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Parenting a Child With Autism: Predictors of Parental Self-Efficacy

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Walden University

College of Social and Behavioral Sciences

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Robert M. Guy II

has been found to be complete and satisfactory in all respects,
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Walden University
2021

Abstract

Parenting a Child With Autism: Predictors of Parental Self-Efficacy

by

Robert M. Guy II

MS, Walden University, 2015

MHA, Ashford University, 2014

BS, Southern Oregon State College, 1995

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Psychology

Walden University

August 2021

Abstract

As the rate of children being diagnosed with autism spectrum disorder (ASD) increases, so too does the number of parents learning to cope with their child's disability and its effects on their own health, well-being, and parental self-efficacy. The purpose of this study was to determine the extent to which subjective social status, parental social supports, and fatigue were factors predicting parental self-efficacy in parents of children diagnosed with ASD residing in the state of Oregon. Bandura's social cognitive theory was used to frame this study. The sample for this study consisted of 120 parents of children diagnosed with ASD living in the state of Oregon. Ordinal logistic regression was employed in this quantitative study. Ordinal logistic regression indicated that subjective social status (Wald $\chi^2(1) = 6.353$, $p = .012$) had a positive but not significant predictive effect on parental self-efficacy, whereas fatigue (Wald $\chi^2(1) = 22.851$, $p = .000$) had a significant negative predictive effect on parental self-efficacy, and social supports (Wald $\chi^2(1) = 8.980$, $p = .003$) had a significant positive predictive effect on parental self-efficacy. Spearman's ρ analysis revealed a weak positive relationship between subjective social status and parental social supports ($r_s(120) = .101$, $p < .01$). The results of this study may influence positive social change by assisting stakeholders in creating programs that not only enhance the parental self-efficacy of parents of children with ASD but can also assist in understanding their own health and well-being.

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Dedication

I dedicate this work to my son Alexander, who inspires me every day to look at the world through a different set of eyes. To my wife Amy, who has been and continues to be my rock. To my daughters Olivia and Sarah who love their brother unconditionally and without reservation. I could not ask for a more wonderful family.

In the hopes that this work will in some way help those children diagnosed with autism and their parents, who struggle with finding their way in the world, you are not alone, we are all in this together.

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I would like to acknowledge and extend my sincere gratitude to my chair, Dr. Neal McBride, and my committee member Dr. Lana Nassen, for providing me with invaluable guidance and support on this journey. I would like to thank my academic advisor Greg Murphy, who helped me navigate this process with a calm and professionalism that does Walden University proud. Thanks to all my friends who gave me daily doses of inspiration to keep going. Thanks to my family for believing in me. Thanks to all the parents who participated in my study. Thanks to my children: Alex, Olivia, and Sarah for keeping me grounded and making me remember what is best in life. Finally, I would like to thank my wife Amy, for her unwavering love and support during this journey, without her none of this would have been possible.

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Chapter 1: Introduction to the Study

Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by deficiencies in socio-emotional reciprocity, poor verbal and nonverbal communication, and restrictive and repetitive behaviors and interests (American Psychiatric Association, 2013). As of 2014, it was estimated that there were more than 3,541,000 diagnosed cases of ASD in the United States (Buescher et al., 2014). To put this into perspective, per the U.S. Census Bureau (2019a), it was estimated that in 2018, 24 states had total populations smaller than 3,541,000. As the frequency and the number of ASD diagnoses continue to increase, so does the corresponding number of parents trying to navigate the complexities that accompany an ASD diagnosis.

In addition to the inherent social and communication difficulties found in a child with ASD, many children with ASD are commonly diagnosed with one or more comorbid physical (Doshi-Velez & Kohane, 2014), emotional (Hammond & Hoffman, 2014; Maskey et al., 2013), psychological (Croen et al., 2015; Taylor & Henninger, 2015; Chiang & Gau, 2016), and cognitive conditions (Charlot & Beasley, 2013). Many of these conditions cannot be treated by a child’s pediatrician, forcing parents to seek services from a range of professionals and organizations (Carbone et al., 2013; Moody et al., 2019) with which they may be unacquainted. With these new services comes a new vocabulary—unnecessary when parenting a typically developing (TD) child—that the parent must understand and adequately explain to others (Angell & Solomon, 2014).

Social, educational, and informational services available for the child and the parents may be unfamiliar, expensive (Lavelle et al., 2014), and difficult to obtain (Semansky et al., 2013).

In addition to acquiring adequate parental self-efficacy (PSE), a parent of a child with ASD must find new ways in which to cope, understand, and advocate for the child, and in ways that are often isolating, frustrating, expensive, and overwhelming (Meadan et al., 2015). Taken in its totality, this further complicates and impedes the building of positive PSE, taking its toll on parenting practices, behaviors, and the parent's health and well-being (McStay et al., 2014; Tint & Weiss, 2016). Subsequently, it is not surprising that chronic exhaustion or fatigue is a common feeling amongst parents of a child with ASD.

Fatigue affects various cognitive functions such as decision-making and memory (Loutzenhiser et al., 2015), and it is linked to other problems such as anxiety, depression, and stress (Hayes & Watson, 2013), affects motivation (Hockey, 2011), and is related to poor sleep quality and duration (Akerstedt et al., 2014). It is imperative for parents to learn to understand the various causes, effects, and the possible solutions to the fatigue that they will experience. It is equally vital that programs designed to assist parents of children with ASD be fashioned in such a way as to be cognizant of the various effects of fatigue and its influence on PSE.

The purpose of this study was to ascertain whether a set of selected predictor variables—subjective social status (SSS), social supports, and fatigue—are factors that adequately predict PSE among parents of children with ASD. The following sections of this chapter address background information, the study's problem statement, the purpose of the study, research questions and hypotheses, theoretical frameworks for the study, the nature of the study, definitions of key terms, assumptions underlying the study, the scope and delimitations of the study, limitations of the study, and the significance of the study. The chapter concludes with a summary.

Background

While there are few greater joys in life than becoming a parent, and while becoming a parent can be a time of great happiness, it can also be a time of increased stress and fatigue (Musick et al., 2016). Researchers in parenting literature have established that fatigue is associated with parental stress (Dunning & Giallo, 2012), decreased parenting warmth, and increased hostility (Chau & Giallo, 2015), thus lowering parenting satisfaction (Cooklin et al., 2012), lowering motivation (Grillon et al., 2015), contributing to the use of fewer positive verbal controls (White et al., 2015), and contributing to increased irritability and a desire to spend less time with the child (Giallo et al., 2013). All of these factors contribute to lower PSE, which in turn diminishes self-care behaviors that are essential in managing fatigue (Giallo et al., 2012).

An integral aspect of PSE is the ability of a parent to assist in the child's cognitive, social, and behavioral development. However, when the child has developmental difficulties, it is not uncommon for parents to experience low levels of happiness and well-being (Nelson et al., 2014), fatigue, and the need for social supports

(Giallo et al., 2013). As ASD can encompass a range of cognitive, social, and behavioral difficulties, and ASD findings frequently, wholly or in part, change or become obsolete (Bölte et al., 2016), the need for increased and up-to-date knowledge, coupled with availability of and access to various social supports, becomes vital for PSE.

Fatigue can be instigated by increased choices and high information load (Earle et al., 2015) regardless of the existence of elevated extrinsic motivation (Gergelyfi et al., 2015) in helping one's child. Moreover, fatigue is increased by the need to keep engaged (Earle et al., 2015), even though fatigue impedes individuals from completing challenging activities, particularly those that are long in duration (Hopstaken et al., 2016). This takes on particular importance when one considers that, currently, there is no known cure for ASD, and it is believed to be a lifelong diagnosis. Additionally, while the need for comprehensive social supports for parents of children with ASD has been established (Vasilopoulou & Nisbet, 2016), in many areas there are scarce social supports to assist parents of children with ASD, causing PSE to suffer (Benzies et al., 2013), further influencing fatigue (Cooklin et al., 2012) and affecting parental well-being (Seymour et al., 2014).

The numerous difficulties associated with fatigue should warrant studies on the effects of fatigue on PSE of parents of children with ASD, but to date, there has been only one (Giallo et al., 2013), which included only mothers and was conducted in Australia. Australia differs from the United States regarding laws and institutional social supports regarding ASD. This also highlights the need for studies that include fathers of children with ASD (Seymour et al., 2017), of which there is a scarcity, and for studies conducted in the United States, where laws and institutional social supports are adequality represented. Furthermore, the number of studies that highlight the influence of social supports on PSE of parents of TD children is adequate, but the number of studies conducted on the influence of social supports on the PSE of parents of children with ASD is lacking. Additionally, while there is sufficient literature on relationships between objective status and parents of children with disabilities, the literature on the relationships between SSS and parents of children with disabilities is minimal and almost nonexistent when the classification of disability changes to ASD. Moreover, the use of a nonparametric ordinal logistic regression model will address the need for more exposure of nonparametric techniques to the literature, which is lacking in the social sciences (Leech & Onwuegbuzie, 2019).

This study addressed a significant gap in the current literature: one that combines the effects of fatigue with social supports and SSS. Additionally, this study addressed a serious need existing in a segment of the population: parents of children with ASD. This population is ever increasing and in critical need of programs developed for health, well-being, and quality of life.

Problem Statement

In the year 2000, the prevalence of ASD among children 8 years of age was about 1 in 150; in 2016, this number had increased to 1 in 54 (Centers for Disease Control and Prevention [CDC], 2020). Along with an ASD diagnosis comes a myriad of difficulties for the autistic individual’s parents not characteristically experienced by parents of TD children (Mount & Dillon, 2014). These difficulties include higher levels of parental distress (Foody et al., 2015), increased physical and emotional fatigue (Seymour et al., 2013), increased social anxiety (Kuusikko-Gauffin et al., 2013), and lower PSE (Giallo, Wood, et al., 2013).

Although a variety of difficulties faced by parents of ASD children have been studied (Jellett et al., 2015; Lavelle et al., 2014; Vacca, 2013), and research on the effects of fatigue on parents of TD children has been significant (Chau & Giallo, 2015; Loutzenhiser et al., 2015), the effects of fatigue on parenting a child with ASD have been underinvestigated (Giallo, Wood, et al., 2013). Mothers of children with ASD experience greater fatigue more frequently, and with longer duration, than mothers of TD children (Smith et al., 2010; Smith et al., 2012). Moreover, parents of children with ASD have unique and complex needs, which rely heavily on social supports, which they may or may not adequately receive (Russa et al., 2015). Additionally, although there have been studies investigating relationships between socioeconomic status and PSE (Azad et al., 2014), there have been no studies investigating the relationship between SSS and PSE related to parents of children diagnosed with ASD, even though SSS has been recognized in many cases as a more robust predictor of health outcomes in parents than socioeconomic status (John-Henderson et al., 2013).

Addressing this gap in the literature, there has been only one study on the relationship between fatigue and PSE of parents of children with ASD. This study was conducted in Australia, and it did not consider the influence of social supports and SSS on PSE; moreover, it lacked adequate sample size, and it focused solely on mothers of children with ASD (Giallo, Wood, et al., 2013). Therefore, as was discovered in Australia, it is prudent when designing programs to assist parents of ASD children in understanding the effects of fatigue on their health, well-being, and PSE. It can be argued that this same level of aid and education is equal to, if not of greater importance than, the health and well-being of parents of children with ASD in the United States, where the population surpasses that of Australia by 300,000,000 (Australian Bureau of Statistics, 2019; U.S. Census Bureau, 2019c).

Purpose of the Study

The purpose of this quantitative study was to examine whether selected predictor variables—SSS, social supports, and fatigue—are factors that adequately predict PSE among parents of children with ASD. These variables were measured by employing the following: SSS via the MacArthur Scale of Subjective Social Status (Adler, 2000; John-Henderson et al., 2013); social supports via the Parental Social Support Index (Telleen, 1985; Telleen et al., 1989); fatigue via the Fatigue Assessment Scale (Michielsen et al., 2004), and PSE via the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978; Gilmore & Cuskelly, 2009; Johnston & Mash, 1989). Additionally, the sample was derived from parents of children with ASD residing in the state of Oregon. The primary avenue of data collection was an online questionnaire using survey methodology (Groves et al., 2009). The data collected in this study were analyzed using IBM SPSS Statistics (Version 25) predictive analytics software.

Research Question and Hypothesis

This study addressed the following quantitative question and related hypotheses:

RQ: Are subjective social status, social supports, and fatigue factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder?

H_0: Subjective social status, social supports, and fatigue are factors that do not adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

H_A: Subjective social status, social supports, and fatigue are factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

Theoretical Foundation

This study was based on social cognitive theory (SCT; Bandura, 1986, 1989), which derives from Bandura’s social learning theory (SLT; Bandura, 1977). SCT posits that an individual’s behavior in specific situations is comprised of combinations and degrees of observational learning, triadic reciprocal causation, and self-efficacy (SE). Bandura’s concept of SE (Bandura, 1977,1989) indicates that as an individual attains a certain level of understanding through various successes or failures, their belief in their ability is altered accordingly. SE may be influenced by the feedback that one receives, by observing beliefs and behaviors in others, and by emotional arousal.

PSE (Murdock, 2013), derives from Bandura’s SE theory (Bandura, 1977, 1989, 1997). Building upon SE, PSE centers upon a parent’s confidence in their ability as a parent to handle competently various developmental stages and issues in their child’s life in a way that promotes positive development in the child (Murdock, 2013). PSE, like SE, may be influenced by various personal and environmental factors and relationships. Additionally, with regard to this study, PSE was the dependent variable (DV). SCT is further explained in Chapter 2 of this study.

