (Soper, 2023) to compute the sample size required for my structural equation model (SEM), based on the number of observed and latent variables in the model, the anticipated effect size, and the desired probability and statistical power levels. Power analysis in SEM focused on

estimating the power of chi-square to detect false models in the population (MacCallum et al., 1996) or to detect significant differences between nested models (Saris & Satorra, 1993; Satorra & Saris, 1985). The a-priori analysis consists of one latent variable and five observed/manifest variables. Results show that a sample size of 100 participants is required to have a sufficient statistical power of .80 at a probability level of .05 and a medium effect size of 0.3. In addition, I conducted a G* power analysis for the moderation analysis. Six variables served as predictors in the full moderation model with four manifest variables as an indicator of the SDHPF latent variable. Therefore, I used six variables to estimate the required sample size so as to be more conservative since the required sample size increases with the number of parameters (Hancock et al., 2019). According to the G*Power analysis, a sample size of 55 participants is required to have a sufficient statistical power of .80 ($\alpha = .05$) and medium effect size ($f^2 = 0.15$). Similar research on the predictors of depression in parents of children with ASD found a moderate effect size (Cohen, 1988; Scherer et al., 2019). Thus, a medium effect size also provides a conservative estimate. Further, I used the Root Mean Square Error of Approximation (RMSEA; MacCallum et al., 1996) approach, which can be simply computed from the chi-square (or fit function) and degrees of freedom to show a noncentrality parameter. The noncentrality parameter was used with the chi-square distribution to estimate power.

Data Collection

The research team used REDCap (Research Electronic Data Capture; Harris et al., 2009), a secure, online research database that allowed for anonymous data collection (without attached IP addresses) to collect the data. The research team shared the study information to ASD- related organizations in the United States. Some organizations posted the study flier on their social media pages (i.e., Facebook). Recruitment flyers and emails contained a link that directed

potential participants to a study information page about the purpose, benefits, risks, and opportunities for compensation after participating in the study. The information page directed participants to follow a link to the survey if they consented to participate. The survey contained 109 total items. Participants received a five-dollar optional compensation for completing the survey. To receive this compensation, participants input university-required, identifiable information that researchers used to mail five-dollar Walmart gift cards for participation in the study. Databases containing participant survey responses and identifiable information were separate to ensure the anonymity of responses provided to survey items.

Measures

Participants started the survey with the informed consent on the first page and then proceeded to complete several instruments via the online REDCap survey, including (a) a brief demographic questionnaire that includes items related to the parental perception of the severity of the child's ASD symptoms, (b) the Family Adjustment Measure (FAM; Daire et al., 2014), (c) Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988), (d) the Patient Health Questionnaire-8 (PHQ-8; Kroenke et al., 2001), (e) the Brief COPE (Carver, 1997), and (f) a revised version of the Relationship Hope Scale (RHS). I reviewed the instruments of interest to the current investigation in further detail below.

Demographic Questionnaire

The demographic questionnaire contained several items relevant to the present study, including information about the parent: race, ethnicity, and household/family income. Household income was asked as "(Income in dollars (specify below if per year, month or week). Please do not include any symbols (e.g., \$,).) and "Please specify family income: per week, per month, per year). Researchers used federal reporting guidelines regarding the identification of race and

ethnicity. Options for the race included: American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, White, or Other. The option for ethnicity included Hispanic or Non-Hispanic.

Child ASD-Symptom Severity scale

The research team created the *Child Symptom Severity Scale (CSS)* based on diagnostic criteria for Autism Spectrum Disorder from the DSM-5 (APA, 2013). Current autism severity measures are often expensive, lengthy, and require direct observation by a trained professional (Reszka et al., 2014). Thus, due to the cost- and time-prohibitive nature of existing symptom severity measures, we developed a short, three-item instrument to measure the intensity of symptoms related to DSM-5 diagnostic criteria for ASD (APA, 2013). ASD is characterized by deficits in social communication and restricted and repetitive behaviors (APA, 2013). Therefore, the CSS measures the child's restricted/repetitive behaviors, communication, and aggression. While not specifically noted as a core ASD symptom, children with ASD may also exhibit aggressive behaviors (e.g., kicking, hitting, pinching), which may contribute to parent challenges associated with ASD (e.g., Giovagnoli et al., 2015; Wayment et al., 2019). Participants identified their agreement with items regarding their child's behavior (i.e., aggression, restricted/repetitive behaviors, communication) in the past 30 days on a six-point Likert scale ranging from "*Strongly Disagree*" to "*Strongly Agree*." The summed scores of the three items represented the overall child symptom severity score. Thus, scores ranged from three to 18, with lower scores indicating less severity of ASD-related symptoms in the past 30 days.

Multidimensional Scale of Perceived Social Support

The MSPSS is a 12-item measure of perceptions about and types of social support (Zimet et al., 1988). The MSPSS looks explicitly at three subscales of social support: family, friends,

and significant others. The MSPSS includes seven-point Likert scale items of the agreement. Participants respond on a scale of very strongly disagree to very strongly agree for statements such as “I can talk about my problems with my family” (family support), “My friends really try to help me” (friend support), and “I have a special person who is a real source of comfort to me” (significant other support).

In prior studies, the MSPSS demonstrated good psychometric properties when utilized with parents of preschool and elementary-aged children (Respler-Herman et al., 2011). The Cronbach’s alpha for the Significant Other, Family, and Friends subscales values were .91, .87, and .85, respectively, with a reliability of the total scale of .88. They also reported test-retest reliability for the subscales as .72, .85, and .75 respectively, Therefore, in this study, the MSPSS family, friend, and significant other subscales was included as measurements of support as an SDOH protective factor.

Patient Health Questionnaire-8

The PHQ-8 is an 8-item scale measure for symptoms of depression. Participants were asked about the frequency of depressive symptoms experienced over the past two weeks. Participants' responses on the four-point Likert scale include frequencies that range from “Not at all” to “Nearly every day” for statements such as “Little interest or pleasure in doing things” or “Feeling down, depressed, or hopeless.” Total scores range from 0 to 24, and scores above ten may be interpreted as indicative of the presence of depression (Kroenke, Spitzer, & Williams, 2001). Therefore, in this study, the PHQ-8 was used to measure symptoms of depression in parents of children with ASD. The PHQ-8 exhibited excellent psychometric properties (Kroenke et al., 2001), including high internal reliability ($\alpha = .89$) and test-retest reliability (.84) in the original sample ($N = 6,000$) of primary care and obstetrics-gynecology patients.

Family Adjustment Measure

The Family Adjustment Measure (FAM; Daire et al., 2014) is a treatment-planning tool designed to assess four areas of parental and family adjustment (e.g., parental distress, social support, family-based support, and positive coping skills). The FAM consists of 30 items that participants answered on a five-point Likert scale. In addition, participants responded to the frequency of how they experienced the prompts ranging from “Never” to “Almost Always.” Prompts for the family-based support subscale included “I feel supported by my spouse, partner, or significant other.”

In the original study, the researchers applied principal components analysis to obtain a four-factor solution that explained 51% of the variance. The FAM subscales showed a moderate correlation with a measure of parental distress ($r = .56$). Also, the original analysis included concurrent measures of validity only (i.e., prediction of relationship satisfaction and parental stress) (Daire et al., 2014). In sum, the FAM demonstrated initial promise as a measure of family adjustment with parents of children with special needs. However, only 34.8% of the FAM study sample were parents of children with ASD. Also, McKee et al. (2019) utilized the FAM to identify stress in parents of youth with Autism and identified four subscales of the FAM through confirmatory factor analysis: Parental Distress, Social Support, Family-Based Support, and Positive Coping. These four subscales had strong internal consistency, with Cronbach’s alpha above 0.80 for each scale. In addition, the FAM Family-Based Support subscale was highly correlated with the RAS ($r = 0.793$), indicating a correlation between increased relationship satisfaction and increased perceptions of family-based support. Hence, the present study included the family-based support subscale as a manifest indicator of the SDHPF.

Variables

The variable selection is theory-driven based on prior research and literature. The following section outlines the nature of the variables I used in my preliminary and primary analysis.

Dependent Variables

Depression. Results from the PHQ-8 were scored and analyzed to determine the likelihood of depression amongst parents of children with ASD. PHQ-8 scores were summed for a total score and measured as a continuous variable.

Independent Variables

Participant demographics. Participant demographics included: (a) sex, (b) race, (c) ethnicity, (d) education, and (e) relationship status. Participant sex was measured as a dichotomous variable (0 = male, 1 = female). Participant race was measured as a categorical variable (American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, White, Other Race). Participant ethnicity was measured as dichotomous (Non-Hispanic, Hispanic). Participant education was measured as a categorical variable (no degree or diploma earned, high school diploma/GED, vocational/technical certification, associate's degree, bachelor's degree, master's degree/advanced degree, other). Finally, the relationship status was measured as a categorical variable (single, committed relationship [not married], engaged, married, separated, divorced, and widowed).

Social determinants of health protective factors. The SDHPF scores were calculated as a latent variable consisting of family-based support (subscale of the FAM; Daire et al., 2014), friend support, family support, and significant other support (subscales of the MPSS; Zimet et al., 1988) and measured as continuous variables.

Household/Family income. Family income was measured as a continuous variable created from participant responses to items asking for family income. Participants provided how much they made and reported if the amount of family income was “per week,” “per month,” or “per year.” The present study variable was calculated to indicate the participant's annual family income.

Child ASD-symptom severity. The child symptom severity items from the CSS scale was summed to represent the continuous variable for child symptom severity.

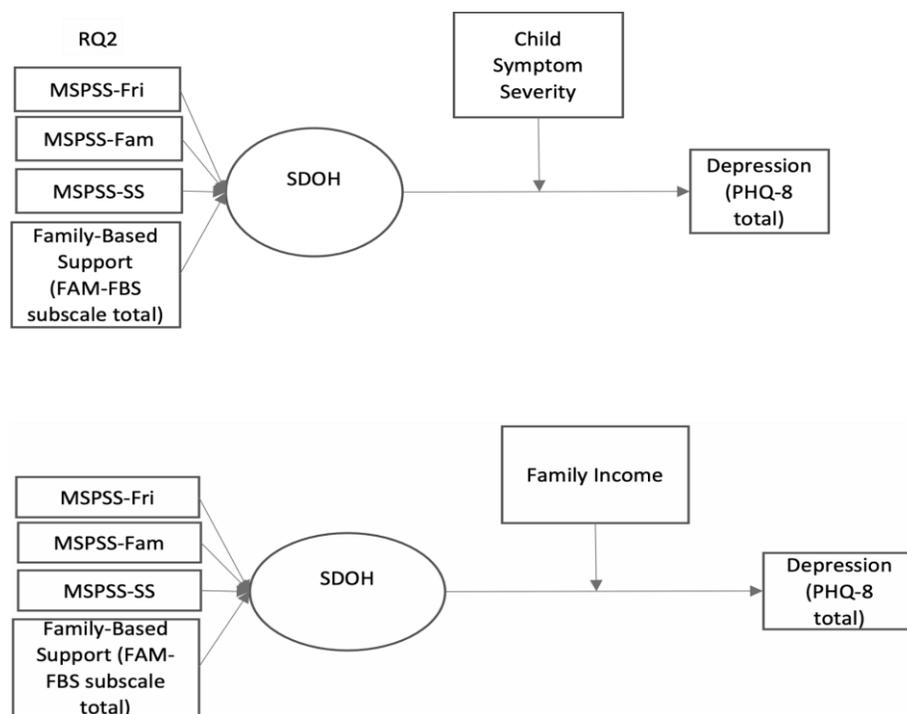
Data Analysis Plan

The following section provides an overview of data cleaning, assumptions testing, and data analyses for the current study. The preliminary analysis included a confirmatory factor analysis (CFA) to examine the psychometric properties of the FAM and MSPSS to include total scores as indicators of SDHPF. I then examined the latent structure for the SDHPF independent variable with structural equation modeling (SEM). Because there is a possibility of multicollinearity of the family-based support subscale of FAM and MSPSS, as they are similar factors measuring the same construct, the SEM accounted for and allowed for the analysis of the correlation between indicators' error terms. In addition, I mean centered my predictor variables on remedying the collinearity of my predictors. Mean-centering the predictor variables redefines the model's intercept and makes it interpretable (Aiken & West, 1991; Hofer, 2017). It also helps us inspect the model's sources of bias when running a moderation analysis (Fields et al., 2018). Although, researchers have argued that mean centering only reduces nonessential/micro collinearity (Hofer, 2017; Iacobucci et al., 2015), mean centering was an added analysis to further address micro and macro collinearity issues and aid in the interpretation of results in my analyses.

To examine the first research question, I used the SEM to examine how SDHPF predicts the presence of depression. For research question two, I used a moderation analysis to examine how child symptom severity influences the strength of the association between SDHPF and depression of parents of children with ASD. Finally, for the third research question, I ran a second moderation analysis to examine how family income influences the strength of the association between SDHPF and depression of parents of children with ASD. Computing software for analysis procedures includes IBM SPSS Statistics (Version 29) and R Studio (Version 3). Figure 3 below shows a conceptual model for research questions two and three.

Figure 3

Conceptual Model for Moderation Analysis.



Data Cleaning and Assumptions

Data cleaning consists of identifying patterns of missingness, addressing those missing items, and identifying outliers. Before running an SEM analysis, it is important to attend to

issues such as outliers, missing data, linearity, and normality. Assumptions in regression analysis include correct specification of the model's functional form, no omitted variables, and no measurement error (Cohen et al., 2003). However, the assumptions of the moderation model include ordinary least squares (OLS) regression assumptions, assessing for homogeneity of error variance and multicollinearity (Fairchild & MacKinnon, 2009). Thus, I tested for a linear relationship between my dependent variable and the independent and moderator variables via scatterplot and conducted data transformations such as square root transformations (Rummel, 1979) if my assumptions are violated.

Further, missingness is unavoidable and has to be the first step in the analysis process. Missing data can reduce a study's statistical power (Kang, 2013). I identified patterns of missingness using Little's missing completely at random (MCAR) test, which assesses whether significant differences exist between the means of different missing value patterns (Little, 1988). Thus, the stronger assumption of MCAR implies that the missing indicators should be utterly independent of any observed variables (Li, 2013). Using MCAR ensures that the estimated parameters remain unbiased in the absence of data. Because my data is MCAR, I addressed missing items using the pairwise deletion method. Pairwise deletion is one of the most common techniques for handling missing data, especially when data is MCAR (Peugh & Enders, 2004). It is an available-case analysis that attempts to minimize the loss that typically occurs in the listwise deletion and thus can increase increases power in the analyses. I ran a box plot analysis to visualize and identify outliers. Outliers that do not represent true values, i.e., outliers from measurement errors, data entry, or processing errors, and are unrepresentative of the sample, were removed from the data. Thus, for this study, I used the R-software and SPSS package to clean my data and use the different statistical codes and analyses to account for missingness and

identify outliers in my data.

Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) is a type of structural equation modeling that examines the psychometric properties and latent factor(s) present in the FAM and MSPSS. A CFA was used to confirm the properties and latent factor(s) of the FAM and MSPSS to increase confidence in the scale. CFA provides a more parsimonious understanding of the covariation among indicators (Brown & Moore, 2013). Researchers seem to have mixed consensus on the appropriate sample size for factor analysis. However, researchers commonly use a range of five to ten participant to one item ratio (MacCallum et al., 1996; Meade & Bauer, 2007). Thus, factor analysis procedures for the 30-item FAM required at least 150 participants per factor analysis. Further, the results of CFA can provide riveting evidence of the convergent and discriminant validity of theoretical constructs (Brown & Moore, 2013). I assessed three major aspects of my CFA such as (1) overall goodness fit, (2) the presence or absence of specific points of ill-fit, and (3) size, interpretability, and statistical significance of my model parameter estimates, i.e., factor loadings and factor correlations (Brown & Moore, 2013) to evaluate the acceptability of the CFA model.

Hu and Bentler's (1999) model-fit criteria were used to examine the goodness-of-fit indices to judge how the CFA models fit the data sample. To achieve overall goodness of fit, the goal is to have a model fit with Chi square χ^2 ideally non-significant, $p > .01$ or even $p > .001$, Tucker–Lewis Index, TLI), and/or Comparative Fit Index (CFI) Ideally greater than .80, Root Mean Square Error of Approximation (RMSEA) Ideally less than .08 and 90% CI for RMSEA doesn't contain .08 or higher and Standardized Root Mean Square Residual (SRMR) Ideally less than .08 (Asparouhov & Muthen, 2018). Consequently, the SRMR can depict a good fit, and

unlike other fit indices, it is not based on chi-squares. Rather, it is the average difference between the correlations observed in the input matrix and the correlations predicted by the model. It is sensitive to model misspecification (Bentler, 2006). Thus, SRMR can provide a unique perspective for the model fit (In'nami & Koizumi., 2011). While chi-square is largely reported in CFA's, it is viewed as overly stringent given its power to detect trivial deviations of the data from the proposed model. Therefore, researchers should report multiple fit indices of the proposed model (Hancock et al., 2019). Research studies have shown that the accuracy for confidence intervals for RMSEA was found to be suitable for sample sizes larger than 200, and results of greater than .1 can only be judged based on the structure and size of the model (Pavlov et al., 2020; Satorra & Bentler, 1994; Shi & Maydeu-Olivares, 2019). For example, in their study, Shi & Maydeu-Olivares, (2019, p. 5) found that

“the RMSEA and SRMR provide, on average, estimates close to their population values, regardless of whether the estimates are obtained under normal theory or ADF assumptions. When non-normality was present, the estimates under normality assumptions could produce upwardly biased mean estimates, especially when the sample size was small (e.g., kurtosis = 3.0, skewness = -2.0, N = 100)”.

I used the standardized root mean square residual (SRMR; .08 or below), root mean square error of approximation (RMSEA; .06 and below), Tucker-Lewis index (TLI; .80), and the comparative fit index (CFI; .80) indices to measure the goodness of fit. Further, I used the standardized residuals and modification indices to identify specific areas of misfit in the CFA. Lastly, my parameter estimates were interpreted in the context of a good-fitting solution.

Structural Equation Modeling

After confirming the fit of the measurement model, I analyzed the structural model to

determine the extent to which the sample data support the model. The measurement model is the implicit or explicit model that examines the relationship between the latent variables and their measures. In contrast, the structural model is the relationship between the latent variables. (Bollen, 2001). The purpose of the structural equation model (SEM) is to answer the first research question: How does SDHPF predict the presence of depression in parents of children with ASD? The outcome variable for the model is depression, as measured by the PHQ-8. SEM tests models that specify how specific groups of variables define a construct and the relationships among constructs (Crockett, 2012). SEM allows for evaluating specified hypotheses about causal and predictive relations among measured and/or latent variables (Hancock et al., 2019). It allows for data-model fit assessment and potential model re-specification. The SEM analysis consists of five steps: model specification, identification, estimation, testing, and modification (Bollen, 2001). The present study engaged in model identification, estimation, testing, and modification because the analysis was conducted using existing data. The model specification defines the relationships among the variables in an SEM based on one's knowledge. Model identification checks if the model is over-identified, just-identified, or under-identified. Model coefficients can be only estimated in the just-identified or over-identified model. Model evaluation/testing assesses model performance, with quantitative indices calculated for the overall goodness of fit (Fan et al., 2016). Latent variables were created from the MSPSS subscale (Friend, Family, Significant other) and FAM sub-scale (family-based support) to represent SDHPF, as highlighted in the social and community context of the healthy people 2030 SDOH model, and the child symptom severity was measured from the CSS scale. Additionally, when creating latent variables, the reliability and validity of latent factors are critical. Hence, I evaluated the validity and reliability of latent variables by observing the patterns of loading that are relatively high for

measured variables expected to reflect the factor and relatively low (ideally zero) for variables intended to reflect other factors with a validity index of .50 and above and reliability coefficient value above .70 (Hancock et al., 2019). Thus, I used the SEM analysis to examine how the SDHPF predicts depression in parents of children with ASD.

Moderation Analysis

The present study uses the moderation analysis to answer the second and third research questions of this study. Moderation analysis rather than mediation analysis is used because moderation analysis examines how the relationship between an independent variable (IV) and a dependent variable (DV) changes based on the value of the moderator variable (ModV; Mermon et al., 2019). On the other hand, mediation analysis explains the process through which two variables are related (Mackinnon et al., 2007). Although both analyses help the researcher go beyond simple relationships between variables, the main goal of moderation analysis is to “measure and test the differential effect of the independent variable on the dependent variable as a function of the moderator” (Baron & Kenny, 1986, p. 1174). A moderator is a third variable that affects the zero-order correlation between two other variables. The moderator acts on the relationship between two variables and highlights the strengths of that relationship. (Baron & Kenny, 1986). Further, there are specific considerations when conducting moderation analysis which includes; focusing on the significance of the moderating effect, calculating and reporting the effect size (f^2), and how much it contributes to R^2 as a function of the moderator and lastly, execution and report of a simple slope plot for the visual inspection of the strength of the moderating effect (Memon et al., 2019). The researcher brought attention to these considerations when conducting a moderation analysis for the present study.

The moderation analysis was used to examine the second and third research questions

described in Figure 3 above: How do child symptom severity (CSS) and financial resources (FI) influence the strength of association between SDHPF and depression of parents of children with ASD? Consequently, a classic regression-based moderation analysis involves a continuous IV (SDOH), either a continuous or categorical ModV (CSS and FI) and a continuous DV (MH). The SDOH is a latent variable, and maximum likelihood (ML) was used as a method to estimate the latent variable predictor (LVI; Liu et al., 2019). In the Mplus statistical package, the latent moderated structural equations (LMS) approach yields highly efficient parameter estimates and standard error estimates with little bias (Klein & Moosbrugger, 2000). Hence, the moderation analysis allows for the examination of a moderation effect (child symptom severity and financial resources) based on an understanding of what the statistical interaction of SDOH and depression tells the researchers and readers about parents of children with ASD in our dataset (Hancock et al., 2019). It displays the type of relationship that exists between IV and DV. The moderation model was also analyzed within a regression framework, and all predictor variables and their interaction term were centered before model estimation to enhance the interpretation of regression coefficients.

Ethical Considerations

The present study is a cross-sectional secondary data analysis. The IRB at Virginia Commonwealth University reviewed and approved the data collection and analysis of the original study. The IRB determined that the original study data collection (a) protected the anonymity and confidentiality of participants, (b) ensured voluntary participation in the study, and (c) received informed consent from the participants who acknowledged that the participant could withdraw from the study at any time without consequence.

For the present study, I informed the IRB of the post-secondary nature of the study by

reporting the exempt nature of the analysis in the IRB application. However, according to VCU IRB protocol, since the present study was (a) part of a previously approved study of exempt status, (b) made no changes to the research protocol, and (c) is using a de-identified dataset, no IRB action was required as it is no longer consider human-subjects research.

Chapter Summary

The present study examined the factor structure of the FAM and MSPSS. It utilized the SDOH model as a framework for understanding family-based support as an SDHPF in parents of children with ASD. It explored the relationship between family-based support and depression. It assessed the role of child symptom severity and financial resources as moderators for the relationship between family-based support and depression. This chapter included details of the study research design, data collection, and data analysis plan. Furthermore, it outlined possible ethical considerations and limitations of the study.

Chapter Four

DATA ANALYSIS

In chapter four, I discuss the results from data cleaning, descriptive statistics such as participant demographics, and research questions of the current study. Firstly, I outline the data cleaning and assumptions testing procedures by explaining how I assessed for missingness and outliers of the measurement scales. Secondly, I discuss descriptive statistics, including participant demographics. Thirdly, I complete a confirmatory factor analysis to examine the psychometric properties, i.e., the reliability and associations among the study variables of subscales of the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) and family-based support subscale of the Family Adjustment Measure (FAM; Daire et al., 2014). Finally, I discuss the results of the statistical analyses, which sought to examine the contribution of social determinants of health protective factors (SDHPF) as measured by the subscale of the MSPSS (Zimet et al., 1988) for friends, family, and significant other support as well as the family-based support subscale of the FAM (Daire et al., 2014), for predicting symptoms of depression and to examine the impact of SDOH risk factors, i.e., child symptom severity and financial resources on the strengths of association between the family-based supports and depression of parents of children with ASD.

Data Cleaning and Assumption Testing

I conducted data cleaning for this study by assessing for missingness, testing for invariance, examining outliers, and checking for the validity and reliability of the measurement scales. Further, all continuous predictor variables (including the moderator) were centered prior to conducting SEM and moderation analyses. Centering is accomplished by subtracting the sample mean from all individuals' scores on the variable, thus producing a revised sample mean

of 0. This procedure reduces the multicollinearity between predictors and any interaction terms among them and facilitates testing simple slopes (Aiken & West, 1991; Hofer, 2017; see figures 8 & 8.1). Centering redefines the intercept of the model, makes it interpretable, and does not alter the moderators' interaction's significance or the simple slopes' values.

Missingness

I assess for missing data patterns using Little's Missing Completely at Random (MCAR) test (Little, 1988). The R software (R Core Team, 2021) does not have a direct code for running Little's MCAR test. Therefore, I used the SPSS 29 software (IBM Corp., 2017) to assess for missing items in my data. The results of Little's MCAR test, including all study variables, were non-significant ($N = 199$, $\chi^2 = 1281.320$, $p = 0.773$), which indicated that missing data is assumed to be MCAR (Little, 1988; Rubin, 1976). Approximately 9.4% of the data values were missing. According to this Tsiriktsis (2005), if more than 10% of data is missing, the best solution is Maximum likelihood imputation if data are NMAR (non-missing at random), Maximum likelihood and hot-deck if data are MAR (missing at random), and Pairwise deletion, hot-deck or regression if data are MCAR (missing completely at random). Pairwise deletion is one of the most common techniques for handling missing data, especially when data is MCAR (Peugh & Enders, 2004). It is an available-case analysis that attempts to minimize the loss that typically occurs in the listwise deletion and thus can increase power in the analyses. Of the 199 participants in the present study, 25 participants did not complete any items on the FAM FBS subscale scale, 29 participants did not complete items on the MSPSS total scales, 41 were missing in income, and 21 did not complete any item in the CSS question were all removed via pairwise deletion resulting in a total of 170, 174, 158 and 178 observations, respectively (see table 1 for details on other missingness).

Test of Invariance

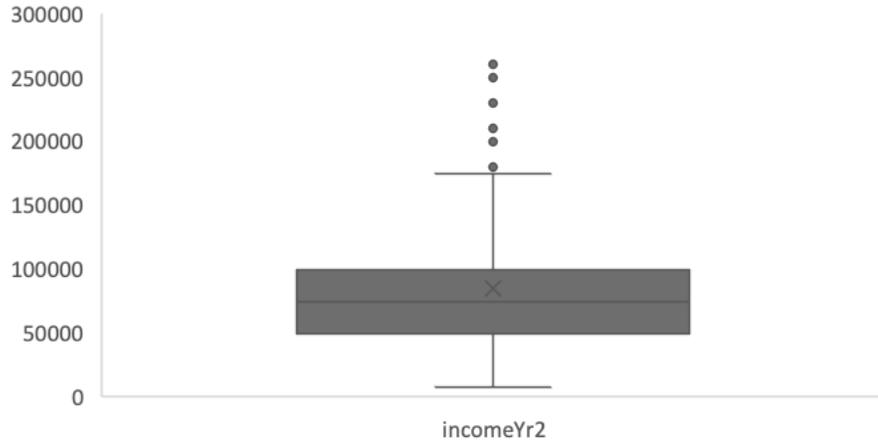
To address the unequal representation of demographic groups in the data (e.g., sex, race, ethnicity, relationship status), I used Chi-square tests to assess the potential invariances in the dichotomous variables (Meredith, 1993) for depression between categorical groups: (a) participant sex, (b) participant race, and (c) participant ethnicity. Chi-squared tests showed no significant differences between the presence of clinically significant depression among participant sex ($\chi^2 = 20.05, p = .694$), participant race ($\chi^2 = 18.05, p = .801$), participant ethnicity ($\chi^2 = 21.94, p = .58$), and participant relationship status ($\chi^2 = 154.3, p = .264$).