Nature of the Study

In this study, quantitative, nonexperimental research methodology was employed. Quantitative research is consistent with analyzing the predictiveness of SSS, social supports, and fatigue on the PSE of parents of children with ASD. Because there was no random assignment in the study’s design and no manipulation of variables, a nonexperimental design was used. Due to the nature of the study, no pretest or posttest was used. Furthermore, to understand the predictive relationships between the predictor variables (SSS, social supports, and fatigue) and their influence on the criterion variable (PSE), an ordinal logistic regression was employed. In addition to the desired forecasting effects associated with an ordinal logistic regression, the choice of an ordinal logistic regression was influenced by the criterion and independent variables being ordinal. The sample was derived from parents of children with ASD residing in the state of Oregon.

The primary avenue of data collection was via online surveys with convenience and snowball sampling being employed.

Definitions

The following key terms are used in this study:

Autism spectrum disorder (ASD): ASD is a complex developmental disability that impairs social and communication skills (American Psychiatric Association, 2013).

Child: For the purpose of this study, the term *child(ren)* is defined by O.R.S. § 735.720 (State of Oregon, 2019) as applying to any unmarried dependent child(ren) up to 23 years of age.

Fatigue: Fatigue can be categorized as experiencing exhaustion, which rest does not alleviate, and that negatively affects cognitive and physical functioning (Loutzenhiser et al., 2015) and motivation (Hockey, 2011), as evidenced by the Fatigue Assessment Scale, which rates the level of fatigue at the time that the parent-participant participates in electronic data collection.

Parental self-efficacy (PSE): PSE is the feeling that parents convey regarding their competence in raising a child through various developmental stages, which can be negative or positive (Glatz & Buchanan, 2015). PSE is evidenced by the Parenting Sense of Competence Scale, which measures parent-participants' satisfaction with their role and management as a parent at the time of electronic data collection.

Parental status (PS): For purposes of this study, PS, meaning whether an individual is a parent, applies to biological parents, certified foster parents, legal guardians, legal stepparents, registered adoptive parents, and registered domestic partners (Oregon State Legislature, 2017a).

Social supports: Social supports are perceived or actual options available via secondary appraisal to aid a parent with a child with ASD in managing both themselves and their child (Cappe et al., 2011). Social supports are evidenced by the Parental Social Support Index, which measures parent-participants' satisfaction with social supports available at the time of electronic data collection.

Subjective social status (SSS): SSS is an individual's perceived status in the socioeconomic hierarchy of their community (Jackman & Jackman, 1973), as evidenced by the MacArthur Scale of Subjective Social Status, which measures parent participants' belief concerning their social ranking at the time of electronic data collection.

Assumptions

There were three essential assumptions in this study. First, it was assumed that participants comprehended the vocabulary used in the survey and answered honestly and accurately. To help facilitate this, participation was anonymous and voluntary. Second, as both parents were encouraged to take the survey, it was assumed that they would not collude on answering the questions, nor would one parent answer for both. Third, although there are federal laws such as the Individuals With Disabilities Education Act (IDEA) and Americans With Disabilities Act (ADA) and services such as Medicare and Medicaid that can assist parents with their ASD child, this study was centered upon a specific population group in a specific state (Oregon) within the United States, where additional laws and services were available. The Oregon State Legislature (2017b) has enacted additional laws, including specific insurance mandates for employers and insurance companies, such as additional doctor visits and expanded menus of coverage and services such as occupational therapy, applied behavior therapy (ABA), and speech, pertaining specifically to individuals with ASD. As such, it was assumed that participants had minimal familiarity with the said Oregon laws and services as they pertain to children with ASD.

Scope and Delimitations

The focus of this study was examining whether SSS, social supports, and fatigue were factors in predicting PSE among parents of children with ASD. Approximately 9,000 children between the ages of 3-21 in the state of Oregon are being served under IDEA for ASD (Easter Seals, 2014), signifying a similar number of their parents are dealing with PSE issues pertaining to having a child with ASD. This number is increased when the number of parents of individuals with ASD over the age of 21 is incorporated. However, I obtained my sample in this study only from parents who had dependent children up to the age of 23. In addition to this age bracket, this study was delimited to those parents of children with ASD who themselves were age 18 or older and living with their ASD dependent child.

Participants were drawn from Education Service Districts (ESDs; Oregon State Legislature, 2017c) that provided ASD services and established ASD support groups, both public and private, that had at least a minimal internet presence. Further recruitment occurred via convenience and snowball sampling originating from the public and private support groups solicited. Data were obtained via self-administered questionnaires over the internet. Additionally, the survey used in this study was comprised of closed-ended Likert scale responses, categorical responses, and did not include any open-ended response options, which might have influenced participation. Furthermore, there existed no paper interviews or oversight, or any central location for someone to come and take the survey. The results of this study are only generalizable to a similar population; variables and participants not specified were beyond the scope of this study.

Limitations

Although Oregon has a rate of children with ASD that is comparable to the national average, social supports may vary drastically in quality and availability depending on the participant's geographical location throughout Oregon and the rest of the country, potentially affecting generalizability. As Oregon's population is currently 87% Caucasian, 13% Hispanic, and 2% African American (U.S. Census Bureau, 2018), bias may exist in receiving primarily Caucasian participants.

Participants were recruited using convenience and snowball sampling. Consequently, both internal and external research validity were potentially diminished. A potential limitation may exist due to the lack of measurement validity and reliability due to a self-reporting questionnaire completed solely online without participants' ability to elaborate or seek clarification. Additionally, responses may be biased depending upon participants' motivations.

Several confounding variables may exist, such as having a chronic disease in which fatigue is a symptom, taking medications that elicit fatigue as a side effect, having chronic insomnia, and other variables, such as varying diet, sleep habits, marital quality, amount of exercise, and age. Ordinal logistic regression was employed and tested multicollinearity; the results are explained and addressed in Chapter 4. It was expected that both parents would participate; however, Ponnet et al. (2013) found it common for mothers to participate in surveys in disproportionate numbers compared to fathers. It should be noted that Ponnet et al. only addressed biological parents and not the wide range of parental designations in the state of Oregon that were employed in this study.

Significance of the Study

ASD rates continue to rise precipitously (CDC, 2019). Identifying and reducing the influence of fatigue affecting parents of children with ASD is necessary for the health and well-being of both parents and children and therefore should be of paramount concern when designing assistance programs to fortify PSE for this population. This study, built upon aspects set forth by Giallo et al. (2013) on the influence and effects of fatigue on the PSE of parents of children with ASD, makes an original contribution on two fronts. First, it addresses gaps noted by Giallo, Wood, et al. (2013) concerning the need to address specific variables that were ignored in their original study (i.e., SSS and social supports and their influence on the PSE of parents of children with ASD). Additionally, whereas the Giallo, Wood, et al. study was conducted on a population sample native to Australia, this study was conducted in the United States, where no such study had been conducted previously. Additional purposes of this study were to increase the information and understanding available on various influences on parents of children with ASD through the theoretical framework of SCT (Bandura, 1986, 1989) with an emphasis on PSE (Bandura, 1977; Murdock, 2013) and add much-needed exposure of nonparametric techniques in social science research (Leech & Onwuegbuzie, 2019) to the literature.

This study contributed to positive social change by addressing the need to educate and aid an increasingly large and diverse but underrepresented population: parents of children with ASD (Graff et al., 2014). This study focused on the various effects of fatigue, the need for management, and the influence of fatigue on participants’ PSE, health, and well-being. This study provides stakeholders with necessary knowledge regarding the influence of fatigue and social supports on PSE when creating interventions and programs of assistance for parents of children with ASD. Furthermore, by incorporating SSS and social supports as predictor variables, this study may increase understanding of how the PSE of parents of children with ASD is influenced.

Summary

As the population of children diagnosed with ASD continues to rise into the millions, so, too, does the number of parents of these children. ASD is currently considered a lifelong diagnosis that affects the child’s social and communication development, and it often is accompanied by comorbid conditions. It falls upon the parents to advocate and care for the child in ways that a parent of a TD child does not, and while there may be various social supports available to assist parents of children with ASD, knowing where to gain assistance, what kind of assistance is available, and whether said assistance is relevant to the parent's situation is often a difficult, expensive, overwhelming, and time-consuming task. It is no wonder that the daily demands of parenting a child with ASD have been deemed by parents of children with ASD to be exhausting and fatigue producing. Fatigue can influence many aspects of raising a TD child. The experience of raising a child with ASD, with all its special demands, can sustain fatigue for a prolonged amount of time, causing problems with the health and well-being of the parent. Although raising any child requires robust PSE, taken in its totality, this is even more the case when parenting a child with ASD.

The aim of this quantitative study was to examine whether a set of selected predictor variables—SSS, social supports, and fatigue—are factors that adequately predict PSE among parents of children with ASD. An examination of these variables may allow for ways to improve the PSE of parents of children with ASD by educating them, along with clinicians and program designers, about the effects of SSS, social supports, and fatigue on health and well-being. Furthermore, results of this study add to the body of literature pertaining to the usage of nonparametric techniques in social science research, SCT, SSS, social supports, fatigue, and PSE regarding parents of children with ASD.

In Chapter 2, there is a comprehensive literature review focusing on parents of children with ASD. This includes information related to ASD, SSS, social supports, fatigue, and PSE.

Chapter 2: Review of the Literature

Introduction

As the rate of children diagnosed with ASD increases, so, too, does the number of parents learning to cope with their child’s disability and how it affects their own health and well-being. Parents of children with ASD face difficulties not associated with parenting typically developing (TD) children or children with intellectual and physical disabilities (Mount & Dillon, 2014). The difficulties associated with parenting children with ASD affect many facets of parenting and range from high parental stress (Foody et al., 2015) to scarce social supports (Benzies et al., 2013). These problems, which include social anxiety (Kuusikko-Gauffin et al., 2013) and fatigue (Seymour et al., 2013), also influence physical and emotional health. All of these difficulties in parenting children with ASD contribute to low PSE (Giallo et al., 2013), which often increases parents’ struggles, along with negative effects on parental health and well-being.

The number of children with ASD, estimated at over 3,500,000 (Buescher et al., 2014) in the United States, combined with the myriad complexities associated with raising a child with ASD, was the impetus for this study. In this study, I sought to examine (a) whether SSS, social supports, and fatigue, are factors that adequately predict PSE in parents of children with ASD, and (b) whether relationships exist among SSS, social supports, and fatigue.

Literature Search and Strategy

Using Thoreau, a multidatabase search engine specific to Walden University, I conducted a thorough review of the literature. In addition to Thoreau, I employed other search tools, either via Thoreau or independently, including EBSCOhost, Elsevier, Emerald Journals, ProQuest, ScienceDirect, and Google Scholar. By employing these search engines, I selected and viewed the following databases, depending upon the variable in question: Academic Search Complete, CINAHL & MEDLINE Simultaneous Search, CINAHL Plus with Full Text, Complementary Index, Education Source, ERIC, MEDLINE with Full Text, PsycINFO, PubMED, Science Citation Index, ScienceDirect, SocINDEX, and Social Sciences Citation Index. Additionally, I researched numerous books by Albert Bandura.

I limited literature review results as follows:

- open publication date, including peer-reviewed scholarly journals, full text, and books. The open publication date was used to include seminal literature.
- 2013 to 2020 publication dates, including peer-reviewed scholarly journals, full text, and books.

Additionally, key search words employed were *acute fatigue, ASD, autism, autism spectrum disorder, chronic fatigue, cognition, cognitive development, cognitive fatigue, comorbid conditions, co-occurring conditions, fathers, fatigue, Fatigue Assessment Scale, guardians, health, immune response, Individuals With Disabilities Act, learning, learning theory, MacArthur Scale of Subjective Social Status, mental fatigue, mothers,* *motivation, ordinal regression, parental fatigue, parenthood, parenting, parenting self-efficacy, Parenting Sense of Competence Scale, parental involvement, parental self-efficacy, Parental Social Support Index, parents, psychosocial factor (mothers, fathers), physical fatigue, regression, sampling, self-efficacy, snowball sampling, social cognitive theory, social supports, socioeconomic status, subjective social status*, and *stress.*

Theoretical Framework

The theoretical framework central to this study was SCT by Albert Bandura (1986, 1989). SCT is the culmination of Bandura's SLT (Bandura, 1977), which was a response to various behavior and social learning theories of the time. The impetus of SLT and SCT originated with two research experiments. The first involved a live model (Bandura et al., 1963b) and the second a symbolic media model (Bandura et al., 1963a).

In the first experiment, children were exposed to an adult aggressively interacting with a Bobo doll. This aggression took the form of verbal and physical assault. When the children were left alone with the Bobo doll, the children mimicked much of the aggressive behavior. The closest imitation occurred when the modeling was of the same gender. Conversely, children who were exposed to an adult ignoring or interacting peacefully with the doll when left alone acted in a similar fashion. These findings challenged the dominant behaviorist views of the time, which espoused that learning was a result of direct experience and positive and negative reinforcements (Schunk, 2012).

In the second experiment, children were exposed to a video recording of the original Bobo doll experiment and another video in which the adults were dressed as cats.

The results were similar: The children imitated what they had seen, albeit to a lesser degree, even when what they had seen was obviously fictional. These results again challenged the dominant views of the time. Both experiments showed that individuals can be influenced and learn by observing others' behavior, not just via punishment and reward stimuli. These results and additional experiments (Bandura, 1965) eventually led to Bandura's SLT (Bandura, 1977).

SCT is an all-encompassing theoretical and conceptual framework that advocates a specific model to explain an individual's behavior in a particular situation and how and why it is developed, maintained, and modified (Bandura, 1989, 1995, 1997, 2001; Nabi & Clark, 2008; Wood & Bandura, 1989). There are three major concepts that comprise SCT: (a) observational learning, (b) triadic reciprocal causation, and (c) SE.

Observational Learning

As was illustrated in the aforementioned Bobo doll experiment, individuals learn and model not only from direct experiences, but also by observing and imitating others, either personally or via symbolic exposure. Observational learning is a primary form of learning and can involve verbal and nonverbal cues, body language, emotional responses, behaviors, and attitudes (Fryling et al., 2011). Bandura (2002) divided observational learning into four governing processes: (a) attention, (b) retention, (c) production, and (d) motivational incentives; see Table 1.

Table 1

Processes of Observational Learning

Attention	Individuals are more likely or less likely to model behavior depending upon consequences and conditions that the individuals value.
Retention	Individuals are influenced by observed events if they do or do not remember them.
Production	Imitating, repeating, and performing the modeled behavior. Influenced by SE and the repertoire of skill sets possessed by the individual.
Motivational incentives	Influenced by the individual's perceived costs and benefits associated with the observed behavior and their implementation.

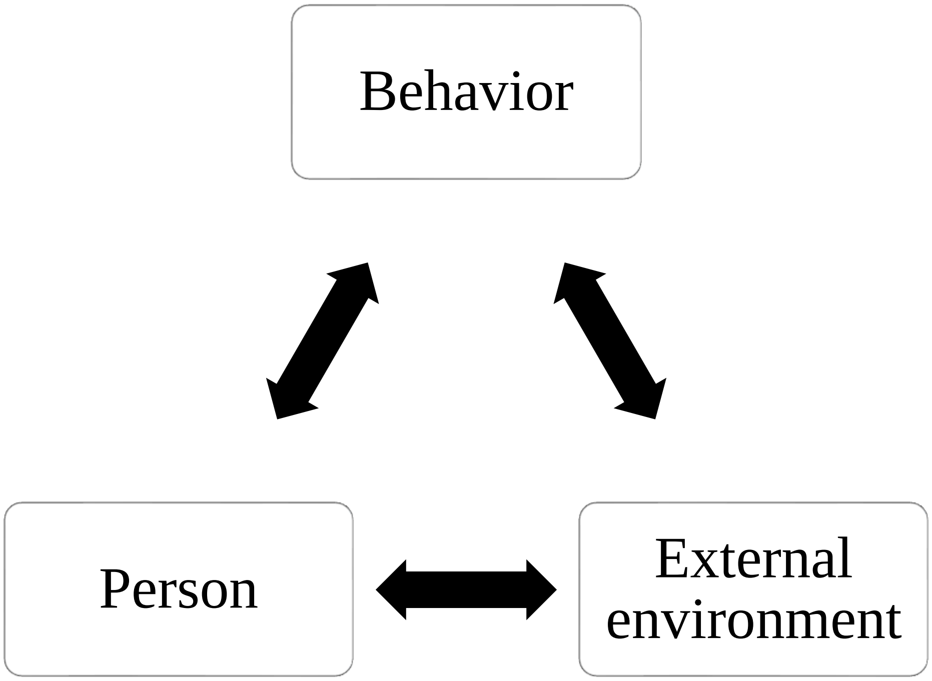
Triadic Reciprocal Causation

A central model of SCT is triadic reciprocal causation. The concept of triadic reciprocal causation centers upon human agency operating within a framework comprised of three interdependent bidirectional determinants that create a unified causal construct (Bandura, 1997): (a) behavior, (b) personal factors, and (c) external environment. Bandura (1989, 1997) and Wood and Bandura (1989) described each of the classifications as follows: *behavior* encompasses an individual's actions, decisions, and interactions; *person* consists of one's biological, cognitive, emotional, and physical makeup; and *external environment* incorporates one's immediate physical and social surroundings and their symbolic environment, such as various forms of media. The bidirectional interactions between the factors influence an individual in different ways (see Figure 1):

- behavior ←→ person, in which behavior may influence personal factors and personal factors may influence behavior
- behavior ←→ external environment, in which behavior may influence an individual’s external environment, and an individual’s external environment may influence behavior
- person ←→ external environment, in which personal factors may influence an individual’s external environment and an individual’s external environment may influence an individual’s personal factors; see Figure 1

Figure 1

Wood and Bandura’s (1989) Triadic Reciprocal Determinism Model



These three determinants, although reciprocal, do not share the same strength of influence in any given time, activity, or circumstance (Bandura, 1989, 1997; Clark, 2008; Kelder et al., 2015; McAlister et al., 2008). Nor do these influences necessarily happen in a particular and predictable manner, as the individual, by employing agency, can be active in one circumstance while passive in another circumstance, affecting the individual's behavior differently depending upon the gradation of the reciprocal causation between the determinants (Bandura, 1989; Kelder et al., 2015; McAlister et al., 2008; Nabi & Clark, 2008). Within triadic reciprocal causation, there is considerable nuance regarding personal interpretation, acceptance, avoidance, opposition, modification, and enforcement (Bandura, 1986, 1989, 1997; Nabi & Clark, 2008).

Self-Efficacy

Bandura posited that individuals attain various levels of understanding and motivation based upon previous successes and failures and set their goals accordingly (Bandura, 1977, 1997). Moreover, judgments centered upon previous successes and failures, either rightly or wrongly, influence individuals' choice of activities and their environmental settings. These judgments determine the amount of effort and duration that an individual will spend on a given task when faced with adverse situations (Bandura, 1982). Additionally, with the introduction or reduction of incentives, efficacy expectation alters accordingly (Bandura, 1977, 1997). Bandura (1977) delineated the differences between efficacy expectations and outcome expectancy, where outcome expectancy is an individual's perceptions that a specific behavior or skill set results in a specific outcome and efficacy expectation centers upon the individual's perception that they will be able to satisfactorily perform in a fashion that will produce the desired outcome, which in turn increases the individual's SE.

Bandura (1977) identified four themes of personal efficacy expectations that strengthen and promote or weaken and demote SE: performance accomplishments, physiological states, verbal persuasion, and vicarious experience.

Performance/Mastery Accomplishments

Bandura (1977, 1997) posited that individual accomplishments or personal mastery, either positively or negatively, are more influential to SE than other themes. Whereas successes increase efficacy expectations, failures lower efficacy expectations. Specific factors comprise success and failure; these may be the overall difficulty of the desired task, the amount of effort needed to accomplish the task, the amount and type of assistance that one will need in accomplishing the desired task, the circumstances under which one needs to accomplish the desired task, and the relevance of previous successes and failures**.**

Physiological States/Emotional Arousal

Situations that elicit stress and anxiety influence personal efficacy expectations by altering emotional arousal (Bandura, 1977, 1997). The higher the emotional arousal, the more detrimental the effect on SE expectations. Therefore, a situation that is perceived to be stressful will increase emotional arousal, creating an adverse effect on perceived SE.

Conversely, situations that are devoid of stress lower emotional arousal, positively reinforcing SE expectation.

Verbal Persuasion

Verbal persuasion is commonplace due to its ease of access. Verbal instruction, advice, or praise from others influences efficacy expectations positively or negatively, contingent upon the perceived relationship between the supporter and recipient, the credibility of the supporter, and the relevant knowledge associated with the supporter. Efficacy expectations introduced by this method are typically weaker than those based upon one's own accomplishments, as one supporter's suggestion may be contradicted by a different supporter's suggestion (Bandura, 1977, 1997).

Vicarious Experience

SE expectations are influenced by observing others' successes and failures (Bandura, 1977, 1997). Observing another with similar competencies succeed may positively influence SE expectations. Conversely, observing another with similar competencies to the observer fail negatively influences SE expectations. Often, the more similar competencies that the observer has with the observed, the more influential the effect of success or failure.

In this study, I examined a specific domain of SE: parenting of children diagnosed with ASD, where PSE describes the parent's attitudes, beliefs, and confidence about their ability to competently manage their child's developmentally specific issues and to positively influence their child’s unique development (Bandura, 1997; Glatz & Buchanan, 2015; Murdock, 2013).

Parenting a Child With Autism Spectrum Disorder

ASD is currently a lifelong condition with expanding symptom heterogeneity, numerous developmental trajectories, and no single etiology (Masi et al., 2017). A diagnosis of ASD comprises deficits in the ability for social-emotional interaction and communication, limited interests, pragmatic language impairment (Brooks et al., 2018; Deliens et al., 2018; Loukusa et al., 2018), repetitive behaviors, hyper- and hyporeactivity to environmental sensory stimuli (Dakopolos & Jahromi, 2018; Feldman et al., 2019; Remington & Fairnie, 2017; Soriano et al., 2018; Williams et al., 2018), and inflexible behavior centered upon routines and transitions (American Psychiatric Association, 2013). Individuals with ASD also commonly exhibit pain indifference (Williams et al., 2019), eating problems (Vissoker et al., 2019), gaze aversion (Moriuchi et al., 2017; Tanaka & Sung, 2016; Wang et al., 2018), and self-injury (Rattaz et al., 2015; Soke et al., 2016). It is also probable for an individual with ASD to be diagnosed with co-occurring psychiatric and various somatic comorbid conditions, which often exacerbate the symptoms and emotional dysregulation inherent in ASD (Tye et al., 2019).

A child usually receives a diagnosis of ASD from either their health care provider or through the public school system. When dealing with a healthcare provider, it takes approximately 3.5 consultations and 24 months for a child to be diagnosed with ASD (Srinath et al., 2017). If the child is a girl, this diagnosis can take longer (Petrou et al., 2018), despite the number of consultations being the same as with a boy (Gill, 2016). Additionally, ASD is reported to occur among boys at a rate 4 times that of girls (Baio et al., 2018).

By 36 months of age, approximately 37% of children who develop ASD experience some type of developmental regression (Goin-Kochel et al., 2014). Gradual regression occurs more frequently in children with ASD than abrupt regression (Pearson et al., 2018). Additionally, children with ASD who predominantly experience only language regression have a greater propensity to walk and talk before their TD peers and other children with ASD who experience multiple forms of regression (Manelis et al., 2019).

If the child is given an educational diagnosis of ASD, through a series of observations and input by educators and specialists employed by the school district, by mandate of the IDEA of 2004 (U.S. Department of Education, 2019), the child must receive an Individualized Education Plan (IEP) provided by the school district. The IEP is designed to assist the child with ASD and their family to receive services associated with ASD (Slade et al., 2018). The IEP team is compromised of the child’s teacher(s), parent(s), a school administrator, and any specialists who may be needed to assess and assist the child (Cortiella & National Center for Learning Disabilities, 2006). Additionally, as the child turns 16, IDEA requires the school district to develop a transition plan suited to the unique needs of the ASD child (Szidon et al., 2015). Without a descriptive IEP and transition plan, difficulties may arise that negatively affect the parent-student-school district relationship (Reinke & Solheim, 2015). This relationship can be further harmed when pressure from various stakeholders is placed on educators to limit services (Pennington, 2017).

Co-occurring Psychiatric and Somatic Comorbid Conditions Associated With Autism Spectrum Disorder

As the child with ASD ages, the potential for experiencing co-occurring psychiatric and various somatic comorbid conditions increases (Rosen et al., 2018; Trammell et al., 2013). The following co-occurring psychiatric conditions are the most common, with 59-78% of children with ASD experiencing attention-deficit/hyperactivity disorder (ADHD), 58% experiencing oppositional disorder, 56% experiencing anxiety, and 30% experiencing depression (Brookman-Frazee et al., 2018; Stevens et al., 2016). Higher functioning children with ASD experience higher levels of depression (Fung et al., 2015) and anxiety (Hammond & Hoffman, 2014) than other children with ASD. Additionally, children with ASD have greater levels of comorbid symptoms than their TD peers with psychiatric disorders (Tureck et al., 2014).

The following somatic comorbid conditions often accompany ASD, with 25 - 30% of children with ASD experiencing epilepsy compared to between 1-2% of TD children (Thomas et al., 2017; Tye et al., 2019). Approximately 50-80% of children with ASD experience sleep disorders (Sachin & Ekambaram, 2018). Approximately 70% of children with ASD experience gastrointestinal (GI) disorders (Ferguson et al., 2016;

Marler, 2016; Tye et al., 2019). Additionally, children with ASD experience higher rates of allergies than their TD peers (Weber & Gadow, 2017).

Service Needs and Costs Associated With Parenting a Child With Autism Spectrum Disorder

Upon learning that their child has ASD parents are often not prepared or equipped to navigate the various needs of their child (McDaniels, 2016). To further complicate this situation, services may be difficult to access (Weiss et al., 2015), with parents, service providers, and health care providers frequently differing on assessment (Paynter, 2015; Rankin et al, 2016), treatment choices (Angell & Solomon, 2014; Siu, 2016; Tétreault et al., 2014; Wilson et al., 2018), and treatment duration (Call et al., 2014). Parents of children with ASD exhibiting comorbid conditions often reported lower degrees of satisfaction based upon the lack of adequate health care quality (Russell & McCloskey, 2016; Zablotsky et al., 2014) and insufficient knowledge of ASD exhibited by service providers (Bonis & Sawin, 2016). Contingent upon ASD symptom severity and the quantity of comorbid conditions, it is estimated that the costs associated with supporting an individual with ASD over the span of their lifetime, ranges from $1.36 million to $2.2 million (Buescher et al., 2014; Penner et al., 2015).

Unknowns Associated With Parenting a Child With Autism Spectrum Disorder

With a diagnosis of ASD certain concerns of a parent may be alleviated as explanations are given for various unusual behaviors exhibited by their child. Although the diagnosis of ASD will answer certain questions, it raises a plethora of new questions particularly when it comes to the needs of their child and their role in parenting a child with ASD (Boshoff et al., 2016).

Although individuals with ASD share similarities within the core diagnosis of ASD, symptom severity and comorbid conditions differ from individual to individual. This uncertainty may cause a parent to question if their child will experience the myriad of potential comorbid conditions associated with ASD: What will be my child’s quality of life? Will there be adequate services available to assist me and my child? Will the recommended treatments help my child? What are the costs associated with these treatments? How will this impact my family? Is there a cure? All of which further complicates the task of parenting a child with ASD.