Assumptions Testing

Statistical outliers existed in income ($N = 159, M = 89223.92, SD = 74080.4$). Outliers in the income variable included eight participants who reported income two standard deviations above the mean. After a review of the data, one outlier appeared to result from the respondent error, where the participant indicated an income of \$750,000 per year. In contrast, other values appeared to be due to natural variance as the outlier participants reported making between \$170,000 - 260,000 and were therefore retained in the sample (Salgado et al., 2016; See Figure 4). Since one outlier appeared to be due to a data entry error and not a result of natural variance, the case of the participants with the highest income was removed from the dataset ($M = \$89,223.92, \text{minimum} = \$7,800, \text{maximum} = \$750,000$). Therefore, the income variable without the outlier was used for the moderation analysis ($N = 158, M = \$85,041.80, SD = \$52,193.98, \text{minimum} = \$7,800, \text{maximum} = \$260,000$).

Figure 4

Income Distribution



Note. The circle represents outliers. IncomeYr2 denotes participants' annual income.

Descriptive Statistics

Table 1 outlines participant demographics. Overall, most participants self-identified as a biological parent, female, White, Non-Hispanic, college educated, and married. The present sample demographic makeup is similar to most previous ASD caregiver studies (e.g., Ratto et al., 2017). Participant age varied from 23 to 74 years ($M = 41.04, SD = 8.6$).

Table 1

Participants Demographic Characteristics

Demographic Characteristics	Frequency(N)	Percent %
-----------------------------	--------------	-----------

Race

American Indian/Alaskan Natives	3	1.5
Asian	7	3.5
Black/African American	19	9.5
Native Hawaiian	1	.5
White	159	79.9
Other	6	3

Ethnicity

Hispanic	26	13.1
Non-Hispanic	163	81.9
Missing	10	5.0

Employment

Full time	97	48.7
Part time	38	19.1
Student	4	2.0
Retired	4	2.0
Disabled	14	7.0
Unemployed	35	17.6
Missing	7	

Relationship Status

Single, Never Married	9	4.5
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Committed Relationship (not married)	8	4.0
Engaged	2	1.0
Married	148	74.4
Separated	5	2.5
Divorced	16	8.0
Widowed	1	.5
Missing	10	5.0
Education Level		
No degree or diploma earned	1	.5
High school diploma/GED	30	15.1
Vocational/Technica l Cert	14	7.0
Associate's degree	24	12.1
Bachelor's Degree	65	32.7
Masters Degree	53	26.6
Other	2	1.0
Missing	10	5.0
Participant Sex		
Female	174	87.4
Male	18	9.0
Missing	7	3.5

Instruments Measures of Central Tendencies

Measures of central tendency were computed to summarize the data for the MSPSS, FAM, PHQ-8, CSS and income variables. See the descriptives of all variables in Table 2. The MSPSS specifically looks at three subscales of social support: family, friends, and significant others. The average MSPSS score was 4.92 ($SD = 1.3$). The data was slightly skewed to the left, with almost full variability, with scores ranging from 2.5 to 7. Full variability would be from one to seven. Also, The FAM consists of 30 items that participants answered on a five-point Likert scale. The score distribution was slightly skewed to the left. On average, participants scored 27.37 ($SD = 4.56$, minimum = 11, maximum = 35) on the family-based support scale. Furthermore, The current study measured depression via the PHQ-8. On average, participants in this study reported a PHQ-8 score of 9.24 ($SD = 5.80$, minimum = 0, maximum = 24). Participants with a score of nine or less were categorized as not having depression ($N = 89$; 52.35%), and participants with a score of ten or higher were categorized as having clinically significant depression ($N = 81$, 47.65%).

Consequently, the CSS and income were used as moderators in this study. The CSS measures the child's restricted/repetitive behaviors, communication, and aggression. Participants identified their agreement with items regarding their child's behavior (i.e., aggression, restricted/repetitive behaviors, communication) in the past 30 days on a six-point Likert scale. The summed scores of the three items represented the overall child symptom severity score. The average CSS total score was 11.98 ($SD = 3.45$; see Table 2). Thus, scores ranged from three to 18, with lower scores indicating less severity of ASD-related symptoms in the past 30 days. Lastly, the income variable is recoded from weekly, monthly, and annual responses into all annual income and analyzed to see the descriptive statistics of income for participants. Results

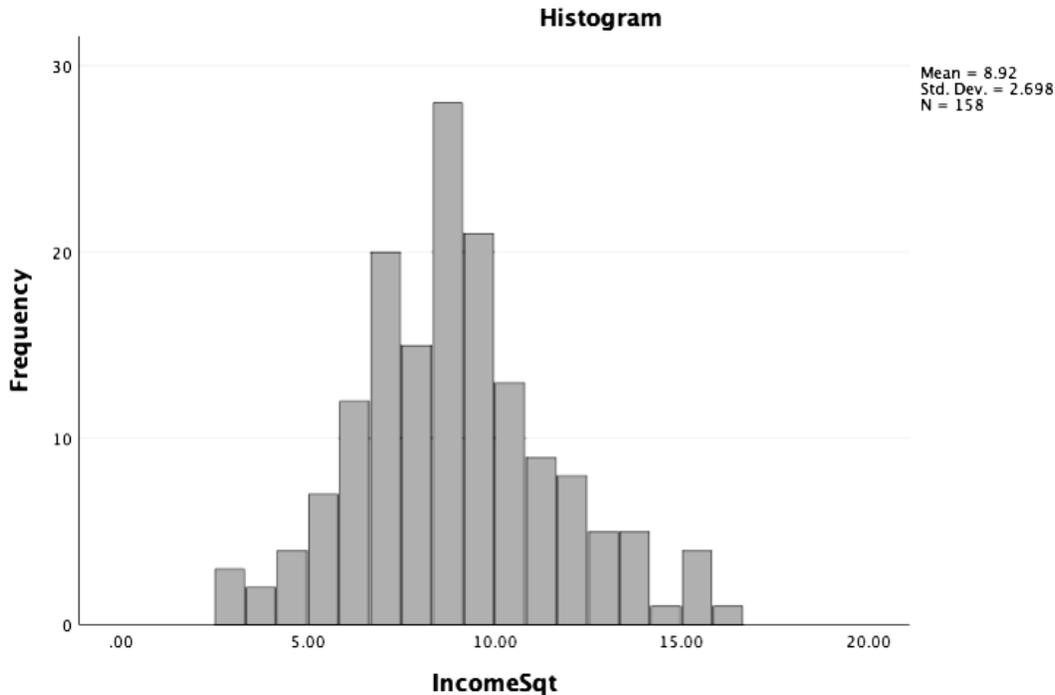
showed that the income variable was largely skewed to the right with the majority of the participants reporting income in the upper middle and high-income range (skew = 1.2). Due to the skewness of income as a continuous variable, I transformed the data using an inverse and square root transformation (Tabachnick & Fidell, 2013). The transformed income data had acceptable distribution properties for inclusion as a moderating variable (skew = .39, see figure 5).

Table 2

Measure of Central Tendencies

	Mean	SD	Min	Max	Skew
MSPSS Friend	4.76	1.51	1	7	-0.61
MSPSS Family	4.81	1.53	1	7	-0.64
MSPSS Significant Other	5.22	1.45	1	7	-1.01
MSPSS Total	4.92	1.30	1.75	7	-0.51
FAM FamilyBasedSupport	27.37	4.56	11	35	-.670
PHQ-8 Depression	9.24	5.8	0	24	0.27
CSS Aggression	3.13	1.78	1	6	0.18
CSS Communication	4.27	1.52	1	6	-0.62
CSS Restrictive Repetitive	4.56	1.47	1	6	-0.91
CSS Total	11.98	3.45	3	6	-0.31
Income	8.92	2.70	2.79	16.12	.390

Note. FAM refers to Family Adjustment Measure; MSPSS refers to Multidimensional Scale of Perceived Social Support; CSS refers to Child Symptom Severity; PHQ-8 refers to Patient Health Questionnaire-8.

Figure 5*Income Score Distribution*

Note: Incomesqt: Square root transformation of the income variable.

Instrument Psychometrics

I examined the psychometric properties of the study instruments to determine reliability and associations among the study variables with this sample. I conducted reliability tests for each of the scales used in the study (i.e., FAM FBS subscale, PHQ-8, MSPSS subscales, CSS). Overall, the internal reliability of the scales used in the present study was good. Statisticians consider Cronbach's alpha above .7 to represent acceptable reliability (Field, 2013). The confidence intervals of Cronbach's alpha were calculated using the interclass reliability coefficient (Baumgartner & Chung 2001; Bravo & Potvin 1991). The FAM FBS ($\alpha = .80$, 95% CI [.752, .843]) The PHQ-8 ($\alpha = .88$, 95% CI [.847, .909]), MSPSS significant other social

support (SO; $\alpha = .92$, 95% CI [.89, .945]), MSPSS friend social support (FRI; $\alpha = .93$, 95% CI [.91, .953]), and MSPSS family social support (FAM; $\alpha = .93$, 95% CI [.907, .951]) all had good internal reliability. The CSS total score had poor internal reliability ($\alpha = .536$, $\omega = .534$, 95% CI [.42, .758]). I included the CSS measure in the current study based on some of the reasons shared below. Cronbach's alpha measures the internal reliability of a scale that is intended to measure a latent construct, and it may underestimate the reliability of measures with small items (Cohen, 1992; Tavakol & Dennick, 2011). Therefore, the CSS is a three-item scale and was not developed to represent a single latent construct of child symptoms but to identify the parent's reported frequency of ASD-associated behaviors and diagnostic criteria pre-established in the DSM-5 (APA, 2013). These factors can explain the low reliability of the scale.

I also conducted confirmatory factor analysis (CFA) to examine the psychometric properties and latent factors present in the FAM (Daire et al., 2014) and MSPSS (Zimet et al.,) subscales. I assessed and screened for correlations by making sure that my variables correlated well with attention to values lesser than .3 and removing highly correlated values (i.e $>.90$) to avoid multicollinearity (Brown & Moore, 2013; Hu and Bentler, 1999; Hurley et al., 1997). The CFA is a more rigorous factor analysis because I can test hypotheses about how the factor is constructed and obtain model-fit statistics. As opposed to the exploratory factor analysis with significant limitations such as no p-value to statistically compare different solutions/rotations and the flawless prediction where each item doesn't have its own error terms (Gregory & Hancock, 2019), the CFA provides a result where each item has its own error terms. Hu and Bentler's (1999) model-fit criteria were used to examine the goodness-of-fit indices to judge how the CFA models fit the data sample. Table 2 shows the MSPSS and FAM FBS item descriptive statistics. To achieve overall goodness of fit, the goal is to have a model fit with Chi-square χ^2 ideally

non-significant, $p > .01$ or even $p > .001$, Tucker–Lewis Index, TLI), and/or Comparative Fit Index (CFI) Ideally greater than .80, Root Mean Square Error of Approximation (RMSEA) Ideally less than .08 and 90% CI for RMSEA doesn't contain .08 or higher and Standardized Root Mean Square Residual (SRMR) Ideally less than .08 (Asparouhov & Muthen, 2018). While chi-square is largely reported in CFA's, it is viewed as overly stringent given its power to detect trivial deviations of the data from the proposed model. Therefore it is recommended that researchers report multiple fit indices of the proposed model (Hancock & Mueller, 2019).

As previously stated, of the 199 participants in this study, 29 participants did not complete the MSPSS, and 24 participants did not complete the FAM assessment and thus were not included in the analysis resulting in a total of 170 and 174 observations, respectively. Thus, a one-factor model solution was fitted in all cases with ML estimation using the lavaan package in R (R Development Core Team, 2021). Research studies indicate that the accuracy for confidence intervals for RMSEA was found to be suitable for sample sizes larger than 200, and results of greater than .1 can only be judged based on the structure and size of the model (Pavlov et al., 2020; Satorra & Bentler, 1994; Shi & Maydeu-Olivares, 2019). Therefore, because of my small data sample, I included modification indices to explore recommendations that would help the overall goodness of fit of my model. Each factor loading is reported with multiple fit indices.

Properties and Structure of the MSPSS Significant Other Subscale

After pairwise deletion of unit non-response for the MSPSS, a total of 170 participants contributed data. Table 3 revealed the factor loadings results of the CFA of the MSPSS significant other subscales. The results suggested that the four items that measured MSPSS significant other subscales were significantly correlated with each other ($p < .01$). The factor loadings for all items were high and significant, ranging from .851 to .885 ($p < .001$). However,

the chi-square was significant (report p-value), and RMSEA was above .08, explaining that the model is not a good fit. We also allowed items mspss1 (“There is a special person who is around when I am in need”) and mspss10 (“There is a special person in my life who cares about my feelings”) to correlate given the conceptual similarity and empirical evidence of shared error variance.

The CFA results suggested that the one-factor model generally fit well the data ($\chi^2(1) = 1.9, p = .16$; RMSEA = .07; CFI = .99; TLI = .99; SRMR = .01). The RMSEA met the criterion of reasonable fit, while other indices met the criteria of good model fit. Thus, the CFA results confirmed that the MSPSS significant-other subscale measured a single factor. Based on these results, all four items were used as indicators of family-based support in the present study.

Table 3

Latent Variable for MSPSS Significant other subscales

Item number	Items	Std. all
MspssSO =~		
mspss1	There is a special person who is around when I am in need	0.883**
mspss2	There is a special person with whom I can share my joys and sorrows	0.885**
mspss5	I have a special person who is a real source of comfort to me.	0.844**
mspss10	There is a special person in my life who cares about my feelings	0.851**

Note. MspssSO refers to Multidimensional Scale of Perceived Social Support significant other

** denotes p-value < .001; Std.all refer to standardized factor loadings.

Properties and Structure of the MSPSS Family Subscale

The Confirmatory Factor Analysis (CFA) results suggested that the four items that measured the MSPSS family subscale were significantly correlated with each other ($p < .01$, see Table 4). The factor loadings for all items were high and significant, ranging from .83 to .92 ($p < .001$). Fit indices showed poor model fit. Modification indices indicated the strongest correlation

was between mspss4 (“*I get the emotional help and support I need from my family*”) and mspss11 (“*My family is willing to help me make decisions*”). These items were included in the new model as error covariance for the family subscale.

The CFA results suggested that the one-factor model shows a good model fit, $\chi^2(1) = 0.2$, $p = .67$; RMSEA = .00; CFI = 1.0; TLI = 1.0; SRMR = .003. Thus, the CFA results confirmed that the MSPSS family subscale measured a single factor. Based on these results, all four items were used as indicators of family subscale in the present study.