Accentuating the complications associated with parenting a child with ASD, when gathering information on ASD from the internet there are often differing and conflicting information regarding etiology and treatments. This is often caused by organizations with separate agendas (Singh, 2016) and institutional bias associated with ASD (Kern et al., 2017). Additionally, a parent may be navigating their child’s specific circumstance adequately, and the diagnosis of ASD may be altered, unexpectedly affecting existing services for children with ASD and their parents (Lobar, 2016).

Literature Review Related to Key Variables

In this study, there were three predictor variables: SSS, social supports, and fatigue, and one criterion variable: PSE.

Predictor Variable: Subjective Social Status

Social status has long been associated with health and health behaviors, amongst the general population and parents. Typically, socioeconomic status (SES) is objectively measured by resource specific categories, such as education, income, and occupation, but often include gender and age. Normally, people who rank higher on the SES scale experience better physical and emotional health than those ranking on the lower end of the SES scale, who tend to suffer from poor physical and emotional health (Chetty et al., 2016). However, SES indicators often omit a category that appears to have significant weight regarding one's health: the individual's perception of his or her social standing as it relates to others in society (Diemer et al., 2013). This perception is based upon both tangible and intangible psychosocial aspects of an individual's life and not tied to a specific point in time. Generally, those individuals who perceive themselves as having higher social status, tend to be healthier and have healthier lifestyles than those individuals who perceive themselves as being of lower social status (D'Hooge et al., 2018).

The MacArthur Scale of Subjective Social Status is commonly employed to measure SSS. This measure consists of a single picture with ten rungs, in which the individual places himself or herself upon the rung that they believe reflects where they rank compared to others (Autin et al., 2017). Accompanying the picture is usually a caption that describes what the ladder and rungs represent, such as the ladder representing the country, with the rungs that are higher representing people who are best off and those on the bottom rungs, worst off. Best off and worst off are comprised of wealth, education, respect, and occupation. While it is common for the ladder to represent society as a whole, it may be altered to represent any organization or group, such as a neighborhood or business.

Subjective Social Status and Parenting

Much of the literature pertaining to social status and parenting involve only objective status. Although the findings in much of the literature explains various relationships between socioeconomic status and parents (Brewer, 2018; Fishman & Nickerson, 2015; Norlin et al., 2014; Pickard & Ingersoll, 2016; Roskam et al., 2016; Roubinov & Boyce, 2017; September et al., 2016; Zilberstein, 2016;), these explanations often require additional study or lack significant results due to the nuances and combinations between objective classes that are the foundation of SES. While not as commonly used as socioeconomic status in parenting studies, SSS, by its design, has been shown to address many of the varied results and explanations associated with employing only objective status with respect to aspects of parenting (Choi et al., 2015; Ferreira et al., 2018; Gage-Bouchard & Devine, 2014; Roy et al., 2019)

Subjective Social Status and Health

While the literature suggests the association between SSS and health is undeniable (Zell et al., 2018), the degrees and breadth of this association are more nuanced. Among adolescents in Europe, Elgar et al. (2016) found even after controlling for differences in household income, health inequalities as defined by SSS did not change. While SSS is typically stable as adolescents' transition into adulthood (Goodman et al., 2015), differences arise depending upon gender and demographic groups (Shaked et al., 2016). While marital status and number of children are often a component of SES, Nielsen et al. (2015) determined that marriage only marginally contributes to SSS, and that the number of children greatly detracts from SSS.

While there is discussion about the veracity of the changes in SSS depending upon who the referent is against, global or local (Haught et al., 2015), Michelson et al. (2016) found that, among mothers of young children, SSS associated with their local community was strongly associated with maternal psychological well-being. Furthermore, Roy et al. (2016) discovered, contrary to previous literature, that high-income neighborhoods contribute to physical and mental health. Individuals with high SSS living in low-income neighborhoods reported high SSS, whereas low-income individuals living in high-income neighborhoods also reported higher SSS.

While the literature is well documented with studies that have investigated the associations between SES and indicators of health and well-being, the subjective aspect of SSS is lesser known, but equally important. For example, SSS has been used independently with positive results regarding adolescent executive functions (Ursache et al., 2015). SSS is associated with health over an extended period and not subject to fluctuations, as is SES (Thompson et al., 2014). However, lower SSS was associated with greater levels of interleukin-6 (IL-6), a biomarker of inflammation (John-Henderson et al., 2013)

Predictor Variable: Social Supports

Everyone is unique, and, as such, everyone will experience parenthood in their unique way. To be of intrinsic value, support services need to be tailored to the individual needs of the parent, their experiences and desires, not what society deems is necessary. This holistic approach is especially true for parents of children with ASD (Falk et al., 2014).

From the time of pregnancy throughout the various stages of childhood, the right kind of social supports can be invaluable to mothers and fathers (Weiss et al., 2013). This is of particular importance during pregnancy, as a strong social support structure, for both mothers and fathers is positively associated with PSE (Angley et al., 2015). Additionally, Chavis (2016) found that during the first two years of motherhood, anxiety can be buffered by perceived social supports and maternal SE. When a parent receives the diagnosis that the child has autism, these supports become paramount as the parents learn to positively interpret their new circumstances (Ekas et al., 2015).

Social Supports and Parenting a Child With ASD

Unfortunately, after the initial diagnosis of autism, much of the responsibility falls upon the parents and relatives, as supports are lacking (Andersson et al., 2014). Among mothers of children with ASD, a lack of support often leads to feelings of isolation and loneliness (Ekas et al., 2016). The perceived stigma of having a child with ASD requires methods for parents to cope with their new situation, and they benefit greatly from social supports (Cantwell et al., 2015). Additionally, social supports have different effects depending upon the specific situation of the parent and the child with ASD (Cuzzocrea et al., 2016): Parents of children with higher functioning autism, reported reduced levels of social support from family members than parents of children of with lower functioning autism. However, both groups reported more social supports from family than from friends.

Social Supports, Parents of Children With ASD, and Health

Individuals providing care for individuals with ASD may experience health problems. The health relationships associated with social supports vary among caregivers. Gallagher et al. (2015) found a greater physiological benefit from passive support than from active support, regardless of intimacy. Gouin et al. (2016) found marriage quality influences systemic inflammation. Additionally, Chiang et al. (2013) found among Americans of European descent, support from close relations influenced IL-6 production. Interestingly, this relationship was not present among Asian Americans. Additionally, Padden and James (2017) discovered that while parents of children with ASD reported higher levels of stress and anxiety than that of parents of TD children, cortisol levels among parents of children with ASD were at only slightly higher levels when receiving social supports. However, Kissel and Nelson (2016) found social supports are not related to self-reported levels of stress among parents of children with ASD.

As the caregiver and child age, the type of social support influences health in different ways. Disturbances in the HPA-axis decrease (de Andres-Garcia et al., 2013) and though independent from each other, both informal social and formal social supports lower CRP (C-reactive protein; a marker of inflammation) whereas without social supports CRP was noticeably higher (Gouin et al., 2016). Additionally, over time caring for a child with ASD lowers the effects of the sympathetic nervous system (SNS; Ruiz-Robledillo et al., 2015), and social support was attributed to the caregiver's resiliency to stress associated with raising a child with ASD (Ruiz-Robledillo et al., 2014).

Predictor Variable: Fatigue

Virtually everyone suffers from fatigue at some point in their lives, and it is considered a standard bodily response to both physical and mental exertion. However, when the physical or mental fatigue experienced is excessive or continuous, the effects of fatigue impair numerous cognitive functions (Krabbe et al., 2017), and increase health risks (Mlynski et al., 2017), that normally would not evoke such responses. Enoka and Duchateau (2016) described fatigue as self-perceived symptoms that negatively affect cognitive and physical functioning.

The Hypothalamic–pituitary–adrenal (HPA) axis is central to the body's neuroendocrine reaction to stress. With prolonged exposure to stress, the HPA axis produces an overabundance of cortisol. This prolonged overabundance of cortisol has numerous adverse physical and mental effects including, altered perceptions and emotions (Prévôt et al., 2017) and suppressed immune response (Bodera et al., 2014).

Fatigue and Parenting

A vocation that conventionally elicits fatigue is that of being a parent. From birth through young adulthood, parenting challenges evolve to address situations that are congruent to the various stages of a child's development. Parenting during this time elicits a mixture of emotions that include happiness, joy, and pride but also inherent is fatigue, stress, and worry (Musick et al., 2016). During the early stages of parenting, fatigue often manifests differently in mothers and fathers (Loutzenhiser et al., 2015). However, there exists some commonalities brought upon by fatigue among the majority of both parents: increased irritability, less attention paid to the child, and decreased motivation to engage in play (Giallo, Rose, et al., 2013). Additionally, fatigue may negatively influence a parent's SE with regards to their role as a parent, causing interactions with their child to be negative (Chau & Giallo, 2015).

Fatigue and Parenting a Child With ASD

The literature is clear regarding the difficulties associated with raising a child with autism compared with raising a neurotypical child (Dieleman et al., 2018; Ekas et al., 2016). Fatigue has diverse comorbid conditions (Robinson et al., 2015) and when raising a child with autism, some of these comorbidities physically influence fathers differently than mothers. Foody et al. (2015) found that while both parents of children with ASD experience fatigue and dysregulation of the Hypothalamic–pituitary–adrenal (HPA) axis, fathers had significantly higher blood pressure and heart rate than mothers.

As a preponderance of the literature is decidedly focused upon mothers of children with autism as compared to fathers (Burrell et al., 2017), information regarding the effects of fatigue on mothers, while scarce, is more readily available. Mothers of children with ASD experiencing fatigue are less likely to employ positive verbal control techniques when communicating with their child (White et al., 2015). Among mothers of children with ASD, the cognitive and physical effects of fatigue compound daily stressors to a greater degree (Seymour, et al., 2013), which leads to overactivity of the HPA-axis.

Criterion Variable: Parental Self-Efficacy

PSE, the belief a person relates to his or her ability to perform tasks associated with successfully parenting, is paramount when discussing parental quality. When parents have a greater sense of SE, various competencies associated with parenting increase (Bandura 1977). These include stronger parent-child interactions (Mouton et al., 2018); increased parental warmth and attention (Chau & Giallo, 2015), and stronger resilience to challenging behaviors (Glatz et al., 2017). Conversely, when parents have lower PSE, they experience increased frustration (Muenks et al., 2015); difficulty engaging in play (Román-Oyola et al., 2017); less patience (Giallo, Treyvaud, et al., 2013), and reduced motivation to supervise their child (Malm et al., 2017). Moreover, PSE influences the psychological development and well-being of the child (Glatz & Buchanan, 2015). However, when a child has a disability, tendencies toward positive parental competencies decrease and lower PSE increase (Jess et al, 2015), affecting both the parent and the child.

PSE and Raising a Child With ASD

A strong sense of PSE is not in and of itself necessarily enough (Erford & Gavin, 2013) when raising a child with ASD. When parenting a child with ASD, due to the complexities of ASD and any accompanying comorbid conditions, various aspects of SE have greater or lesser influence than with raising a TD child (Chong & Kau, 2017). When parenting a neurotypical child, during the developmental transition periods a child goes through, PSE among parents decreases (Glatz & Buchannon, 2015). This is increased for parents of children with ASD, often manifesting in depression, anxiety, and stress (Hoefman et al., 2014). Salas et al. (2017) found that the age of the child during the developmental transitions is associated with maternal satisfaction, but not paternal satisfaction. Whereas Pozo and Sarriá (2015) discovered, anxiety levels among parents of adults with ASD were lower than parents of adolescents, which were lower than in parents of primary aged children.

PSE and Relationship Satisfaction

While it is well documented that parents of children with ASD experience significantly more stress than parents of neurotypical children (Huang et al., 2014), this stress can be alleviated by positive spousal satisfaction (Lavenda & Kestler-Peleg, 2017) and co-parenting quality (May et al., 2015). In the early stages of a child’s life, PSE amongst fathers and mothers relate significantly to marital satisfaction (Don et al., 2014). Additionally, in a study by Cohen et al. (2015) mothers who reported emotionally supportive spouses had a higher indexed PSE than mothers who rated spousal emotional support as average or low. In contrast, Junttila et al. (2015) found PSE of each parent to be independent of each other.

PSE and Health Among Parents of Children With ASD

PSE among mothers and fathers differs during the development of the child. During the child’s first 18 months of life, maternal PSE is associated with psychological well-being and emotional supports, whereas paternal PSE is associated with task completion (Korja at al., 2015). Additionally, parents of children with ASD report more social anxiety than parents of typically developing children (Kuusikko-Gauffin et al., 2013). This social anxiety is alleviated by education regarding ASD. Increasing a parent’s knowledge of ASD increases PSE and affects mental and physical health (Miller-Kuhaneck et al., 2015).

Furthermore, mothers of children with ASD report feeling less satisfied with their lives and lower PSE compared to parents of neurotypical children (Benson, 2016). To compound this dilemma, Wilson et al. (2014) discovered that higher PSE among mothers of typically developing children is strongly associated with parent-child interaction centered around playing with toys, yet mothers of children with ASD find this difficult, due to the symptoms of ASD, and as such suffer from a greater proclivity toward depression. When parenting a child with problem behaviors due to ASD, mothers found traditional coping strategies lacking, suffered from long-term depression, and found it difficult implementing coping strategies that increase PSE (Woodman & Hauser-Cram, 2013).