Table 4

Latent Variable for MSPSS Family subscale

Item number	Items	Std. all
MspssFAM =~		
mspss3	My family really tries to help me	0.889**
mspss4	I get the emotional help and support I need from my family	0.953**
mspss8	I can talk about my problems with my family	0.830**
mspss11	My family is willing to help me make decisions	0.868**

Note. MspssFAM refers to Multidimensional Scale of Perceived Social Support Family

** denotes Pvalue <.001; Std.all refer to standardized factor loadings.

Properties and Structure of the MSPSS Friend Subscale

The Confirmatory Factor Analysis (CFA) results suggested that the four items that measured MSPSS friend subscale were significantly correlated with each other ($p < .01$, see Table 5). The factor loadings for all items were high and significant, ranging from .84 to .91 ($p < .001$). Fit indices showed good model fit. Modification indices showed that there is no covariance in this subscale. Additionally, all model-fit indices met the criteria of good model fit, $\chi^2(2) = 2.5$, $p = 0.28$; RMSEA = .039; CFI = .99; TLI = .99; SRMR = .009. Thus, the CFA results

confirmed that the MSPSS friend subscale measured a single factor. Based on these results, all four items were used as indicators of the friend subscale in the present study.

Table 5

Latent Variable for MSPSS Friend subscale

Item number	Items	Std. all
MspssFR =~		
mspss6	My friends really try to help me	0.870**
mspss7	I can count on my friends when things go wrong.	0.912**
mspss9	I have friends with whom I can share my joys and sorrows	0.886**
mspss12	I can talk about my problems with my friends	0.844**

Note. MspssFR refers to the Multidimensional Scale of Perceived Social Support Friend

** denotes Pvalue <.001; Std.all refer to standardized factor loadings.

Family Adjustment Measure Family Based Support Subscale

Based on the CFA results, the seven items that measured FBS in the FAM assessment were significantly correlated with each other ($p < .01$). The factor loadings for all items were high and significant ranging from .399 to .690 ($p < .001$). The items fam16_FBS (There is marital/relationship harmony in our family.) and fam21_FBS (I feel supported by my spouse, partner, or significant other.) showed the strongest correlation (see Table 6). These items were included in the new model as error covariance for the family-based support subscale (Figure 6 shows the correlated items). The CFA results also indicated the one-factor model is an acceptable fit for the data sample, $\chi^2(13) = 45.481$, $p < .01$; RMSEA=.1; CFI = .91; TLI = .86; SRMR=.05. Thus, all seven items could be used as indicators of family-based support.

Table 6

Latent Variable for Family Adjustment Measure Family Based Support Subscale

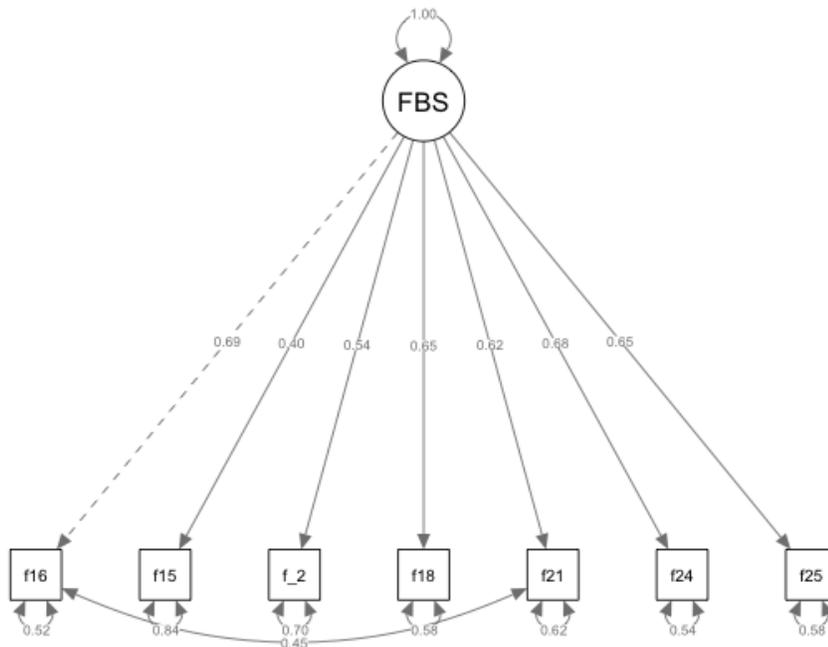
Item number	Items	Std.all
-------------	-------	---------

FBS =~		
fam16_FBS	There is marital/relationship harmony in our family	0.690**
fam15_FBS	We deal with stress as a family	0.399**
fam_2_FBS	We respect each other in our family	0.545**
fam18_FBS	There is loyalty in our family	0.650**
fam21_FBS	I feel supported by my spouse, partner, or significant other	0.618**
fam24_FBS	Our family has developed positive coping skills.	0.679**
fam25_FBS	We care about each other in our family.	0.649**

Note. FBS refers to Family Based Support Subscale; FAM refers to the Family Adjustment Measure; ** denotes Pvalue <.001; Std.all refer to standardized factor loadings.

Figure 6

Confirmatory Factor Analysis: Family Based Support Subscale (FBS)



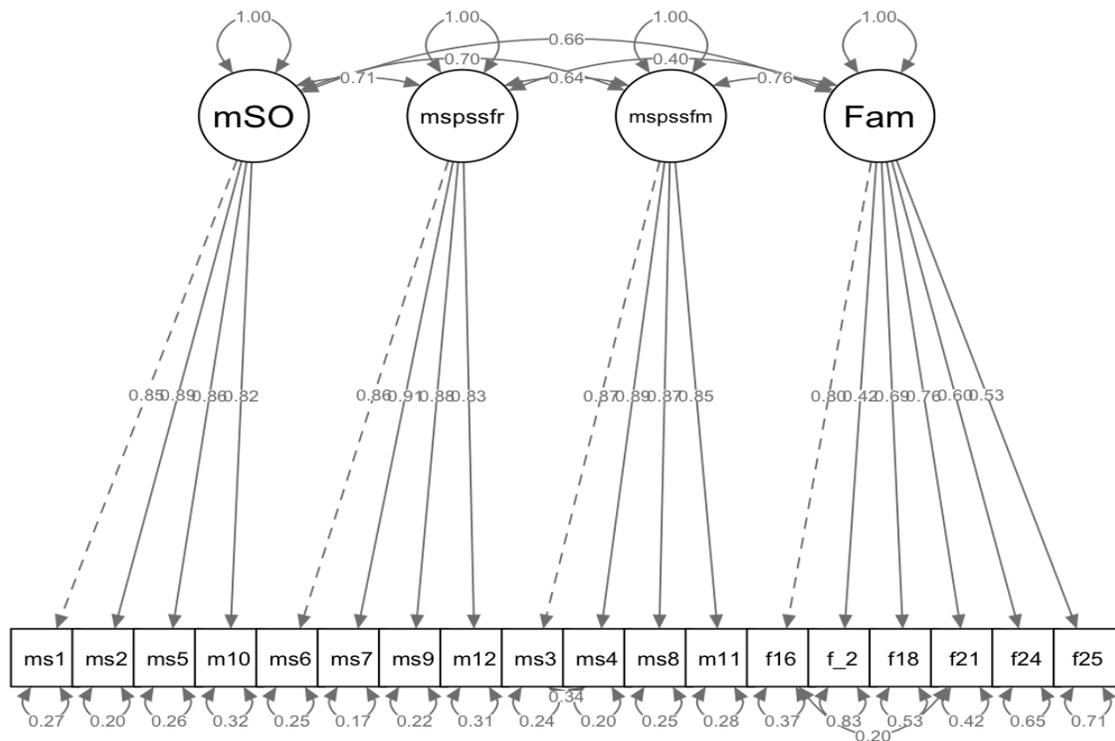
Social Determinants of Health Protective Factor

Lastly, I conducted a combined CFA of both the MSPSS subscales and the FAM FBS subscale to check for and overall goodness of fit as a latent variable for SDHPF. Overall, the preliminary analysis results (χ^2 (127) = 223.466, $p < 0.01$; CFI = 0.96; TLI = 0.95; RMSEA = 0.067; SRMR = 0.05) support the construct that the MSPSS and FAM are reliable factors latent

variable that measures family-based support. I included the Sempath in Figure 7 to visualize my standardized factor model with the extra covariance included in the modification indices.

Figure 7

Confirmatory Factor Analysis: SDOH protective factor Latent Variables



Note: mSO refers to the multidimensional scale of perceived social support significant-other subscale; mspssfr refers to the multidimensional scale of perceived social support friend subscale; mspssfm refers to the multidimensional scale of perceived social support family subscale; Fam refer to Family adjustment measure, family-based support subscale

Structural Equation Model Analysis

Research question one examined social determinants of health-protective factors (SDHPF) as predictors of depressive symptoms among parents of children with ASD. To answer

the research question, I used the structural equation model (SEM) to test: How do SDHPF predict the presence of depression in parents of children with ASD? The outcome variable for the model is depression, as measured by the PHQ-8 (Kroenke et al., 2009). SEM tests models that specify how specific groups of variables define a construct and the relationships among constructs (Crockett, 2012). For the SEM analysis, I compiled my total scores for each variable that was included as manifest indicators of my SDHPF. Further, I mean-centered the total scores of the MSPSS Friend, family, and significant-other subscale, FAM family-based support subscale, income, and child symptom severity before conducting the SEM analysis. The Cronbach's alpha of the centered variables indicated internal consistency; MSPSS Friend ($\alpha = .82$, $M = .001$ SD = 1.5), MSPSS Family ($\alpha = .80$, $M = -.000$ SD = 1.5), MSPSS Significant Other ($\alpha = .73$, $M = -.003$ SD = 1.4), FAM family-based subscale ($M = .000$ SD = 4.5), CSS ($M = .09$ SD = 3.4) and Income ($M = -.001$ SD = 2.7). The process of mean centering helped to further inspect sources of bias and aid in the interpretation of results in my model (Aiken & West, 1991; Hofer, 2017).

The SEM model involved four latent variables and one observed variable. Each latent variable was represented by multiple indicators. Below, I present the model results, including the results about the indicators of the latent variables, correlations among all the variables, the model fit indices, and parameter estimates.

Indicators of Latent Variables

The following table presents the standardized loadings, as well as the residuals of each indicator, in the SEM model. According to Table 7, the indicators showed high loadings ranging from .55 to .98 ($p < .01$), and the residuals were between .04 and .70.

Table 7*Factor Loadings and Error Variances of the Indicators of Latent Variables*

Factors	Indicators	Standardized λ	Error Variance
Significant Other Support			
	mspss1	0.874**	0.23**
	mspss2	0.887**	0.21**
	mspss5	0.854**	0.27**
	mspss10	0.846**	0.29**
Friend Support			
	mspss6	0.864**	0.25**
	mspss7	0.914**	0.17**
	mspss9	0.880**	0.23**
	mspss12	0.833**	0.31**
Family Support			
	mspss3	0.907**	0.18**
	mspss4	0.923**	0.15**
	mspss8	0.847**	0.28**
	mspss11	0.833**	0.31**
Family Adjustment - Family Based Support			
	fam16_FBS	0.798**	0.36**
	fam_2_FBS	0.413**	0.83**
	fam18_FBS	0.682**	0.54**
	fam21_FBS	0.767**	0.41**
	fam24_FBS	0.594**	0.64**
	fam25_FBS	0.532**	0.72**

Notes. ** denotes Pvalue < .01; Mspss refers to Multidimensional Scale of Perceived Social Support; FamFBS refers to Family Adjustment Measure Family-based support Subscale; λ denotes factor loadings.

Correlations among all the Variables

After examining the indicators of each latent variable, I examined the correlations among all the latent variables as well as their correlations with the observed variable (i.e., depression) using the SPSS 29 software (IBM Corp., 2017). Table 8 shows the correlations among all the variables in the present study.

The correlation matrix of the family-based support subscale of the FAM shows that family relationships positively and significantly correlated with the MSPSS family, friend, and significant other subscales (perceived social support of friends, $r = .343, p < .01$; perceived social support from significant other, $r = .551, p < .01$, perceived social support from family, $r = .624, p < .01$ see Table 8). As expected, the family-based support subscale negatively correlated with depression and was statistically significant ($r = -.281, p < .01$) Among parent's support system, support from friends was positively and significantly correlated with the other family-based subscales (FAM, family-based measure, $r = .347, p < .01$; perceived social support from significant other, $r = .648, p < .01$; and perceived social support from family, $r = .576, p < .01$; see Table 8). Although non-significant ($p > .05$), parents' perception of social support from friends also negatively correlated with depression.

Table 8

Correlations Matrix of all Variables in the Model

	FAM: FBS	MspssSO	MspssFAM	MspssFR	Depression
FAM: Family-based support		.551**	.624**	.347**	-.281**
MSPSS Significant Other	.551**	1	.626**	.648**	-.183*
MSPSS Family	.624**	.626**	1	.576**	-.347**
MSPSS Friends	.347**	.648**	.576**	1	-.129
Depression	-.281**	-.183*	-.347**	-.129	1

N=163

Notes. **. Correlation is significant at the 0.01 level (2-tailed); *. Correlation is significant at the 0.05 level (2-tailed); MspssSO refers to Multidimensional Scale of Perceived Social Support significant other; MspssFAM refers to Multidimensional Scale of Perceived Social Support

Family; MspssFR refers to Multidimensional Scale of Perceived Social Support Friend; FAM: FBS denotes Family Adjustment Measure, Family-based support.