Fatigue, a condition often described by parents of young children and those with ASD, appears to have a negative effect on PSE, causing decreased warmth and increased hostility toward the child (Chau & Giallo, 2015). Poor sleep habits, a common healthcare problem among parents with ASD as compared to parents of typically developing children (McBean & Schlosnagle, 2016), relate to poor health, high stress, and increased fatigue (Akerstedt et al., 2014). Although there exists an association between depression and fatigue, they are separate constructs (Wilson et al2018). Jellett et al. (2015) found depression-like symptoms to have a greater relationship with PSE than that of fatigue. When parenting a child, quality time spent between mothers and their child is of great importance (Suveg et al., 2014), yet the long-term effects of stress and fatigue force mothers to exchange time spent on their well-being in lieu of time spent with their child (Musik et al., 2016).

Summary and Conclusion

The purpose of Chapter 2 was to provide a review of the theoretical framework guiding this study, Bandura’s SCT (Bandura, 1986, 1989), a comprehensive review of the literature related to parenting a child with ASD, and the variables (fatigue, social supports, SSS, and PSE) that I employed in the study. The literature, while robust in its information about fatigue, social supports, SSS, and PSE, rarely discussed these variables in relation to parents of children diagnosed with ASD. Moreover, studies that paired these variables, were nearly non-existent. Thus, in reviewing the literature, gaps concerning the effects of SSS, social supports, and fatigue on PSE, in combination with nearly 3/4 of the studies cited in this study are studies outside the United States, showed the value and justification of this study. In Chapter 3, an overview of this study's research methodology and design, and its justification was examined. Additionally, in Chapter 3, population; sampling procedures; procedures for recruitment; data collection; instruments and operationalization of constructs used; threats to validity, and informed consent documentation is discussed.

Chapter 3: Methodology

Introduction

As the odds of a having a child diagnosed with ASD continue to increase (Christensen et al. 2016), it is essential to aid parents in understanding and addressing the distinctive aspects of raising a child with ASD. As such, the primary aim of this study was to examine whether SSS, social supports, and fatigue were factors that adequately predicted PSE among parents of children with ASD.

In this chapter, I explain the population, sampling and sampling procedures, procedures for recruitment, participation, data collection, instrumentation and operationalization of constructs, ethical concerns and procedures employed, and threats to validity.

Research Design and Rationale

Researchers are faced with numerous options for research design and methodology, with their selection depending upon what they are planning to accomplish, the strategy employed to execute and implement the plan, and the resources that are available. Quantitative research is used when the researcher wishes to use objective, numeric, and measurable data that can be transformed into statistics to analyze and draw inferences from a defined population (Barnham, 2015). Quantitative research can further be divided into experimental, quasi-experimental, and nonexperimental. Generally, experimental research can be characterized by attempting to provide a cause-and-effect relationship between independent and dependent variables, by manipulation of a predictor variable or variables to alter the outcome of the criterion variable, and the random assignment of participants into groups (Field, 2013; Pedhazur & Schmelkin, 1991). Quasi-experimental research normally uses manipulation of variables but not randomly assigned participants (Handley et al., 2018), whereas nonexperimental research is generally characterized by variables that are not manipulated, typically due to the inherent characteristics of the variables and the fact that participants are not randomly assigned to groups (Belli, 2007). Because I did not attempt to manipulate the predictor variables, nor could I randomly assign participants into groups, I employed a quantitative nonexperimental design to answer my research question: Are subjective social status (predictor variable), social supports (predictor variable), and fatigue (predictor variable) factors that adequately predict parental self-efficacy (criterion variable) among parents of children with autism spectrum disorder?

The research method that I employed to investigate my research question was survey methodology. As put forth by Groves et al. (2009), “A survey is a systematic method for gathering information from (a sample of) entities for the purpose of constructing quantitative descriptors of attributes of a larger population of which the entities are members” (p. 2). Groves et al. further explained, “Survey methodology seeks to identify principles about design, collection, processing, and analysis of surveys that are linked to the cost and quality of survey estimates” (p. 30).

To adhere to best practices, Thompson and Panacek (2007) suggested using existing validated instruments whenever possible. As such, in my online survey, I employed a questionnaire that included the following published instruments: the MacArthur Scale of Subjective Social Status (Adler, 2000), Parental Social Support Index (Telleen, 1985; Telleen et al., 1989), the Fatigue Assessment Scale (Michielsen et al., 2004), and the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989). The questionnaire was self-reporting, composed of closed-ended questions, conducted exclusively via the internet, and voluntary. As the survey was conducted online, it was accessed by the participants at various times of the day or night, not interfering with the participants' schedule.

This study employed an ordinal logistic regression analysis. The primary purpose for employing an ordinal logistic regression was twofold: (a) The criterion variable (PSE) was ordinal, as were three predictor variables (SSS, social supports, and fatigue), and (b) to address the lack of nonparametric techniques used in social science research (Leech & Onwuegbuzie, 2019)

Population

The targeted population was comprised of biological parents, certified foster parents, legal guardians, legal stepparents, registered adoptive parents, and registered domestic partners (ages 18 and older) of at least one child (up to age 23) diagnosed with ASD and who resided in the same household with the aforementioned child diagnosed with ASD. The target population was further distinguished by residing in the state of Oregon, and the survey was in English. This population was appropriate because in Oregon, the average percentage of children ages 3-21 being served under the IDEA who have autism was 10.84% (Easter Seals, 2014), whereas the national average of children ages 3-21 being served under the IDEA who have autism was 9.2% (National Center for Education Statistics [NCES], 2019). This constitutes a minimum of 15% greater rate of children ages 3-21 being served under the IDEA in Oregon than the national average.

Sampling and Sampling Procedures

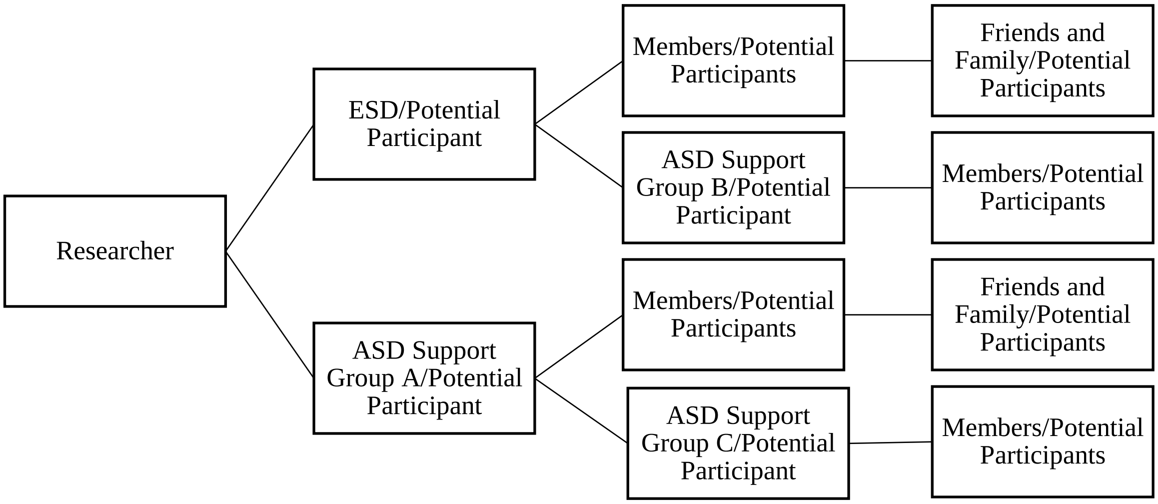
The state of Oregon is comprised of 36 counties, 19 of which employ state-run educational service districts (ESDs). ESDs provide regional services to school districts and focus primarily on services that the school districts find difficult to adequately and equitably provide (Oregon State Legislature, 2017c). These services primarily focus upon technology and children with special needs, of which ASD is a classification. Concurrent yet separate are numerous, mostly parent-run, self-described ASD support groups that assist children with ASD and their families. A commonality between the ESDs and the ASD support groups is the information provided that is pertinent specifically to parents of children with ASD, including but not limited to information on therapists, doctors, dentists, dietary specialists, state services, statewide and regional training and activities, IEP/Individualized Family Service Plan (IFSP) assistance, and help for parents receiving state services such as from Medicaid and the Oregon Health Plan. Another commonality among ESDs and parent support groups is their communication methods, which include online message boards, email, and social media.

As there exists no master list of parents of children with ASD living in Oregon, and there may or may not exist lists of members belonging to each ESD or ASD support group, individuals in this population did not have an equal opportunity to be selected for this study. Furthermore, in regard to ESDs, pursuant to 34 CFR § 99.31 (U.S. Department of Education, 2018), directory information does not allow designation or releasing of information regarding disabilities. As such, I employed nonprobability sampling (Groves et al., 2009). Additionally, although I did have access to the organizations mentioned, I did not have direct access to any individual members; therefore, only a partial sampling frame (U.S. Census Bureau, 2019b) existed, which consisted of the organizations solicited.

The nonprobability sampling techniques that I used in this study were convenience sampling and snowball or network sampling. Convenience sampling is predicated upon the researcher recruiting participants based upon availability and opportunity (El-Masri, 2017; Suen et al., 2014). Snowball or network sampling is a recruitment strategy that is used when accessing a particular population is difficult, and at the behest of the researcher, participants assist in recruiting additional participants by identifying other potential participants whom the participants consider to be insiders and recruit them to the study (Baltar & Brunet, 2012; Marcus et al., 2017); see Figure 2. Respondent-driven sampling (RDS; Heckathorn, 2011), an offshoot of snowball sampling, was considered, but due to the lack of reward incentive for participant recruitment, this sampling technique was abandoned.

Figure 2

Example of Snowball Sampling Specific to This Study



Participants who met population requirements were potentially drawn from 18 ESDs from across Oregon and 55 online ASD support groups representing 25 cities in 20 counties. Additionally, these ESDs and ASD support groups, while located in a specific geographic area in Oregon, depending on their specific web presence (i.e., blog, website, Facebook page, YouTube account, Twitter account, etc.), have members that dwell outside of the said geographic area yet still reside in Oregon. For example, an ASD support group may be located in Portland but may have a Facebook page or a YouTube channel with members/subscribers who live 285 miles south, in Ashland, or 275 miles east, in John Day. This holds true with ESDs also, as all ESDs that I contacted for this study had a website that could reach anyone with an internet connection.

Given the research design and analysis previously presented, I conducted an a priori power analysis using G*Power 3 (Faul et al., 2007) to determine that 108 (n = 108) subjects were needed as a minimum sample size. It should be noted that while 108 respondents were required as the minimum sample size, 125 participants were the goal, and a final sample size of 120 (n = 120) was achieved. Computation criteria for statistical analysis associated with ordinal logistic regression are; X^2 tests – goodness of fit tests: contingency tables equals .80, a .05 significance level, and a 0.30 effect size. This resulted in an 80% chance of getting significance and rejecting the null hypothesis, with 108 participants. The effect size, power, and significance criterion were suitable for the analysis proposed for this study (Cohen, 1992a, 1992b; Maxwell et al., 2008; Pedhazur & Schmelkin, 1991).

Procedures for Recruitment, Participation, and Data Collection

Recruitment

Recruitment of participants took place in two stages: organizational recruitment and individual recruitment. I divided organizational recruitment further into ESDs and ASD support groups. Each potential recruitment organization dictated its respective mode of communication to its members. For example, if the decision makers of an ESD or ASD support group decided that they would participate only if certain criteria were met, I assessed (in terms of ethical considerations/time/materials/cost) if their criteria could be accommodated. If they could, I proceeded with the recruitment process; if they could not, I terminated the proposed relationship between me and the organization. It should be noted that the subsequent information in this section was predicated on Appendix A and Appendix B, having met Walden Institutional Review Board (IRB) expectations (IRB approval number 04-29-20-0363169).

Organizational Recruitment: ESDs

As stated previously, all ESDs that I approached had a website that listed services and staff associated with those services and a corresponding Facebook page. For example, on the Douglas ESD website (https://douglasesd.k12.or.us/), there were numerous links, including “Services,” “Parents,” and “Contact us” (which was a link to staff). This information allowed me to find exactly whom I needed to contact and multiple methods to communicate. Moreover, for those engaging with the Douglas ESD Facebook page, there was an area to ask questions of the organization, although the recipient of the questions was unknown to the user. Although the website and Facebook pages of other ESDs were different in design, the content of the webpages and Facebook pages were similar enough to reproduce the example above with each ESD that I planned to recruit. Additionally, on many ESD Facebook pages, there were schedules of events either sponsored by the ESD or supported by the ESD, and a community link that revealed various organizations that were in some way affiliated with the ESD. These additional organizations provided potential participants for the study.

Organizational Recruitment: ASD Support Groups

I highlight Families Engaging and Thriving Together (F.E.A.T.T.) as an example of an organization to recruit participants. F.E.A.T.T. has a web presence (www.featt.org) that includes a website and a Facebook page. The F.E.A.T.T. website had the following links: Facebook page, information about the organization, resources, and “Contact Us.” Its Facebook page provided links to local events and other Facebook groups that it recommended either joining or visiting. The differences in ASD support groups’ web presence were minimal, and there were no difficulties in navigating their various websites (if they had one) and their Facebook pages. An Organizational Participation Survey Request along with a corresponding Parent Survey Request was sent to all 55 ASD support groups.

Individual Recruitment

Because all individual recruitment was predicated upon successful recruitment of a participating organization allowing access to one or more of the organization’s online communication methods, what was relayed needed to be clear, concise, and to the point. As such, only the Parent Survey Request (see Appendix B) was distributed to the organization, regardless of the required mode of communication set forth by the participant organization. However, it was impossible to enforce this once an individual decided to share the link to the survey.