Goodness of Fit indices and Parameter Estimates of Latent Variable

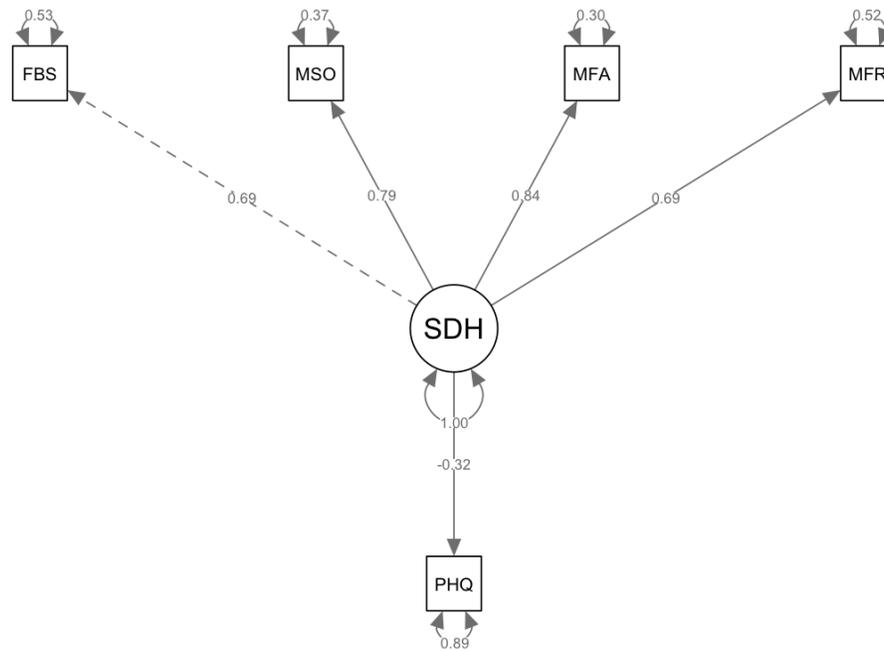
I evaluated the goodness-of-fit for the hypothesized model using mean-centered variables. The FAM variables and MSPSS variables have different measurement values. Hence the use of mean centering to help with the interpretability of results (Aiken and West, 1991). Mean centering has been offered as a remedy for problems of collinearity in moderated multiple regression models or in polynomial and structural equation models. Also, for the sake of the interpretability of results, it is recommended that researchers center predictor variables when their variables do not have meaningful zero points (Hofer, 2017). Further, Hu and Benter (1999) criteria of the goodness of fit were used to evaluate the fit of the proposed model. The results of the SEM analysis suggested that the hypothesized model fit well the data sample ($N=167$), with $\chi^2(129) = 233, p < .01$; RMSEA=.06; Robust CFI = .95; Robust TLI = .95; SRMR=.04. Thus, no modification was made to change the model, and the hypothesized model was the final model.

Social Determinants of Health Protective Factors Predict Depression

The final model showed that the SDHPF (i.e., FAM family-based measure, perceived social support from significant other, perceived social support from family, perceived social support from a friend) were positively correlated with each other (Table 8). Research question one addressed the extent to which SDHPF predict the absence of depression among parents of children with ASD (see Figure 7 for the SEM model).

Figure 7

The final SEM single model with standardized solutions and mean-centered variables



Notes. FBS refers to the Family Adjustment Measure Family-based support Subscale; MSO refers to the Multidimensional Scale of Perceived Social Support significant-other subscale; MFR refers to the Multidimensional Scale of Perceived Social Support friend subscale; MFA refers to the Multidimensional Scale of Perceived Social Support family subscale; SDH refers to latent social determinants of health-protective factor; PHQ refers to depression.

Direct Effects

Table 9 includes the standardized solutions of parameter estimates. The standardized solution means the change of the amount of the standard deviation in the predicted variable as the predictor increases by one standard deviation, controlling for other predictors, which indicates the extent to which the predictor may influence the predicted variable. Table 9 revealed that one standard deviation increase above the mean in parents' family-based support was associated with a .609 standard deviation decrease in the symptoms of depression reported by parents of children with ASD.

Table 9*Standardized Solutions of Parameter Estimates*

Parameters	Estimate	Standardized Results
Depression ~ SDHPF	-0.609	-0.325**

Note. SDHPF refers to the latent social determinants of health-protective factor; ** denotes

Pvalue < .01.

Exploring Moderators of SDHPF and Depression

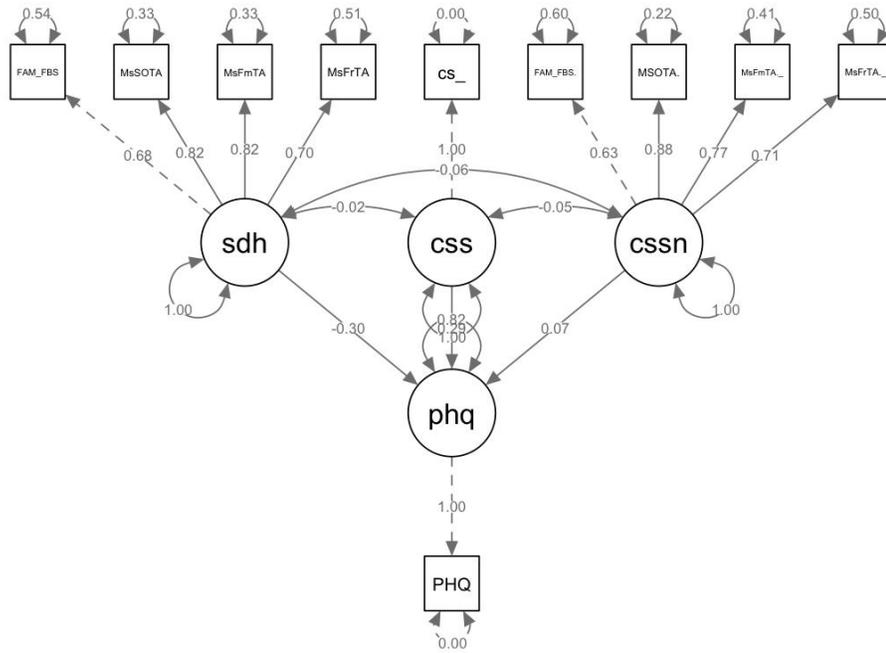
Research question two and three examined separate moderation effects of child symptom severity and financial resources on the strength of the relationship between SDHPF and depression among parents of children with ASD. To answer the research question, I use the moderation analysis. The purpose of the moderation structural equation model (SEM) is to answer the second research question: How does child symptom severity (moderating variable) influence the strength of association between SDHPF and depression of parents of children with ASD? and third research question: How do financial resources, as reported by family income (moderating variable), influence the strength of association between SDHPF and depression of parents of children with ASD?

Moderation Analysis

Based on the model presented in Figures 8 and 8.1, I investigated whether child symptom severity and family income may influence the relationships between parents' perception of family-based support and the absence of depressive symptoms, i.e., the moderation effects of child symptom severity and family income on the relationships. Consequently, I examined the moderation analysis using the mean-centered income and child symptom severity variables. The moderation analysis is conducted to answer both research questions.

Figure 8

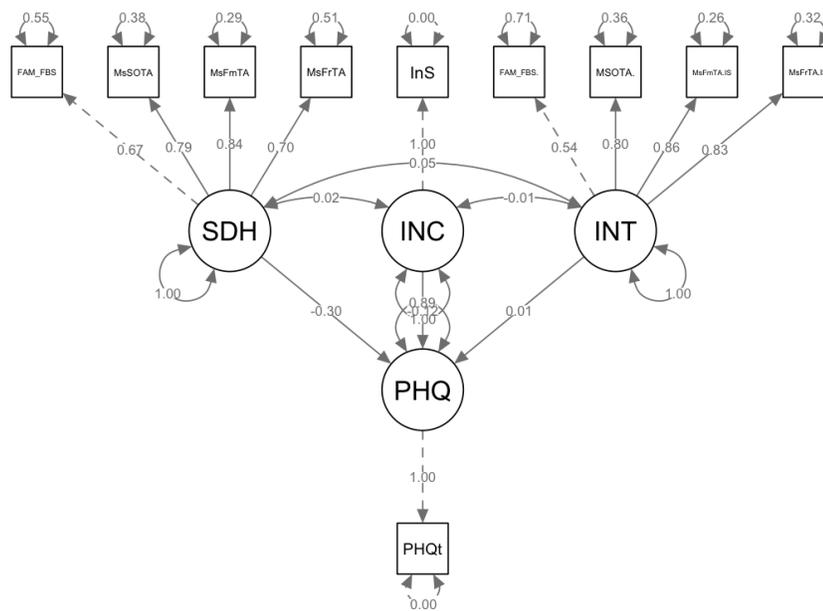
Child symptom severity SEM moderation analysis with standardized solutions and mean-centered variables



Notes. SDH refers to the latent social determinants of health-protective factor; css refers to the child symptom severity; cssn refers to the interaction between child symptom severity and social determinants of health-protective factor; phq refers to depression.

Figure 8.1

Financial resources SEM moderation analysis with standardized solutions and mean-centered variables



Notes: SDH refers to the latent social determinants of health-protective factor; INC refers to income; INT refers to the interaction between income and social determinants of health-protective factor; PHQ refers to depression.

Child Symptom Severity as a Moderator

The moderation effect of child symptom severity was indicated by whether the relationship (between SDOH protective factor and depression) was different (stronger or weaker) depending on the severity of the child's autism. The moderation results suggested that the final model without constraints (i.e., all parameters were freely estimated across the two groups) fit the data well ($N = 160$), $\chi^2(31) = 73.280$, $p > .05$; RMSEA = .06; CFI = .96; TLI = .94; SRMR = .05. Regression results revealed that one standard deviation increase in children with ASD symptom severity was associated with a .498 standard deviation increase in the symptoms of depression reported by parents of children with ASD ($p < .001$). However, the interaction between child symptom severity and family-based support as a SDHPF was not statistically

significant ($p > .05$). Overall, the interaction between child ASD symptom severity and SDHPF were non-significant in explaining the strength of the relationship between SDHPF and depression (see Table 10). Thus, a moderation effect of child symptom severity may not exist.

Table 10

Child symptom severity interaction effect

Regressions:

Parameters	Estimate	P(> z)	Standardized results
Depression ~ SDHPF	-0.574	0.001	-0.297
Child symptom Severity	0.498	0.000	0.285
Child symptom Severity Interaction	0.045	0.422	0.070

Note. SDHPF refers to the latent social determinants of health-protective factors.

The second research question addressed the moderation effect of child symptom severity on the directional relationships between family-based support as a SDHPF and depression. Generally speaking, the strength of the relationship between the family's access to support and their symptoms of depression did not greatly depend on the degree of their child with ASD symptoms severity. Thus, the variable of child symptom severity was not a good moderator of this relationship.

Income as a Moderator

The moderation effect of income was indicated by whether the relationship (between SDHPF and depression) was different (stronger or weaker) depending on the income of participants. Using SPSS 29 software (IBM Corp., 2017), I transformed the income variable by dividing income by 1000 to address the large number and variability of income levels and rounded the decimal to 0. As previously shared, I completed a reflect and transformation square root of the already divided income variable to address skewness (See Table 2; Figure 3). The

mean-centered transformed square root income variable represented the continuous income variable as a moderator for the strength of association between family-based support as a SDHPF and depression. The moderation results suggested regression model for income without constraint (i.e., all parameters were freely estimated) shows a poor overall fit ($N=137$), $\chi^2(31) = 69.077$, $p < .01$; RMSEA=.1; CFI = .86; TLI = .79; SRMR=.07.

Regression results (see Table 11) revealed that income was not statistically significant in decreasing the symptoms of depression reported by parents of children with ASD ($p > .05$). Further, the interaction between income and family-based support as an SDHPF was not statistically significant ($p > .05$). Therefore, income and SDHPF interaction were non-significant in explaining the strength of the relationship between SDHPF and depression. Thus, a moderation effect of income may not exist (see figure 7.1 for the interaction model).

Table 11

Income Interaction effect.

Regressions: Parameters	Estimate	P(> z)	Standardized results
Depression ~ SDHPF	-0.560	0.001	-0.300
Income	-0.262	0.139	-0.124
Income Interaction	0.013	0.868	0.015

Note. SDHPF refers to the latent social determinants of health-protective factors.

The third research question addressed the moderation effect of income on the directional relationships between family-based support as a SDHPF and depression. Generally speaking, the strength of the relationship between the family's access to support and their symptoms of depression did not greatly depend on the income level or categories of parents. Thus, the variable of income was not a good moderator of this relationship.

Post-Hoc SEM and Simple Slope of Moderation Effect

For post hoc analysis, I completed an SEM analysis to examine if income and child symptom severity analysis predicts the presence of an SDHPF. The result of the SEM shows that neither income nor child symptom severity significantly predicted the presence of SDHPF for parents of children with ASD ($p > .05$). To further investigate the moderation effects, I completed the post-hoc simple slope analysis that involves a two-way interaction of two continuous variables (child symptom severity and income). It is based on an analysis of observational data (as predictors) and depression (as an outcome). The purpose of the overall set of analyses was to examine whether child symptom severity and income variables have additive and/or interactive effects on depression. The presence of a significant interaction in moderation tells us that the outcome is significantly different across levels of the moderator or that the association is conditional on the values of the moderator.

Although the two-way interaction emerged as non-significant in the initial regressions, I conducted a post-hoc probe to analyze the specific conditions that dictate whether the predictor is significantly related to the outcome and whether the simple slope is significantly different from zero, i.e., the simple slopes just describe the relationship between SDHPF and depression for low, medium, and high values of income and child symptom severity. The simple slope analysis automatically provides the result in three levels in R, with the medium value being the mean, and each simple slope may or may not differ significantly from zero. However, after the simple slope analysis, the medium ($0, p < .01$) and high values ($+1SD, p < .05$) of the income variable have a statistically significant negative effect from the independent variable on the dependent variable. This result suggests that there is an indirect interaction between income and family-based support as a SDHPF, i.e., SDHPF significantly reduces depression when income is medium and

high. It is important to note that the significance value of high income as a moderator, even at the simple slope analysis, is barely significant (see Figure 9). Further, the low ($-1SD, p < .01$) and medium ($0, p < .01$) value of the child's symptom severity has a statistically significant negative effect from the independent variable on the dependent variable. This result indicates that there is an indirect interaction between child symptom severity and family-based support as a SDHPF, i.e., at a low and medium level of child symptom severity, SDHPF significantly reduces depression for parents of children with ASD (see Figure 9.1)

Figure 9

Income Simple Slope

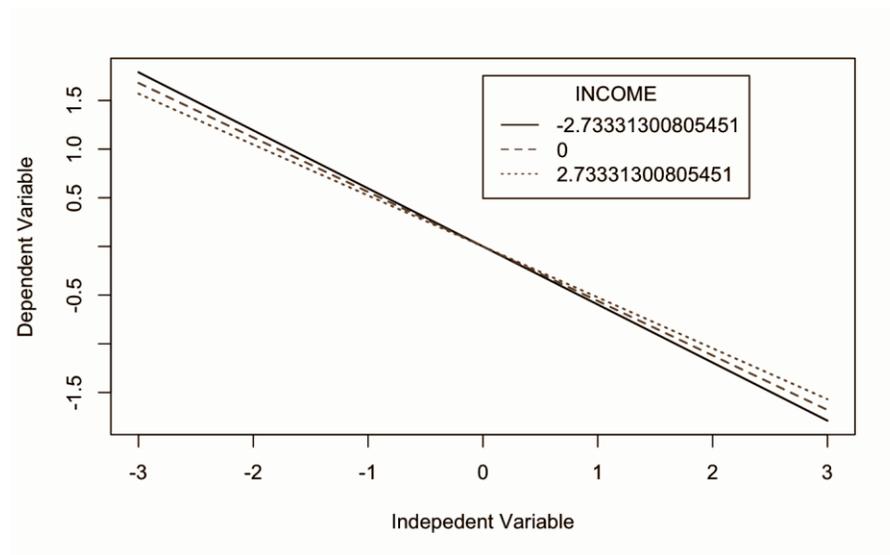
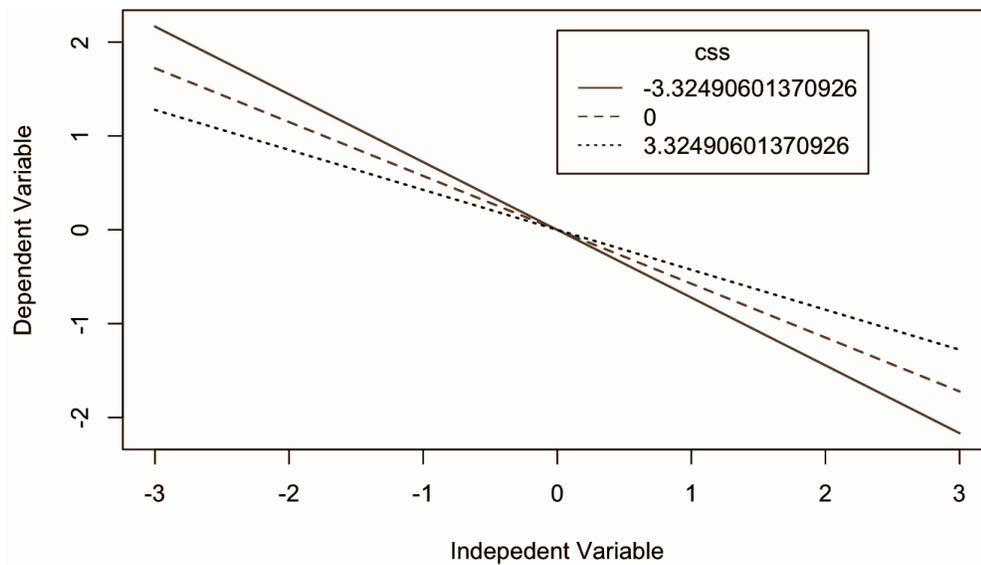


Figure 9.1

Child Symptom Severity (CSS) Simple Slope



Chapter Summary

The present study used a variety of statistical analyses to examine the construct of social determinants of health protective factors. In chapter four, I presented results related to (a) data cleaning and assumptions testing, (b) participant demographics, and (c) analysis of research questions and hypotheses. Data cleaning and assumptions testing illuminated that data were missing completely at random and had significant outliers in the income variable. Test of invariances indicated no significant differences among demographic groups in the data. Scale reliabilities were generally good except for the CSS, which is theoretically supported as a measure of observed behaviors associated with ASD diagnostic criteria (Kozachuk, 2020). Participant demographics indicated a predominately White, Non-Hispanic, middle-aged female sample - consistent with the typical lack of diversity in ASD research (Ratto et al., 2017). Through research questions one through three, I completed a structural equation modeling analysis that examined predictors of SDHPF and assessed the ability of SDHPF to predict the presence of depression. Results of CFA factor analyses indicated that the SDHPF latent variable

indicates overall goodness of fit for my model. The SEM analysis reported that the SDHPF is a statistically significant predictor of depression for parents of children with ASD.

Finally, moderation analysis was completed for research question 2&3. Although the post-hoc simple slope analysis indicates that at the medium and high value of the income variable, the SDHPF significantly reduces symptoms of depression, and at the low and medium value of the child's symptom severity, there is a conditional significant effect of the SDHPF on depression, the regression results of continuous variables (income and child symptom severity) were not statistically significant as moderators ($p > .05$). Therefore, the results of the simple slope analysis cannot be used to explain a total moderation effect of income and CSS. However, it is important to note that there are indirect interactions happening in the proposed model, and future research can explore these interactions with more robust samples and child symptom severity measures with internal reliability. In chapter five, I discuss the results and implications for counselor training, practice, policy, and future research.

Chapter Five

DISCUSSION

In chapter five, I discuss the study findings. First, I outline the overall study summary, including the goals, methods, and analyses. Next, I discuss the descriptive data regarding parent and child demographics, frequencies, and summaries of the variables related to social determinants of health protective factors (SDHPF), child symptom severity (CSS), income, and descriptive information about the study outcome variables, depression. Then, I summarize the results of the three study research questions in relation to the broader literature. In conclusion, I discuss the implications of the findings for counselor education, practice, policy, and limitations of the present study and suggest future directions for research.

Study Summary

In the present study, I sought a comprehensive understanding of informal and family-based support as protective factors for depression. I examined the psychometric properties of informal and family-based support as hypothesized predictors of social determinants of health-protective factors (SDHPF). Specifically, I analyzed family-based support as a predictor of depression for parents of children with ASD. Additionally, I investigated the moderation effects of financial resources (income) and child symptom severity on the relationships between their social determinants of health-protective factors and symptoms of depression. I then completed a post hoc analysis to examine if the moderation variables significantly predicted the outcome variable. The hypotheses were proposed based on a review of the literature regarding social determinants of health and depression for families of children with ASD.

I utilized a secondary dataset of parents of children with ASD from a university-level internally funded grant initiative on which I am a student member of the research lab that

completed the data collection. Participants of the study were primary caregivers of a child with ASD and at least 18 years of age. The final sample consisted of 199 caregivers, mostly biological parents (91.33%). Participants completed a series of instruments, including (a) a researcher-developed parent and child demographic form, (b) a researcher-developed child ASD- symptom severity scale based on the diagnostic criteria of the DSM 5 (APA, 2013), (c) the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988), (d) the Family Assessment Measure (FAM, Daire, et al., 2014), and (e) the Patient Health Questionnaire-8 (PHQ-8; Kroenke et al., 2009). I conducted various quantitative analyses to assess data and answer the study research questions. Preliminary and primary analyses included: (a) confirmatory factor analysis (CFA), (b) structural equation modeling (SEM), and (c) moderation analysis.

The results of the present study supported the negative relationship between SDHPF (i.e., informal and family-based support) and depression. Informal and family-based support predicted lower levels of depressive symptoms among parents of children with ASD. Our findings in the current study align with prior research, demonstrating the protective role of social supports found in other sample populations (Herman & Thompson, 1995; Jonathan et al., 2013). However, the moderating relationship between these variables (income and child symptom severity) was not statistically significant. Thus, other factors may influence the ability of income and child symptom severity to moderate the relationship between these variables. However, child symptom severity and income have been strong predictors of depression among parents of children with ASD in previous research. For example, researchers found that child symptom severity (e.g., aggressive behavior) and financial instability were positively correlated with parental symptoms of depression (Janssen, 2019; Yorke et al., 2018) and parents with higher income level reported

access to other social, environmental, biological, and immunological factors that positively impacted diagnosis and care for their child with ASD (Adak and Halder, 2017). So, the results of the current study contrast existing evidence for the moderating role of income and child symptomology for parental depression.

The differences found in the effects of income and child symptoms for depression in the current study may relate to the features of the design and sample. For example, the participants of this study were majority upper-middle-income to high-income earners (US income classification, 2021). In addition, income may not have contributed as predicted because of individual and societal attitudes about financial status (Henchoz et al., 2019) and the increased financial strain of having a child with ASD (Horlin et al., 2014). Researchers reported the high financial cost of having a child with ASD (Cakir et al., 2020) and the expected increase in the monetary cost depending on the severity of the child's autism (Buescher et al., 2014; Cidav et al., 2012). Therefore, a post hoc report of an indirect effect on the relationship between SDHPF and depression when income is high, and medium is not surprising. The second is that the child symptom severity scale was researcher-developed and only addressed the frequency of behaviors as identified in the DSM-5 (APA, 2013) as opposed to the intensity and symptoms of challenging behaviors experienced in other families of children with ASD studies (Wayment et al., 2019).

Descriptive Data Statistics

The present study is additive to existing research as it retained a moderate sample size of parents and caregivers of children with ASD ($N = 199$). However, the overall sample of the study was mostly White, Non-Hispanic, female, married, and employed, and most demographic categories had slight variation (Kozachuck, 2020). The average and median income of the sample was within the low-middle to upper-middle class range for a family income (World

Bank, 2022). Research and treatment with low-income, ethnically diverse families of children with ASD are sparse (Norbury & Sparks, 2013). Historically, the discrimination of economically and ethnically diverse persons in research has led to mistrust of researchers and the research process among marginalized communities, which makes research recruitment of a diverse sample challenging (Yancey et al., 2006). Further, although there is a high prevalence rate of ASD diagnosis in marginalized communities, economically and ethnically diverse families often report later diagnoses of ASD, higher comorbidity of ASD and intellectual disability, and less access to services (Shaw et al., 2023). The homogeneity of the sample is consistent with most ASD-related studies (Taylor et al., 2020; Trembath et al., 2019) and is considered a limitation of the current study. Primary recruitment for the present study occurred through ASD-specific services and organizations, which may have inadvertently excluded parents who do not have access to such resources. Inevitably, because of the aforementioned limitation of the study, it is vital to note that the results of the present study should be interpreted with caution as they may not be generalizable to a nationally representative population. Future research should consider innovative, collaborative strategies for research development and recruitment of diverse families that include a child with ASD (Ratto et al., 2017; Taylor et al., 2020). Collaboration with ethnically and economically diverse communities, increased innovative study design strategies, selection and interpretation of study outcomes, and proposed interventions (Akerle et al., 2021; Hawn Nelson & Zanti, 2020) can increase the participation of diverse individuals.

Social Determinants of Health Protective Factors

The present study examined the Multidimensional Scale of Perceived Social Support (MSPSS; friend, family, and significant others subscales; Zimet et al., 1988) and the Family Assessment Measure (FAM; family-based support subscale; Daire et al., 2014) as the latent

construct for family-based support as an SDHPF. Parents reported slightly higher levels of support from significant others ($M = 5.22$, $SD = 1.45$), followed by family ($M = 4.81$, $SD = 1.53$) and then friends ($M = 4.76$, $SD = 1.51$). Average reports of social support were moderate (family, friend) to high (significant other; Zimmet, 1988). Overall, support (as measured by the MSPSS) was about one point higher than reported support from mothers of children with ASD in a study by Alon (2019; $M = 3.95$, $SD = 0.85$) but low in the study of mothers in low SES environment by Respler-Herman et al. (2014; $M = 72.5$ $SD = 14.17$). Therefore, there is not enough information to fully conclude whether this sample has higher or lower levels of support than the general ASD-parent population. Future research can investigate the different levels of social support with larger samples and more diverse demographics. Further, parents reported a moderate level of family support in the FAM family-based support subscale ($M = 27.37$, $SD = 4.56$), which is consistent with previous studies with parents of children with ASD (McKee et al., 2019). Overall, the SDOH protective factor variables indicated that the present sample has access to and utilizes family-based support.

Child Symptom Severity

The CSS measured child symptom severity and demonstrated poor internal reliability. However, the CSS measured the frequency of behaviors as reported in the DSM-5 (APA, 2013). There are several measures of symptom severity of ASD that studies have used to examine severity and to challenge behavior in other parent studies on ASD (e.g., Giovangoli et al., 2015; Wayment et al., 2019). Few studies have included the potential influence of differences in the frequency of ASD symptoms. For example, Kochazuck (2020) examined the frequency of ASD behavioral symptoms and their influence on family relationship hope for parents of children with ASD. Therefore, I include the CSS measure in my analyses for research question two as a

moderating variable. According to items on the CSS, on average, parents were less likely to report recent aggression and more likely to report difficulties with communication and restrictive and repetitive behaviors. Overall, CSS average scores were towards the middle of possible values, indicating a general agreement to the presence of aggression, difficulties communicating, and restrictive and repetitive behaviors from their child with ASD in the last 30 days, which is consistent with the ASD diagnosis criteria (APA, 2013). Future research should further examine the utility of the CSS instrument. Overall, the CSS variable offered insight into the possible influence of challenging behavior frequency on depression parents experience when raising a child with ASD.

Financial resources

Income was used to measure financial resources in the present study. As previously noted, the participants of this study were majority upper-middle-income to high-income earners (World Bank, 2022). Therefore, the income distribution was greatly skewed to the right. Studies have reported the high financial cost of having a child with ASD (Cakir et al., 2020) and the expected increase in the monetary cost depending on the severity of the child's autism (Buescher et al., 2014). Consequently, a post hoc report showed an indirect effect of income on the relationship between SDHPF and depression when income is high and medium. However, the present study's lack of variability in family income poses a limitation in understanding the impact of income on family-based support as an SDOH protective factor.

Protective SDOH for Parent Depression

The present study utilized a strengths-based approach to explore symptoms of depression reported by parents of children with ASD - an innovative approach within ASD research. The researcher utilized a rigorous methodology to analyze data, and the study results provide

valuable insights into the protective nature of informal and family-based support. This section discusses the findings in more detail. We will also explore the implications of the results and consider how they might be applied to practice, training, and policy in the counseling field. Thus, we can gain a deeper understanding of family-based support as an SDOH protective factor and potentially contribute to advancing knowledge in counselor education.

Measurement of Social Determinants of Health-Protective Factors

My preliminary analysis investigated the psychometric properties of the FAM (Daire et al., 2014) and the MSPSS (Zimet et al., 1988). Based on existing research using MSPSS (Alon, 2019; Respler-Herman et al., 2012) and FAM (McKee et al., 2019). The overall goodness of fit for both scales was good. MSPSS and FAM reported good internal consistency and reliability. The MSPSS has been used in several studies (Alon, 2019; Respler-Herman et al., 2012) because of its ability to examine social support for parents of children with disabilities. However, the FAM assessment is a relatively new instrument that measures family adjustment via support and positive coping strategies. For instance, the correlations between the FAM family-based subscale and the MSPSS family subscale ($r = 0.62, p < .001$) showed that although both measure family-based support, the correlations were moderate enough to suggest that these subscales are perhaps measuring different aspects of family support (Bewick et al., 2003). Thus, this result is innovative as it shows that the FAM is a good instrument to measure specifically the perception of family-based support by parents of children with ASD.