Provision for Informed Consent

The process for providing informed consent for participants took place upon accessing the URL where the questionnaire was located. In the Informed Consent, I provided a thorough explanation of the purpose of the study, including benefits and potential risks in participating. It was emphasized that the participant agreed to participate before the questionnaire was accessed. Additionally, I explained that by participating in the survey, the participants were granting permission for the usage of the data that they provided. Furthermore, I informed the subject of privacy issues, including anonymity and security.

Mode of Data Collection

Once the proposed study was accepted by Walden University's IRB, recruitment took place exclusively online. I employed an electronic questionnaire as the primary quantitative data collection method in this study, which was composed of four published instruments, each being ordinal variables: the MacArthur Scale of Subjective Social Status (Adler, 2000; John-Henderson et al., 2013), the Parental Social Support Index (Telleen, 1985; Telleen et al., 1989), the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989), and the Fatigue Assessment Scale (Michielsen et al., 2004). The result of this combination would yield 51 items. Incorporating these instruments, I created an anonymous online survey, using SurveyPlanet (SurveyPlanet, 2019). I chose Survey Planet due to the robust options available, including unlimited questions, unlimited respondents, survey embedding, the inclusion of in-question images, the ability to export information into Microsoft Excel, and security procedures. As the survey was conducted solely online, the participants were able to complete the questionnaire at times that fit their schedule, not confined to a specific time of day or night. This flexibility in design was to allow and promote greater participation. Completed survey data were collected on a weekly basis, and I used the export function in SurveyPlanet, downloaded into a Microsoft Excel file, then manually uploaded into IBM SPSS Statistics (Version 25) predictive analytics software for analysis.

Data Analysis Plan

Software

I employed IBM SPSS Statistics (Version 25) predictive analytics software to conduct the required data analysis appropriate to test the null hypothesis of this study. This is discussed in greater detail regarding the exact applications and analysis in the following sections.

Data Cleaning and Screening

Once questionnaire data were downloaded from Planet Survey it was transferred to IBM SPSS Statistics (Version 25) predictive analytics software and kept on a flash drive. Data were then screened and cleaned for errors associated with categorical variables (Pallant, 2020). IBM SPSS Statistics (Version 25) predictive analytics software yielded a table which allowed me to address the accuracy of values and if data were missing. This yielded a table containing appropriate descriptive statistics for each variable.

Research Question and Hypothesis

The purpose of this study was to answer the following research question:

RQ: Are subjective social status, social supports, and fatigue, factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder?

H_0: Subjective social status, social supports, and fatigue, are factors that do not adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

H_A: Subjective social status, social supports, and fatigue, are factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

Data Analysis

An ordinal logistic regression is predicated on the criterion variable being ordinal data; data that relies upon the opinion of the participants that have an order in the response but lacks a distinct measurement between the response categories (Johnson & Albert, 2004) are ordinal. Likert-type scales are ordinal. The criterion variable and the three independent variables used in this study were all ordinal.

By employing this model, it was possible to examine (Goodness of fit tests, a criterion variable that is ordinal, three independent variables that are ordinal, statistical power of .80, a .05 significance level, and a 0.30 effect size) the individual effects each predictor variable had on the criterion variable (Kaufman, 2019; O'Connell, 2006). Additionally, by employing Spearman’s ρ (Menard, 2010) relationships between the predictor variables were tested and understood.

For this study, the following predictor variables: SSS, social supports, and fatigue were used in the model to determine which of these predictor variables, were factors in predicting PSE in parents of children with ASD. The predictor variables and the criterion variable in this study were based upon scores derived from published instruments measuring SSS using the MacArthur Scale of Subjective Social Status (Adler, 2000); social supports by utilizing the Parental Social Support Index (Telleen, 1985; Telleen et al., 1989), and fatigue by employing the Fatigue Assessment Scale (Michielsen et al., 2004). The criterion variable, PSE of parents of children with ASD, was measured by the Parenting Sense of Competence Scale (Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989). As such, the following formula was employed: $Y = a_i + b_1x_1 + b_2x_2 + b_3x_3$. Where, Y *(Parental Self-Efficacy)* $= a_i + b_1x_1$ *(Subjective Social Status)* $+ b_2x_2$ *(Social Supports)* $+ b_3x_3$ *(Fatigue).*

Prior to the ordinal logistic regression analysis being conducted in IBM SPSS Statistics (Version 25) predictive analytics software, an analysis of standard residuals to determine if outliers were present, a Missing Completely at Random (MCAR) Test to determine if missing data were missing at random, and multiple imputation (Schafer, 1999; Shi et al., 2020) to replace missing data were performed. Additionally, specific assumptions associated with ordinal regression analysis were tested, including the following: dependent variable is ordered; the independent variable(s) are categorical, ordinal, or scale; no multi-collinearity; and proportional odds, which is referred to in IBM

SPSS Statistics (Version 25) predictive analytics software as the assumption of parallel lines. The results of these tests are explained in detail in Chapter 4.

Instrumentation and Operation of Constructs

Measurement validity and reliability are paramount when employing an instrument, and as such, the validity and reliability of each published instrument used in this study was included. I addressed the reliability by including the Chronbach's alpha score of each instrument. Cronbach's alpha measures the internal consistency of a scale (DeVellis, 2012). Chronbach's alpha scores range from 0 to 1, with 0.00 to 0.69 generally indicating poor internal consistency, and 0.70 to 0.95 generally indicating good internal consistency (Cortina, 1993; DeVellis, 2012; Helms et al., 2006; Tavakol & Dennick, 2011). The type of validity that was reported is reliant upon the information presented in the literature, including but not limited to criterion validity, construct validity, and content validity. All published instruments I used in this study had the permission of the instrument developers.

The MacArthur Scale of Subjective Social Status (SSS)

The SSS was employed to measure one of the predictor variables: SSS. The SSS is a measure consisting of a single question that allows the participant to rank where they believe they are on the social ladder. The measure itself is comprised of 1-item: a picture of a ladder with ten rungs and the participants ranks where they believe they rank. The following instruction, by Autin et al., (2017) accompanied the picture:

> *Think of this ladder as representing where people stand in our society. At the top of the ladder are the people who are the best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, and worst jobs or no job.* (p. 4)

Cundiff et al. (2013), found in their study of 298 participant couples over the age of 40, the McArthur Scale of Subjective Status had a value of Cronbach's alpha of >.80 amongst men and women. Additionally, the McArthur Scale of Subjective Status is commonly used as a measurement of SSS (Shaked et al., 2016). Additionally, Cundiff et al. (2013) found strong support for construct validity (convergent and discriminant) of the MacArthur scales. For men and women of middle age, the SSS scale demonstrated convergent and discriminant validity relative to SES and psychosocial vulnerability. For middle-aged men and women: t (144) > 3.67, p < .001. For older men and women, t (150) > 2.95, p <.005. The SSS is a categorical nominal variable. As such, each question will be entered into IBM SPSS Statistics (Version 25) predictive analytics software via value labels which I coded as a 10-item score based upon the corresponding value of the question. I.e., highest value is a 10, lowest value is 1.

The Parental Social Support Index (PSSI)

The PSSI (Telleen, 1985; Telleen et al., 1989) was employed to measure one of the predictor variables: social supports. The PSSI was used to measure the parent participants' satisfaction with social supports available at the time of the electronic self-reporting. The instrument contains 22 items and utilizes a five-point Likert scale (1 = *no need at all*; 5 = *very great need*); see Table 2.

Table 2

The Parental Social Support Index (PSSI)

1	2	3	4	5
No need at all	Little need	Need	Great need	Very great need

The PSSI, developed by Telleen (Telleen, 1985; Telleen et al., 1989) is a measure consisting of a 22-item self-report measure derived from seven sources that are commonly used by parents, including childcare, social participations, and social interactions. Moreover, the PSSI is composed of three subscales: resource size, support satisfaction, and support need. The PSSI has been shown to have an internal reliability (Telleen et al., 989) yielding a Cronbach's alpha score ranging from a low of .79 in the Need subscale to .86 in the Support Satisfaction subscale. Additionally, Giallo, Wood, et al. (2013) added three additional questions centering on parental supports related to fatigue: specifically, support regarding fatigue, from whom support was received, and whether they were satisfied with the support relating to their fatigue. This addition maintained a strong internal consistency, yielding a Cronbach's alpha score ranging from 0.78 for Support Needs to a 0.83 on the Satisfaction Support subscale.

In addition to good construct validity found by Teleen (1985), Teleen et al. (1989) discovered PSSI had good construct validity with the Wilcox Social Support Scale. The Satisfaction Scale and the Resource Size Scale were positively correlated with the Wilcox

Scale, where *r* = .38, *p* < .01, and *r* = .52, *p* < .001, respectively. The PSSI is a categorical nominal variable. As such each question was entered into IBM SPSS Statistics (Version 25) predictive analytics software via value labels which I coded as a 5-item score based upon the corresponding value of the question. I.e., "No Need At All" = 1 ... "Very Great Need" = 5.

Fatigue Assessment Scale (FAS)

The FAS (Michielsen et al., 2004) was used to measure one of the predictor variables, fatigue, by rating the level of fatigue at the time the parent-participant completed the electronic data collection. The instrument contains 10 items and utilizes a 5-point Likert scale (1 = *Never*; 5 = *Always*); see Table 3.

Table 3

Fatigue Assessment Scale (FAS)

1	2	3	4	5
Never	Sometimes	Regularly	Often	Always

The FAS, developed by Michielsen et al. (2004), used a Likert-scale based upon a semantic reduction of 40 questions from four separate questionnaires, into a single self-reporting questionnaire containing a 10-item rating scale. The items on the FAS represent various aspects of experiencing fatigue ranging from physical and mental exhaustion to motivation and health practices. Michielsen et al. found via exploratory factor analysis and Mokken Scale Analyses that the four original fatigue questionnaires measure a single unidimensional construct, thus, allowing for the creation of a new, concise, easy-to-use, semantically derived 10-item fatigue scale, including a new item concerning mental exhaustion.

Michielsen et al. (2004) performed a study of 2000 Dutch households and found Cronbach's alpha score of the FAS was .87. Moreover, in two separate studies utilizing FAS, Giallo et al. (2011) found an internal consistency as measured by Cronbach's alpha of 0.88, with Giallo, Wood, et al. (2013) finding an internal consistency of their study at 0.89.

Regarding validity of the FAS, in addition to the good content validity discovered by Michielsen et al. (2004), Cumming and Mead (2017) found good predictive validity with an area under the curve (AUC) was 0.78 (95% CI 0.70–0.86), with the optimal ≥ 24 cut-off giving a sensitivity of 0.82 and specificity of 0.66. The FAS is a categorical nominal variable. As such, each question will be entered into IBM SPSS Statistics (Version 25) predictive analytics software via value labels which I coded as a 5-item score based upon the corresponding vale of the question. I.e., "Never" = 1 … "Always" =5.

Parenting Sense of Competence Scale (PSOC)

The PSOC (Gibaud-Wallston & Wandersman, 1978; Johnston & Mash, 1989) was utilized to measure the criterion variable: PSE. The PSOC was used to measure the parent participants' satisfaction with their role and management as a parent at the time of the electronic self-reporting. The instrument contains 16 items and utilizes a 6-point

Likert scale (1 = *Strongly Disagree*; 6 = *Strongly Agree*), with nine items requiring reverse coding; see Table 4.

Table 4

Parenting Sense of Competence Scale (PSOC)

1	2	3	4	5	6
Strongly disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree

The PSOC, developed by Gibaud-Wallston and Wandersman (1978) and later revised by Johnston and Mash (1989), is a Likert-scale survey comprised of 16 items from two subscales: parenting satisfaction and parenting efficacy. Moreover, the PSOC has shown to have a high internal consistency in each subscale, with a Cronbach's alpha ranging from .75 and .76 (Stuttard et al., 2014), respectively. Additionally, Dunn et al. (2012), in their study of 218 first-time mothers, found the reliability of the PSOC to be higher, with a Cronbach's alpha score of .78.

Gibaud-Wallston and Wandersman (1978) addressed criterion validity by employing a Pearson correlation to examine parenting-self-esteem and perception of child behavior. These calculations between PSOC and the Child Behavior Checklist (CBCL) scores, yielded, in its entirety the PSOC score significantly and negatively related to CBCL scores: Internalizing (r = -.21, p < .01) and Externalizing (r = -.24, p < .01). Additionally, the Satisfaction factor was significantly inversely correlated with CBCL scores: Internalizing (r = -.26, p < .001) and Externalizing (r = -.30, p < .001). There existed a significant correlation between the Efficacy factor and Externalizing (r =

.10, $p < .05$). In a separate study Ohan et al. (2000) addressed the validity of the PSOC scale and found small size correlations between internalizing and externalizing child problems on the satisfaction scores, with small to nonsignificant correlations with efficacy scores. As such each question will be entered into IBM SPSS Statistics (Version 25) predictive analytics software via value labels which I coded as a 6-item score based upon the corresponding vale of the question. I.e., “Strongly Disagree” = 1 … “Strongly Agree” = 6.

Demographic Information

Via electronic survey, four demographic questions were asked of participants related to the participants age, the age of the child diagnosed with ASD, the gender of the child diagnosed with ASD, and the parental status of the participant, as classified by Oregon law. Parental status was intended to provide a more detailed description of the individual participants as it captures the participants gender in addition to his or her parental status. This data were used to showed how the participants relate to the population in which they were drawn and assisted in facilitating generalizability (Ackerman, et al., 2019).

Two questions were continuous numeric variables, and two were categorical nominal variable. Two of the questions allowed the participant to answer by entering into a box their age and their child’s age. The wording to each question was as follows: 1) *As of your last birthday, how old are you? _____ years old*, 2) *As of their last birthday, how old is the child? _____ years old*. The third question allowed the participant to answer by clicking on a button with the designation male or female. The wording to this question was as follows 3) *What gender is the child that has been diagnosed with ASD _____Female _____Male*. The fourth question allowed participants to answer by clicking on one of the following that describes their parental status; see Table 5.