Social Determinants of Health Protective Factors and Depression

Research question one examined the question: How do SDHPF, as reported on the subscales of the MSPSS (i.e., Friends, Family, Significant Others) and family-based support subscale of the FAM, predict depression in parents of children with ASD? The results of the

present study supported my directional hypothesis that SDHPF will predict a negative association with depression in parents of children with ASD. According to Herman and Thompson (1995), parents report that family-based support provided the most assistance, while formal support opportunities, such as social clubs and daycare centers, were not readily available. Even with the presence of other factors such as income inequalities (Sánchez-Moreno & Gallardo-Peralta, 2021), educational levels (Sharabi & Marom-Golan, 2018), and pile-up stressors (Jonathan et al., 2013; Kochazuck, 2020), parents with a higher perception of social support reported lower symptoms of depression and parental distress. Further, family-based support specifically has been reported with older parents of children with ASD to predict parental stress and increase the quality of life (Drogomyretska et al., 2020; Marsack & Samuel, 2017). Therefore, the results aligned with the theoretical framework hypothesized for family-based support and provided a novel and added information to the literature on the influence of informal support from friends, family, and significant others on symptoms of depression of parents of children with ASD.

Moderating Effect of Child Symptom Severity on SDOH and Depression

The present study did not support the hypothesis of child symptom severity as a moderating variable for SDHPF and depression. Although as a moderating factor, CSS did not moderate the strength of the relationship, our linear regression shows that CSS significantly increased symptoms of depression for parents of children with ASD. The results of CSS as a predictor for depression align with previous studies that suggested that families with children with high symptom severity reported higher symptoms of depression and stress (Barańczuk & Pisula, 2020; Bob, 2008; Heifetz et al., 2019; McStay et al., 2014; Resch et al., 2012). Thus, in

the present study, parents who reported having a child with higher frequencies of aggression, communication, and restrictive/repetitive behaviors have increased symptoms of depression.

The results of the post hoc simple slope moderation analysis of the present study revealed that the strengths of the SDOH protective factor predicting symptoms of depression are strong when CSS is at medium (0) and low level (-1SD). Unfortunately, moderation analysis on all levels of the slope was not significant. However, this result is novel as it alludes to the fact that there is some level of interaction between SDOH protective factor and CSS, albeit conditional. The conditional nature of the association between CSS and SDOH could be because our scale was researcher-created and measures only the frequencies of behavior and not the overall aspects of the ASD severity. It could also be attributed to the poor internal reliability of our CSS scale. Future research should use other more robust measures to investigate CSS as a moderating factor.

Moderating Effect of Income on SDHPF and Depression

The present study did not support the hypothesis of income as a moderating variable for SDHPF and depression in this sample. Also, our linear regression shows that income did not significantly predict symptoms of depression for parents of children with ASD, nor did it predict the presence of family-based support as a social determinant of health-protective factors. The results of income as a moderator for family-based support and depression contradict findings from Sánchez-Moreno and Gallardo-Peralta (2021) that an interaction existed between income quintile and social support, with higher levels of social support associated with lower scores for depression among older adults in Europe. Few research studies have examined income as a moderator or predictor variable for depression of parents of children with ASD. However, previous studies have reported that the high cost of caring for a child with ASD increases the

symptoms of depression and reduces the quality of life for families and caregivers of children with ASD (Kuru & Piyal, 2018; Pisula & Porębowicz-Dörsmann, 2017). Therefore, it is surprising that income did not significantly act as a moderator or predictor in this sample.

To a reasonable extent, the results of the present study's post hoc simple slope moderation analysis revealed that the strengths of SDHPF predicted symptoms of depression when income was at medium (0) and high level (+1SD). Therefore, a higher and medium income level was associated with lower levels of depression. However, moderation analysis on all levels of the slope was not significant. There are several reasons why the result may be non-significant. For example, our sample was tiny compared to other studies that have examined income as a moderator (Sánchez-Moreno & Gallardo-Peralta, 2021 N= 68,417). Also, most participants in the current analysis were in the upper middle to high-income classes. So, the income distribution of this sample is greatly skewed to the right, which could impose some bias. Thus, future research should investigate income as a moderating factor for depression and SDOH protective factor among parents of children with ASD with a robust sample size and diverse economic and ethnically diverse groups.

Limitations

There are several limitations to the present research study. As a secondary analysis, researchers have already collected the data, and I have had no input into the design or measurement of constructs. The present study is correlational; therefore, only associations between variables may be supported with no reference to the causation of one variable on another (McMillan, 2016). As noted previously, the participant sample is homogeneous and does not represent the general population. Thus, the results of this study must be interpreted with caution as they are not generalizable to a broader, more diverse population. Future research

should collaborate with organizations and communities that work with economically and ethnically diverse parents and families, as they are often left out nor benefit from the results of studies on majority White, middle-class females (Kochazuck, 2020; Norbury & Sparks, 2013; Ratto et al., 2017). In addition, marginalized communities mistrust research on their communities (Akerele et al., 2021; Hawn Nelson & Zanti, 2020). Hence, the importance of developing innovative, collaborative strategies to increase engagement and recruitment of diverse groups. In addition, recruitment for this study utilized the convenience sampling approach. Although this type of recruitment strategy is acceptable when conducting research with communities with children with disabilities and their families because of the low response rate (Becerra et al., 2017). However, these limitations make it difficult to generalize the results from this study to a broader population, as the participant effect may threaten internal validity (McMillan, 2016). In other words, participants may have been more motivated to participate because of their prior or current relationship with the ASD agencies and recruiter, which may be confounding to the outcome results for family-based support as an SDOH protective factor and depression. Future studies should consider a random sampling approach to reduce the abovementioned validity threat. The current investigation collected data at a single time point, with a small sample size for the type of investigation conducted, presenting another limitation in the design. Future studies should consider using a more robust sample to investigate moderation analysis of income. Also, the present study examines the psychometric properties of the FAM and MSPSS via factor analysis to test their reliability and validity with parents of children with ASD. However, further analysis of the psychometric properties of the FAM and MSPSS with a much larger sample would provide more information regarding the external validity of the instrument.

Additionally, the PHQ-8 questions inquired about symptoms in the duration of the past two weeks, and the CSS scale inquired about the frequency of behaviors in the past 30 days. The time-limited factor of the scales could influence the findings as opposed to other scales that may not be time-limited. The present study examines only one aspect of the SDHPF, yet several other factors can be protective factors for SDOH (ODPHP, 2022). Thus, future research on SDHPF can examine and provide more insight into other factors that predict SDOH. Lastly, it is critical to be aware of the potential influence of ableism or other social inequities that might influence access or prevalence reported in the literature review. Therefore, future research can investigate the impact of systemic factors on the diagnosis and identification of ASD among historically marginalized individuals.

Implications

Results of the present study supported informal and family-based support as an SDOH protective factor for parents of children with ASD. Copious research has shown that parents of children with ASD experience depression at a higher rate than their counterparts with developing children (Barańczuk & Pisula, 2020;; Heifetz et al., 2019; Jellet et al., 2014; Resch et al., 2012). Healthy social support can help build coping skills and resilience that can mitigate the symptoms of depression reported (Marsack & Samuel, 2017; Sharabi & Marom-Golan, 2018). Thus, the results of the present study inform future assessment practices and interventions regarding depression and family-based support for parents. Improved understanding of access and use of family-based support as an SDOH protective factor and the protective influence of informal and family-based support for parental depressive symptoms have implications for counselor educators, counselors, and advocates for policy reform.

Counselor Educators

Counselor educators need to understand the importance of SDOH factors and their significance to the mental health of parents of children with ASD. For example, counselor educators have expressed minimal awareness of SDOH and an inability to formally assess SDOH with their students (Johnson & Robins, 2021). Counselor educators addressing SDOH inequities in their courses shared that their motivation stemmed from personal experiences and values (Waters et al., 2022). However, relying on individual values and personal experiences to include SDOH content can result in variability in how counselor educators address SDOH with counselors-in-training. Hence, the importance of understanding and using the SDOH framework to guide practice, assessment, and addressing SDOH concerns. Johnson (2020) examined the relationship between anxiety symptoms and unmet SDOH needs among 219 college students. The researcher found that SDOH factors such as housing, lack of social support, and food insecurity largely predicted anxiety. College students experience various SDOH inequities that can impact their mental health. The current study adds to the wealth of existing research on the mental health implications of SDOH. Thus, counselor educators need to include SDOH more consistently in preparing future counselors by modeling the expectation for assessment with our counselors-in-training. As a result, counselors might be better prepared to assess and include SDOH in their conceptualization of clients.

Similarly, counselors in training expressed limited opportunities for disability training in their counselor education programs (Oksuz, 2019). In many cases, preparation for counseling services for persons with disabilities has been restricted to services focusing on rehabilitation. Oksuz (2019) conducted a study assessing the presence and content of disability training and multicultural counseling course completion and their relationship with disability multicultural

competence. Their result showed a positive relationship between disability training and multicultural competence. However, more than half the masters level counseling students, 54.6% (n = 119), in Deroche's (2016) study disclosed that disability got less attention than other topics. Therefore, with the related merging of educational standards of the Council for Accreditation of Counseling and Related Education Programs (CACREP, 2016), the accrediting body for counseling and Council on Rehabilitation Education (CORE), counselor educators needs to incorporate more disability-related topics across the curriculum to provide opportunities for counselors to be multiculturally competent and provide evidence-based practice when working with clients/families that include a person with a disability, such as a parent of a child with ASD. The proposed development and implementation of disability concepts into the CACREP (2023) standards also solidifies the profession's call and intent around awareness and training of counselors to work effectively with persons and families with disabilities.

Conclusively, as the study result indicates, counselor educators need to become aware of the significance of informal and family-based support as significant SDHPF for depression of parents of children with ASD. Counselors can use their knowledge of SDOH contributors to family-based support to inform counseling curricula, relevant programs, and courses in counselor education. For example, counselor educators teaching family systems courses may use examples, video sessions, discussion board prompts, role plays, or case studies that present families with a child with ASD. Counselor educators can discuss using SDOH screeners during diagnostic assessments to assess for protective factors and parents of children with ASD's perceived access to family-based support. They can roleplay the use of SDOH screeners (e.g., the EveryONE Project and the Health-Related Social Needs Screening Tool [AHC-HRSN]; MSPSS subscales; O'gurek & Henke, 2018; Zimet et al., 1988) to help counselors in training become aware and

more proficient with the implementation of the screeners. Similarly, counselor educators teaching core mental health classes can discuss tailored interventions that counselors in training can use when working with parents of children with ASD. For example, Most couples and family theories courses emphasize using family theories/models when working with individuals and families. In contrast, mental health counseling programs emphasize individual-focused theories/models that might not even ask about family members' health. Therefore, counselor educators in mental health-focused programs can include inquiry about family health into class discussions and help counselors-in-training structure interventions with an understanding of the role and impact of family well-being. The associations between family-based support and depression can validate counselor educators' integration of the different informal and family-based support systems into relevant courses as an identifiable protective factor for families and couples that include a child with ASD. The diagnosis and assessment classes can incorporate the use of the FAM (Daire et al., 2014) to model the assessment of family adjustment via support and positive coping strategies in clinical settings.

Practicing Counselors

Parents of children with ASD have reported feelings of frustration about the lackadaisical approach of the healthcare system to their needs. In one study (Phillips, 2020), a parent expressed that healthcare professionals did not check in with them, provide the family with resources, or consider the impact of their family's culture on their child's treatment. Research shows that practicing counselors have focused on helping families of children with ASD make plans and prepare for specific life events and developmental transitions. For instance, some counselors focus on a child's behavioral management skills and strategies to communicate and

enhance confidence and self-efficacy (Phillips, 2020). While these goal areas are important, they do not address the systemic contributors to mental health.

The result from this study aligns with existing SDOH research and highlights the need for clinicians to be alert to clinical flags associated with SDOH. Clinicians should inquire about patients' SDOH in a sensitive and caring way, provide access to benefits and support services, offer a culturally sustained safe space, increase accessibility to address inequity, partner with local communities, and advocate for a supportive health environment (Andermann, 2016). Therefore, interventions that focus on access and utilization of informal and family-based support can be a positive protective factor to mitigate the symptoms of depression for parents.

In addition, the result from the present study indicates that family-based support makes a difference regardless of the treatment modality, severity of the child's symptoms, or income. Practicing counselors can use the results of the current study to inform treatment plans and potentially target SDOH factors that can alleviate symptoms of depression in parents of children with ASD. For example, counselors' understanding of informal and family-based support as a protective factor for depression can encourage exploration of family interaction, such as exploring the interactional dynamics of the family and significant other, mobilizing the family's internal strength and available resources, improving communication skills, and identifying family discord and major conflicts (Varghese et al., 2020). Further, counselors can include the inquiry about friendship relationships in counseling sessions to understand clients' ability to develop and sustain other informal support systems. For instance, friendship supplements the support inherent in expected connections to parents, relatives, and significant other (Amati et al., 2015). Researchers found that friendship strongly predicted life satisfaction and satisfied individuals were more likely to develop stronger and more intimate social relationships (Amati et

al., 2018). The present study supports other research on the role of friendships on mental health. Therefore, a counselor working with a parent of a child with ASD who has shared low social or family-based support can co-develop a treatment plan with the client to address establishing friendships and connect them with other sources of potential support.

Similarly, results can encourage counselors' discussion about SDOH factors and access to support in safe and therapeutic settings. For instance, counselors can run support groups and informal parent support meet-ups for parents of children with ASD to foster connections and build friendships that can lead to informal/family-based support for parents. In addition, practicing counselors can explore partnerships with programs that provide services focused on children with ASD to access services and resources for the child with ASD and their parents. Further, counselors can use the SDOH screeners such as the Protocol for Responding to and Assessing Patients' Assets, Risks, and Experiences tool (PRAPARE), the EveryONE Project and the Health-Related Social Needs Screening Tool (AHC-HRSN) (O'gurek & Henke, 2018), MSPSS (Zimet et al., 1988) and FAM (Daire et al., 2014) to assess and address the SDOH concerns of parents of children with ASD.

Social Justice Advocate

Social justice advocates can use the results of the present study as a basis for advocating for policies at the regional and state levels. Related policies might include those that support increased collaboration between practitioners to increase availability and access to specific ASD programs for parents of children with ASD. For instance, Autism Family Caregivers Act (H.R. 6783/S. 4198; 2022) has a proposed bill that would authorize the Secretary of Health and Human Services to award grants for providing evidence-based caregiver skills to train caregivers of children with ASD and other developmental disabilities. This bill provides a holistic approach as

it focuses on improving the health outcomes and quality of life of children and their caregivers using evidence-based practice. It also included an intentional focus on improving the mental and physical well-being of children and their caregivers and including children in the family and community life. As the results of the current study suggest, when there is access to family-based support, depression symptoms for parents of children with ASD are significantly less frequent. Therefore, Counselors and Counselor educators can support bills like this to provide opportunities for more funding for non-profit and community-based organizations to provide parents and caregivers with access to other family-based support and services that can increase confidence in their role as caregivers for their children with ASD. Counselors can also become trainers for evidence-based caregiving practices by engaging in training such as Leadership and Education in Neurodevelopmental Disabilities (LEND) and University Centers for Excellence in Developmental Disabilities (UCEDD), which trains a variety of physical and mental health professionals to work collaboratively to offer family-centered practices to families with children with developmental disabilities.

Further, there are numerous societal challenges and barriers that exist to parents' access to services. For example, parents have reported concerns about the quality of and access to care management, limited accessibility to a variety of options for combined therapy and care, lack of awareness of access to family leave policies and flexible work options, and lack of family support programs (Houser et al., 2014). In addition, based on the services, health insurance does not always provide coverage for family therapy, and the medical model rarely accounts for family context and support as a recommendation for parents of a child with an ASD diagnosis. Thus, becoming aware of bills such as Medicaid waiver (§1915(c) of the Social Security Act, 1983), advocating for centers that have case management services with centralized information

regardless of changes in providers for parents and their child with ASD may increase stable access to information for parents of ASD. Further, results can bring awareness and interrogation about factors in neighborhoods and communities that can increase parents' access to family-based support. Parents have reported feelings of pressure about their responsibility of caregiving with minimal access to information or support (Houser et al., 2014). Thus, advocating for funded services in community mental health centers that can increase access to information and the opportunity to build relationships through support groups can be helpful for parents in their role as caregivers and in maintaining healthy mental health (Autism Family Caregivers Act; H.R. 6783/S. 4198; 2022). As the simple slope income analysis result suggested, there is an indirect interaction between high and middle-income and family-based support, which in turn can result in less frequent symptoms of depression. Therefore, advocating for affordable childcare access for parents of children with ASD can provide space for parents to explore other employment options that can increase financial resources and reduce the financial burden on parents.

Future Research

Finally, the present study is the initial step to understanding SDHPF that includes informal and family-based support as a construct. It provides a foundation for future research to examine further its protective impacts on anxiety and stress of parents of children with ASD and other developmental disabilities. Future research can also include other family members. Research indicates that having a child with ASD can considerably modify the lifestyle of each member of the family (Begum & Mamin, 2019). So, researchers can explore family resilience and its impact on the quality of life and family health of parents and siblings of children with developmental disabilities. They can investigate the SDHPF of parents of children with developmental disabilities that are thriving and elaborate on the strengths of families. Further,

they can examine systemic issues such as neighborhood context, disability identification processes, and available resources that impact the prevalence of ASD and developmental disabilities in historically marginalized communities.

Results supported the psychometric properties and scale reliability of the FAM (Daire et al., 2014) and MSPSS (Zimet et al., 1988) with a sample of parents of children with ASD. The FAM measure is a newer measure for family adjustment. Future studies may continue to validate and support the construct of family-based support with more robust and diverse samples as measured precisely by the FAM. Also, the current study uses a correlational design, i.e., no control group for comparison. Thus, future studies can conduct experimental research with a control group for comparison. For example, participants in the experimental group could be parents of children with ASD who received informal and family-based support through a specific intervention, such as a parent support group or therapy program. Parents of children with ASD in the control group could be provided standard care without the specific interventions provided to participants in the experimental group. The experimental research will allow researchers to evaluate the effectiveness of the informal and family-based support intervention by comparing outcomes between the two groups.

Consequently, income and child symptom severity showed some interaction with informal and family-based support. However, because of the limitations of the current study mentioned above, there is no statistically significant interaction of these variables across levels for family-based support. Thus, future research can use a larger sample and collect longitudinal data to observe associations over time, especially for the income of parents of children with ASD. Further, other variables, including income, earnings, public assistance benefits, and employment status, can be grouped to measure the economic stability of parents of children with

ASD (Morrissey et al., 2020). Finally, the complete SDOH framework, including other SDOH factors, such as neighborhood and built environment or education access and quality (ODPHP, 2022), can be explored to identify SDOH influences on the self-advocacy ability of parents for themselves and their children with ASD.

Chapter Summary

In chapter five, I detailed the current investigation's descriptive statistics, research question findings, study limitations, implications for counselor educators, practicing counselors, and social justice advocates, and consideration for future research. The study supported the reliability and applicability of the subscales of the multidimensional scale of perceived social support and family adjustment measures as social determinants of health-protective factors for parents of children with ASD. The study indicates that SDHPF predicted depression for parents of children with ASD. The significant effects of informal and family-based support for mental health suggest potential opportunities for intervention that more holistically address building upon such protective factors.

Based on the findings, I recommended that practicing counselors incorporate intake assessment on SDHPF into their work with clients, especially parents of children with ASD. Counselor educators can increase opportunities for disabilities training and use their knowledge of family-based support as an SDOH protective factor to inform course design and implementation as well as their assessment of SDOH with their students. Consequently, social justice advocates and researchers can collaborate with communities and advocate for policies that increase access to informal and family-based support for parents. Thus, the study offers a strength-based approach to working with families of children with ASD. The current study results also provide an avenue for various entities that work with parents of children with ASD to

look at factors that can increase parents' informal and family-based support and hone in on its protective effects against depression.

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APPENDIX A

Please tell us a little bit about you by answering ALL the questions below:	
1. Are you currently the parent or primary caregiver of a child diagnosed with an autism spectrum disorder (ASD)?	<ul style="list-style-type: none"> ● Yes ● No
2. Are you 18 years of age or older?	<ul style="list-style-type: none"> ● Yes ● No
3. What is your relationship to the child with ASD you are currently caring for?	<ul style="list-style-type: none"> ● Biological Parent ● Foster or Adoptive Parent ● Grandparent ● Extended Family Member ● Other
4. If other, please specify your relationship to the child with ASD that you are caring for?	_____
5. Your sex:	<ul style="list-style-type: none"> ● Female ● Male ● Prefer not to answer
6. Your age:	_____
7. Current Zip Code:	_____
8. Your Ethnicity	<ul style="list-style-type: none"> ● Hispanic ● Non-Hispanic

<p>9. Your race:</p>	<ul style="list-style-type: none"> ● American Indian/Alaskan Native ● Asian ● Black/African American ● Native Hawaiian/Other Pacific Islander ● White ● Other
<p>10. If other, please specify your race:</p>	<p>_____</p>
<p>11. Highest Education Completed:</p>	<ul style="list-style-type: none"> ● No degree or diploma earned ● High school diploma/GED ● Vocational/Technical certification ● Associate’s degree ● Bachelor’s degree ● Master’s degree/Advance degree ● Other
<p>12. If other, please specify your highest education completed</p>	<ul style="list-style-type: none"> ● _____
<p>13. Relationship Status</p>	<ul style="list-style-type: none"> ● Single, never married ● Committed relationship (not married) ● Engaged ● Married ● Separated ● Divorced ● Widowed
<p>14. Length of time in current relationship status in years and months?</p>	<p>_____</p> <p>(Time in Relationship (# years and # months; ex: 2 years and 4 months))</p>
<p>15. Employment Status:</p>	<ul style="list-style-type: none"> ● Full-time ● Part-time ● Student ● Retired ● Disabled ● Unemployed

<p>16. Household/Family Income</p>	<p>_____</p> <p>(Income in dollars (specify below if per year, month or week). Please do not include any symbols (e.g., \$,).)</p>
<p>17. Please specify family income:</p>	<ul style="list-style-type: none"> ● per week ● per month ● per year
<p>18. Number of children with ASD in your household</p>	<ul style="list-style-type: none"> ● 1 ● 2 ● 3 ● 4 ● 5 or more
<p>19. Total number of children in your household</p>	<p>_____</p>
<p>20. How much time has passed since your child was diagnosed with ASD?</p>	<p>_____</p> <p>(# years and # months; ex: 2 years, 4 months)</p>
<p>21. How much time has passed since your second child was diagnosed with ASD?</p>	<p>_____</p> <p>(# years and # months; ex: 2 years, 4 months)</p>
<p>22. How much time has passed since your third child was diagnosed with ASD?</p>	<p>_____</p> <p>(# years and # months; ex: 2 years, 4 months)</p>
<p>23. How much time has passed since your fourth child was diagnosed with ASD?</p>	<p>_____</p> <p>(# years and # months; ex: 2 years, 4 months)</p>

<p>24. How much time has passed since your fifth child was diagnosed with ASD?</p>	<p>_____</p> <p>(# years and # months; ex: 2 years, 4 months)</p>
<p>25. Current age of your child(ren) with ASD:</p>	<p>_____</p>
<p>26. Current grade in school of your child(ren) with ASD:</p>	<ul style="list-style-type: none"> ● Pre-Kindergarten ● Kindergarten (K) ● First (1) ● Second (2) ● Third (3) ● Fourth (4) ● Fifth (5) ● Sixth (6) ● Seventh (7) ● Eighth (8) ● Ninth (9) ● Tenth (10) ● Eleventh (11) ● Twelfth (12) ● Other ● Not Applicable
<p>27. If other grade in school, please specify</p>	<p>_____</p>
<p>28. Do any of your children currently qualify for free or reduced lunch in school?</p>	<ul style="list-style-type: none"> ● Yes ● No ● Unsure/Don't Know ● Does Not Apply ●
<p>29. Does your family currently use any waivers for services for your child(ren) with ASD?</p>	<ul style="list-style-type: none"> ● Yes ● No ● Unsure/Don't know ●
<p>Child Symptom Severity</p>	

<p>Please indicate your level of agreement with the below questions. <i>Child Symptom Severity Scale</i></p>	
<p>30. In the past 30 days, my child has been aggressive towards others (e.g., hitting, biting, scratching)?</p>	<ul style="list-style-type: none"> ● Strongly Disagree ● Disagree ● Disagree somewhat ● Agree somewhat ● Agree ● Strongly Agree
<p>31. In the past 30 days, my child has had restricted and repetitive behaviors (e.g., difficulty with change, ritualized patterns, flapping, rocking)?</p>	<ul style="list-style-type: none"> ● Strongly Disagree ● Disagree ● Disagree somewhat ● Agree somewhat ● Agree ● Strongly Agree
<p>32. In the past 30 days, my child has had difficulty communicating with others (e.g., avoids eye contact, nonverbal, avoids interaction)?</p>	<ul style="list-style-type: none"> ● Strongly Disagree ● Disagree ● Disagree somewhat ● Agree somewhat ● Agree ● Strongly Agree
<p>Please rate how frequently you identify with the following statements. <i>Family Adjustment Measure (Daire et al., 2014)</i></p>	
<p>33. As a parent of a child with autism/ASD I feel disappointment.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>34. We respect each other in our family.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always

<p>35. I actively seek information I need regarding my child's autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>36. As a parent of a child with autism/ASD I feel numbness.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>37. As a parent of a child with autism/ASD I feel angry.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>38. I can communicate questions regarding my child's autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>39. I feel depression because I have a child with autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>40. I participate in social support groups.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>41. As a parent of a child with autism/ASD I feel burdened.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always

<p>42. Our family is involved in community activities</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>43. Social supports for my family have helped to reframe situations in a positive manner.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>44. Our family has resources for dealing with my child's autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>45. The identification of local resources helped me plan for my child's future.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>46. I can communicate concerns regarding my child's autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>47. We deal with stress as a family.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>48. There is marital/relationship harmony in our family.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always

<p>49. Social supports for my family have helped to eliminate stress.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>50. There is loyalty in our family.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>51. The identification of local and regional resources has helped me access services to help raise my child.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>52. I have social supports for my family.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>53. I feel supported by my spouse, partner, or significant other.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>54. I know how to set priorities.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
<p>55. I am organized when it comes to my child with autism/ASD.</p>	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always

56. Our family has developed positive coping skills.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
57. We care about each other in our family.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
58. I feel devastated because I have a child with autism/ASD.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
59. I realize/acknowledge that there are informational supports for me as a resource.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
60. As a parent of a child with autism/ASD I feel shock.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
61. I resolve issues regarding my child when they happen.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always
62. Our family receives social support.	<ul style="list-style-type: none"> ● Never ● Rarely ● Sometimes ● Frequently ● Almost Always

Over the last 2 weeks, how often have you been bothered by any of the following problems?

PHQ-8 (Kroenke, Strine, Spitzer, Williams, Berry, & Mokdad, 2009).

<p>63. Little interest or pleasure in doing things.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>64. Feeling down, depressed, or hopeless.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>65. Trouble falling or staying asleep, or sleeping too much.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>66. Feeling tired or having little energy.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>67. Poor appetite or overeating</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>68. Feeling bad about yourself—or that you are a failure or have let yourself or your family down.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>69. Trouble concentrating on things, such as reading the newspaper or watching television.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day

<p>70. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.</p>	<ul style="list-style-type: none"> ● Not at all ● Several days ● More than half the days ● Nearly every day
<p>We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement. <i>MSPSS (Zimet, Dahlem, Zimet, & Farley, 1988)</i></p>	
<p>71. There is a special person who is around when I am in need.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>72. There is a special person with whom I can share my joys and sorrows</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>73. My family really tries to help me.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>74. I get the emotional help and support I need from my family.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree

<p>75. I have a special person who is a real source of comfort to me.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>76. My friends really try to help me.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>77. I can count on my friends when things go wrong.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>78. I can talk about my problems with my family.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>79. I have friends with whom I can share my joys and sorrows.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree

<p>80. There is a special person in my life who cares about my feelings.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>81. My family is willing to help me make decisions.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree
<p>82. I can talk about my problems with my friends.</p>	<ul style="list-style-type: none"> ● Very Strongly Disagree ● Strongly Disagree ● Mildly Disagree ● Neutral ● Mildly Agree ● Strongly Agree ● Very Strongly Agree