Table 5

Variable Measurement for Parental Status

Question	Response
Are you?	[A] Adoptive parent: Mother [B] Adoptive parent: Father [C] Biological parent: Mother [D] Biological parent: Father [E] Domestic partner: Female [F] Domestic partner: Male [G] Foster parent: Female [H] Foster parent: Male [I] Guardian: Female [J] Guardian: Male [K] Stepparent: Female [L] Stepparent: Male

Threats to Validity

Internal Validity

There are potential extraneous or confounding variables that might influence PSE (DV) that are not included in this study, which may influence internal research validity. These potential variables are marital satisfaction (Korja et al., 2016); high or low SE in other areas (García-López et al., 2016); the severity of ASD symptoms of the child (Murdock, 2013), and the number of autistic children the parents have (Clifford &

Minnes, 2013). Although these variables are outside the scope of this study, these variables might influence parental-self efficacy.

External Validity

Due to the nature of this study, numerous threats to external validity (generalizability) may exist. Although all participants in this study were parents of children diagnosed with ASD, they were chosen based upon convenience sampling. This sampling method weakens the external validity, via potential participant over-representation or under-representation, limiting the generalizability of this study.

As this study employed an online survey, reliance upon any results of self-reporting is a consideration. Both parents (father and mother) were encouraged to participate and therefore could have exchanged information and collaborated on results. As there was no way to monitor participants truthfulness, it is possible that one parent took the survey for themselves and their spouse.

As the survey was taken at only one moment in time, the age of the participants will be different than when their child was first diagnosed with ASD, and therefore their reliance upon, and knowledge of, social supports have likely increased over time. The internet, for good or ill, has an abundance of information about ASD, and therefore a participant may have more knowledge, regardless of accuracy, about ASD now than when their child was first diagnosed with ASD.

Due to the nature of the study, all participants employed a certain level of technical expertise since they took the survey with a technological device on the internet.

Although this level of technical knowledge is rudimentary in our culture now, this is just an assumption and may influence generalizability.

Ethical Procedures

As ethics should be the cornerstone of any research undertaken, it was also in this study. In addressing various ethical concerns, the following actions were taken. First, before recruitment of participants took place, my study was subject to the Walden University IRB. Upon their recommendations and consent, I proceeded with my study. Second, I explained on the opening page of the questionnaire, before beginning the questionnaire, that participation in the survey was completely voluntary, there would be no monetary benefit for participating, and that the participant may discontinue taking the survey at any time. Third, I explained that, due to the nature of the study, there may be questions that may be construed as too personal, and the participant may skip those questions. Finally, in addressing privacy violation, the questionnaire did not require or ask for, personally identifying information.

To continue the participant needed to confirm that he or she understands and consents by clicking a box labeled “yes”. If the participant clicked the box labeled “no”, the survey terminated. In respecting the time taken by the participant to answer as much of the survey as they do, partial data were included in the survey.

All collected data were anonymous and confidential, with data being accessed only by me. I was the only person with access to the passcode-protected administrative portion of the Survey Planet survey site. During the duration of the survey, I downloaded data onto a dedicated flash drive on a weekly basis. The flash drive is secured daily in a Leadzm 0.17 CF digital lock box, which allows access only by a key and digital password. This is located in my home office. Upon conclusion of the study, I deleted Survey Planet files from the Survey Planet server. The flash drive will be destroyed after three years.

Summary

The purpose of this study was to examine if SSS, social supports, and fatigue, are factors that adequately predict PSE among parents of children with ASD. In this chapter, I detailed an overview of the methodology employed, how participants were recruited, the variables and measurements employed, and various considerations regarding validity.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to examine whether a set of selected predictor variables—SSS, social supports, and fatigue—are factors that adequately predict PSE among parents of children with ASD. This was accomplished by addressing the following research question, null hypothesis (H_0), and alternative hypothesis (H_A):

RQ: Are subjective social status, social supports, and fatigue factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder?

H_0: Subjective social status, social supports, and fatigue are factors that do not adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

H_A: Subjective social status, social supports, and fatigue are factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

The purpose of this chapter is to display and discuss the results of the ordinal regression analysis conducted for the hypothesis testing. The chapter addresses aspects of data collection including the time frame, recruitment, and response rates. Any discrepancies are discussed. In this chapter, I discuss and report the results of the study, including data collection procedures, demographic results, statistical assumptions, analysis of findings, results, and a summary.

Data Collection

A total of 55 organizations that met the criteria were contacted via their website, Facebook page, and/or YouTube channel, from May 2020 to April 28, 2021. During this timeframe, 188 participants responded, but only 120 of the participants fit the criteria for this study. This resulted in a nonprobability sample of n = 120 who met the study inclusion criteria and acknowledged informed consent, taking the survey on SurveyPlanet. It should be noted that I employed snowball sampling via organizations with no set membership population, so there was no indicator as to how many individuals viewed the invitation to participate and chose not to respond, nor through what venue they saw the invitation and chose to participate. As such, a response rate could not be created and tabulated. These data were then imported into Excel, and then imported into IBM SPSS Statistics (Version 25) predictive analytics software for analysis.

The methodology described in Chapter 3 was adhered to with minor modifications. Prior to analysis being conducted, data were screened to ensure statistical assumptions associated with the assumptions of ordinal regression, including that the dependent variable was ordered; the independent variable(s) were categorical, ordinal, or scale; there was no multicollinearity; and there were proportional odds.

Data Cleaning and Screening

There were no missing data associated with demographic data or with the MacArthur Scale of Subjective Social Status. The Parental Social Support Index, Fatigue Assessment Scale, and Parenting Sense of Competence Scale all experienced missing data. The Parenting Sense of Competency Scale had nine questions that required reverse coding. An analysis of standard residuals was performed, showing that the data contained no outliers (std. residual min = -2.30, std. residual max = 2.44). In performing a missing completely at random (MCAR) test it, was discovered that missing data were missing at random, with Little's MCAR test: chi-square = 4845.745, *df* = 4847, *p* =.502. To address the missing data, I employed multiple imputation (Schafer, 1999; Shi et al., 2020) in IBM SPSS Statistics (Version 25) predictive analytics software to replace the missing data.

Demographics

Table 6 presents the demographic data submitted by the participants (*N* = 120) related to the child's gender, child's age, age of participant, and participant relationship to the child. Most reported that the child's gender was male (77.5%, *n* = 93). Children's ages ranged from 2 to 23 years, with 12.5% (*n* = 15) being age 4, 9.2% (*n* = 11) being age 8, 8.3% (*n* = 10) being age 6, and 7.5% being age 14 (n = 9). Age categories of 2-10 years (58.3%, *n* = 70), 11-17 years (35.5%, *n* = 42), and 18-23 years (4.2%, *n* = 8) were reported. The average age of the child of the participant was 9.9 years (*SD* = 5.158).

The participants' ages ranged from 26 to 65 years, with 7.5% (*n* = 9) being 39 and 7.5% (*n* = 9) being 46. Age categories of 26-35 years (20%, *n* = 24), 36-45 years (45%, *n* = 54), 46-55 years (29.3%, *n* = 35), and 56+ years (5.7%, *n* = 7) were reported. There were no participants aged 18-25 years (0%, *n* = 0). The average age of the participants was 42.58 years (*SD* = 7.689). Results of relationship to child indicated that 78.7% (n = 94) of participants reported their relationship as biological parent: mother, 8.1% (n = 10) reported biological parent: father, 8.1% (*n* = 10) reported adoptive parent: mother, and 1.6% (*n* = 2) reported guardian: female. Combined, the categories adoptive parent: father, domestic partner: male, foster parent: male, and stepparent: female accounted for 3.5% of participants (*n* = 4).

Table 6

Demographic Data for Participants (N = 120)

Variable	*N*	%
Child's gender		
Female	27	22.5
Male	93	77.5
Child's age		
2-10	70	58.3
11-17	42	35.5
18-23	8	4.2
Participant's age		
26-35	24	20
36-45	54	45
46-55	35	29.3
56+	7	5.7
Participant's parental status		
Adoptive parent: Mother	10	8.1
Biological parent: Mother	94	78.7
Biological parent: Father	10	8.1
Guardian: Female	2	1.6
Other	4	3.5

Test of Assumptions of Ordinal Regression

Prior to the testing of assumptions for an ordinal regression, an analysis of standard residuals was performed, showing that the data contained no outliers (std. residual min = -2.30, std. residual max = 2.44). The following assumptions were tested: dependent variable is ordered; the independent variable(s) are categorical, ordinal, or scale; no multicollinearity; and proportional odds, which is referred to in IBM SPSS Statistics (Version 25) predictive analytics software as the assumption of parallel lines. Ordinal variables have an order and are ranked but do not convey measurable differences between the ranks, nor do they possess an inherent value (Field, 2013; Pedhazur & Schmelkin, 1991). As PSOC, FAS, PSSI, and SSS only indicate rank and order, these variables are classified as ordinal (Wu & Leung, 2017).

An analysis of the assumption that the dependent variable is ordered was performed, showing that the dependent variable, PSOC, is measured at the ordinal level: the PSOC utilizes a 6-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*). Nine items were reverse coded as was indicated in the scoring instructions (Gibaud-Wallston & Wandersman, 1978). Analysis of the assumption that the dependent variable is ordered and was met. An analysis of the independent variable(s) was performed: The FAS variable utilizes a 5-point Likert scale (1 = *never*; 5 = *always*); the PSSI variable utilizes a 5-point Likert scale (1 = *no need at all*; 5 = *very great need*); and the SSS variable utilizes a 10-item categorical score based upon the corresponding value of the question (i.e., highest value is 10, lowest value is 1). Analysis of the assumption that the independent variable(s) is ordered, was met.

To address the analysis of multicollinearity, a Spearman’s ρ was performed (see Table 7) to align with the assumptions of ordinal regression. The results of the Spearman’s ρ tests shows FAS to PSSI, r_s (120) = -.051, $p < .05$; denoting no relationship. FAS to SSS shows r_s (120) = .039, $p < .05$; no relationship. PSSI to SSS shows r_s (120) = .101, $p < .01$; denoting a weak positive relationship. Analysis showed the assumption of collinearity, indicating that multicollinearity is not a concern.

An analysis of proportional odds (Parsons et al., 2009) was performed showing the following: significant improvement in fit, in the final model over the null model [$X^2(3) = 35.419$, $p < .001$] (see Table 8). Pearson chi-square test [$X^2(4671) = 4556.409$, $p = .883$] and the deviance test [$X^2(4671) = 774.495$, $p = 1.00$] were both nonsignificant, suggesting a good model fit (see Table 9), and did not validate the test of parallel lines, $p = .989$.

Table 7

Spearman's ρ (N = 120)

			FAS	PSSI	SSS
Spearman's ρ	FAS	Correlation coefficient	1	-.051	.039
		Sig. (2-tailed)		.581	.675
		N	120	120	120
	PSSI	Correlation coefficient	-.051	1	.101
		Sig. (2-tailed)	.581		.272
		N	120	120	120
	SSS	Correlation coefficient	.039	.101	1
		Sig. (2-tailed)	.675	.272	
		N	120	120	120

Table 8

Model Fitting Information

Model	-2 log likelihood	Chi-square	*df*	Sig.
Intercept only	816.845			
Final	781.427	35.419	3	.000

Note. Link function: Logit.

Table 9

Goodness of Fit

	Chi-square	*df*	Sig.
Pearson	4556.409	4671	.883
Deviance	774.495	4671	1.00

Note. Link function: Logit.

Model Reliability

In testing for model reliability, the Cronbach's alpha value should be above .7 (Devillis, 2012). It is important to note that due to the sensitivity that Cronbach's alpha values have when a scale has fewer than 10 items, it is commonplace to find low Cronbach's alpha values (e.g., .5) when compared to scales with 10 or more items (Pallant, 2020). It should be noted that the FAS (e.g., 5), PSSI (e.g., 5), and PSOC (e.g., 6) are all scales composed of fewer than 10 items.

The FAS scale has a 5 item Likert-type scale (Cronbach's alpha = .566) showing poor reliability. The PSSI scale has a 5 item Likert-type scale (Cronbach's alpha = .678) showing questionable reliability. The PSOC scale has scale has a 6 item Likert-type scale (Cronbach's alpha =.694) showing questionable reliability in this study.

Results of Analysis

Research Question

RQ: Are subjective social status, social supports, and fatigue factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder?

H_0: Subjective social status, social supports, and fatigue are factors that do not adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

H_A: Subjective social status, social supports, and fatigue are factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

Testing of the null hypothesis was conducted using an ordinal regression (see Table 10). An increase of SSS score was associated with an increase in the odds of PSEC score increasing, with an odds ratio of 1.233 (95% CI, 1.048 to 1.451), Wald $\chi^2(1) = 6.353$, $p = .012$. This result indicates that while there is an increase in odds that parental self-efficacy (PSEC) will increase as SSS increases, it is not a significant predictor. An increase of FAS score was associated with a decrease in the odds of PSEC score increasing, with an odds ratio of .134 (95% CI, .059 to .306), Wald $\chi^2(1) = 22.851$, $p = .000$. This result indicates a significant negative predictor, indicating that parental self-efficacy (PSEC) will decrease when fatigue (FAS) increases. An increase of SSI score was associated with an increase in the odds of PSEC score increasing, with an odds ratio of 2.720 (95% CI, 1.414 to 5.232), Wald $\chi^2(1) = 8.980$, $p = .003$. This result indicates a significant positive predictor, indicating that parental self-efficacy (PSEC) will increase when parental social supports (SSI) increases. Based upon the findings, the alternate hypothesis is affirmed:

H_A: Subjective social status, social supports, and fatigue are factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder.

Table 10

Ordinal Logistic Regression

	95% Wald confidence interval				Hypothesis test			95% Wald confidence interval for Exp(B)		
Parameter	B	Std. error	Lower	Upper	Wald chi-square	*df*	Sig.	Exp(B)	Lower	Upper
SSS	.210	.0381	.047	.373	6.353	1	.012	1.233	1.048	1.451
FAS	-2.008	.4200	-2.831	-1.184	22.851	1	.000	.134	.059	.306
PSSI	1.00	.3339	.346	1.655	8.980	1	.003	2.720	1.414	5.232
(Scale)	1[a]					1				

Note. Dependent variable: PSC, Model (Threshold), SSI, FAS, PSSI.
[a]Fixed at the displayed value.

Summary

The purpose of this study was to examine whether SSS, social supports, and fatigue are factors that adequately predict parental self-efficacy among parents of children with ASD. An ordinal regression was employed to model the relationships between the ordinal dependent variable, parental self-efficacy (PSEC), and the ordinal independent variables, SSS, social supports, and fatigue. The results of this ordinal regression showed that SSS (Wald $\chi^2(1) = 6.353$, $p = .012$) had a positive but not significant predictive effect on PSEC, whereas fatigue (Wald $\chi^2(1) = 22.851$, $p = .000$) had a significant negative predictive effect on PSEC, and social supports (Wald $\chi^2(1) = 8.980$, $p = .003$) had a significant positive predictive effect on PSEC.

Although convenience snowball sampling was employed, it yielded the desired results for statistical analysis, an adequate sample of participants (*n* = 120) who met the inclusion criteria for the study. Other findings that were important were the number of female participants compared to male participants, the ages of the participants, the gender of the participant's child with ASD, the ages of the participant's child with ASD, and the relationship of the participant to the child with ASD. I discuss this in further detail in Chapter 5 as it relates to the literature.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

As of 2016, ASD was estimated to affect 1 in 54 children in the United States (CDC, 2020). Unfortunately, ASD influences the health and well-being of an ever-increasing corresponding number of parents and caregivers of children diagnosed with autism, as they typically need to coordinate numerous support services themselves and often experience a depreciated quality of life (Moody, 2018).

This quantitative, nonexperimental study was conducted to examine the following question: Are subjective social status, social supports, and fatigue factors that adequately predict parental self-efficacy among parents of children with autism spectrum disorder? A nonparametric, ordinal logistic regression design was employed to analyze data collected via an internet survey employing snowball sampling eliciting 120 participants (*n* = 120) who met sample requirements. While fatigue and social supports were adequate factors in predicting PSE in parents of children diagnosed with ASD, SSS (while having a positive effect) was not an adequate factor in predicting PSE amongst parents of children diagnosed with ASD. Additionally, PSSI and SSS showed a weak positive relationship, whereas FAS showed no relationship with PSSI or SSS.

Interpretation of the Findings

Fatigue, Social Supports, and Subjective Social Status

The results of the ordinal regression indicated that social supports and fatigue were factors in predicting PSE among parents of children with ASD. FAS score was associated with a decrease in the odds of the PSEC score increasing, indicating that parental self-efficacy (PSEC) will likely decrease when fatigue (FAS) increases. SSI score was associated with an increase in the odds of the PSEC score increasing, indicating that parental self-efficacy (PSEC) will likely increase when parental social supports (SSI) increases. However, it was determined that although SSS was associated with an increase in the odds of the PSEC score increasing, the odds were not sufficient to be an adequate factor in predicting PSE among parents of children with ASD. Furthermore, Spearman’s ρ indicated that PSSI and SSS showed a weak positive relationship, whereas FAS showed no relationship with PSSI or SSS.

Among participants in this study, fatigue was a significant negative predictor of PSE. These results align with those of the Giallo, Wood, et al., (2013) study. This result was expected due to the demands inherent in raising a child with ASD; however, it is difficult to surmise the degree to which the introduction of Coronavirus Disease 2019 (COVID-19) and the various stay-at-home orders implemented in Oregon added to the FAS score that would have not been present had the COVID-19 outbreak not been present. For example, from early March 2020 through mid-April 2021, in-person instruction provided by public schools for children was lessened and erratic. This removed traditionally allotted time in which children diagnosed with ASD would be allowed to spend time with additional caregivers, thus increasing the participants’ time with their children.

Among participants in this study, parental social supports were a significant positive predictor of PSE. These results align with the existing literature (Cantwell et al., 2015; Cuzzocrea et al., 2016; Giallo, Wood, et al., 2013). This result was expected; however, it should be noted that much of the institutionally run parental social supports in Oregon were suppressed during the latter half of the 2019-2020 school year and most of the 2020-2021 school year due to COVID-19 restrictions. This timeline corresponded to the time frame allotted for gathering data for this study. The effect that this had on the institutionally run aspect of PSSI score is unknown. Additionally, as the suppression of institutionally run parental socials supports was implemented, stay-at-home orders were put in place, creating a potential shift in familial-associated aspects of parental social supports. The influence of these separate aspects of parental social supports on the participants of this study is unknown.

Among participants in this study, SSS, while having a positive relationship, was not an adequate predictor of PSE. This is one of few studies that have included subjective rather than objective social status in a PSE study. The influence of the COVID-19 restrictions imposed in Oregon on participants' SSS scores is unknown. It should be noted that SSS and PSSI had a weak positive relationship.

Participant Demographic Information

Additional findings of interest included information gleaned from demographic information provided by the participants, including child's gender, child's age, participant's gender, participant's parental relationship, and participant's age. It was revealed that that the gender of 77.5% (n = 93) of the participants' children were male. This information aligns with the proportionality of males and females diagnosed with ASD in the literature (Baio et al., 2018; CDC, 2020). Participants' children were overwhelmingly of school age (n = 97), with ages 4 years (n = 15), 8 years (n = 11), 6 years (n = 10), and 14 years (n = 9) being the most prevalent.

Participants' parental status was predominately biological mother, which accounted for 78.7% (n = 94) of the participants, with biological fathers accounting for 8.1% (n = 10). This aligns with the gender of participants in the literature (Ponnet et al., 2013). However, this study expanded the parental relationship status of the participants to reflect the guidelines established by the state of Oregon. The result of this addition to the study resulted in 8.1% (n = 10) of participants reporting a relationship of adoptive parent: mother and 5.1% (n = 6) reporting other parental relationships. The average age of the participants was 42.58 years (SD = 7.689). This study adds to the literature by including ages of biological mothers of children with ASD. Of particular interest specific to this study is the ages of the biological mothers with relationship to the ever-increasing mean age of mothers who reside in Oregon having their first child. Compared to the rest of the United States, Oregon had the largest increase in the mean age of mothers having their first child, which increased from 24.9 years of age in 2000 to 26.3 years in 2014 (CDC, 2016).

Theoretical Framework: Social Cognitive Theory

The findings of this study were interpreted via SCT (Bandura, 1986, 1989), with an emphasis on self-efficacy (Bandura, 1977, 1997) and triadic reciprocal causation (Bandura, 1997). Self-efficacy and triadic reciprocal causation lay a strong groundwork for understanding the relationships between fatigue, social supports, and SSS and their predictiveness on PSE of parents of children diagnosed with ASD. The results of this study showed that fatigue (personal factors) negatively influences PSE (behavior) and that there is a bidirectional relationship in which it is understood that as PSE increases, the fatigue associated with parenting a child with ASD will likely decrease. Parental social supports (external environment) positively influence PSE (behavior), indicating a bidirectional relationship in which as a parent of a child diagnosed with ASD receives more parental social support, their PSE with regard to parenting their child with ASD likely increases. This implies that there is a bidirectional reciprocal element, although not of the same strength of influence, of both fatigue and social supports, that likely influences PSE in parents of children diagnosed with ASD.

Moreover, by employing personal agency, the parent of a child diagnosed with ASD may be more or less affected by fatigue or parental social supports as their PSE increases or decreases. By understanding SCT, creators of programs designed to assist parents of children diagnosed with ASD can better understand the bidirectional relationships that fatigue and social supports have with PSE. The overall findings of this study provide support of SCT in the context of the PSE of parents of children diagnosed with ASD and the influences of fatigue and parental social supports.

Limitations of the Study

Many of the limitations of this study’s findings corresponded to those mentioned in previous chapters. Due to the employment of convenience and snowball sampling and the privacy issues surrounding protected classes of citizens, there was no way to tabulate a response rate due to the inability to determine how many individuals saw the invitation to participate, or through what venue they saw the invitation and chose to participate. As such, the unknown size of a potential nonresponse bias may have influenced self-selection bias when comparing those participants who chose to respond with those who did not. Additionally, convenience sampling may have increased the odds that participants were not representative of parents of children diagnosed with ASD. Furthermore, all participants were residing in Oregon at the time of participation; although Oregon parallels the rest of the United States with regard to ASD rates, it is uncertain whether a sample population taken exclusively from Oregon (especially during the tumultuous time during COVID-19 restrictions) will raise generalizability issues if the data are used outside of Oregon.

The time frame for data collection took place during the COVID-19 pandemic. The influence of months of long lockdown orders imposed by the governor of Oregon, the restrictive guidelines provided by the CDC, the sudden increased unemployment rate in Oregon, and the lack of nonessential medical and social services offered for the last year in Oregon is unknown on FAS, PSSI, SSS, and PSEC scores. FAS, PSSI, and PSEC all have questions related to one or more of the aforementioned conditions associated with COVID-19 protocols initiated in the state of Oregon from March 2020-April 2021.

It should also be noted that the FAS (e.g., 5), PSSI (e.g., 5), SSS (e.g., 10), and PSOC (e.g., 6) are all scales composed of 10 or fewer items, and it is commonplace for scales with 10 or fewer items to have lower Cronbach's alpha values (e.g., .5; Pallant, 2020) when compared to scales with 10 or more items (e.g., .7; Devillis, 2012). The FAS scale (Cronbach's alpha = .566) showed poor reliability, the PSSI scale (Cronbach's alpha = .678) showed questionable reliability, and the PSOC scale (Cronbach's alpha = .694) showed questionable reliability.

Recommendations

Based upon the results of this study, the PSE of parents of a child diagnosed with ASD can be predicted by fatigue and parental social supports, with a negative bidirectional relationship between fatigue and PSE in parents of a child diagnosed with ASD, and a positive bidirectional relationship between parental social supports and PSE in parents of a child diagnosed with ASD. The limited findings in the literature corroborate these findings.

The findings of this study add to the small body of literature that pertains to the predictability that fatigue and parental social supports have on PSE in parents of a child diagnosed with ASD. Future research should examine the level of bidirectional relationships between fatigue and PSE by dividing fatigue into the physical and psychological effects of fatigue, as to better fine-tune programs designed to assist parents of a child diagnosed with ASD. Additionally, future studies could examine the level of bidirectional relationship between parental social supports and PSE in parents of a child diagnosed with ASD, by dividing parental social supports into familial and institutional categories, thus allowing for the creation of a more precise program designed to assist parents of a child diagnosed with ASD.

The findings of this study suggest that SSS, while showing a positive relationship, was not an adequate predictor of PSE of parents of a child diagnosed with ASD. These findings, while conflicting with other findings in the literature, add to the burgeoning body of literature that employs subjective rather than objective social status with regard to PSE. Future research should examine the relationship between objective and subjective social supports when predicting the PSE of parents of a child diagnosed with ASD.

The findings of this study supported the conclusion that biological mothers participated in greater proportion than biological fathers. This mirrored previous findings in the literature; however, by allowing the inclusion of other categories of parental status, other classifications of parents were represented. As the number of children with ASD increases, it can be deduced that the number of parents and caregivers not classified as biological parents will also increase. Future studies should examine the PSE of nonbiological parents of children diagnosed with ASD. The results could further expand on programs designed to assist various types of parents of children diagnosed with ASD, in which biological parentage is not a factor.

The findings of this study were the result of convenience and snowball sampling of both institutional and private organizations designed to assist parents of children with ASD. While there is significant overlap in goals, these two types of organizations are different in organizational structure, funding, and influence. Future studies could compare participation from these separate types of organizations. The results may allow program developers to determine which venue allows for more exposure to information regarding programs that will assist parents of a child diagnosed with ASD.

As the findings of this study were confined by the COVID-19 restrictions imposed in the state of Oregon for the duration of data collection, a duplication of this study outside of these restrictions may agree or disagree with elements of this study. Additionally, a duplication of this study in another state may yield results similar to or differing from those found in this study.

It is recommended that creators of programs that are intended to assist parents of a child diagnosed with ASD consider adopting the results of this study when designing their programs. Designing programs with an emphasis on the bidirectional reciprocal nature of fatigue and parental social supports on PSE should enhance the effectiveness of programs being designed to assist parents of a child diagnosed with ASD. Additionally, by understanding how the triadic reciprocal causation between fatigue, parental social supports, and PSE plays a role in interacting with agency, designers of programs that intend to assist in increasing PSE in parents of a child diagnosed with ASD should have better results in their programs than those who do not have this understanding.

Implications

Positive Social Change

As the number of children diagnosed with ASD continues to rise (CDC, 2020), so too does the number of parents and caregivers who care for those children. As this number increases, there will be a need for effective programs that are designed to assist parents of a child with ASD (Dawson-Squibb & de Vries, 2019). The implications for positive social change encompassing the findings of this study are primarily focused upon two groups: parents of a child diagnosed with ASD and those who design programs to assist parents of a child diagnosed with ASD.

By developing a better understanding of the implications garnered from this study related to the predictability of both fatigue and parental social supports on PSE in parents of a child diagnosed with ASD, parents may utilize this knowledge to facilitate positive change in agency to increase their PSE with regard to caring for their child with ASD. Additionally, interpreting the results of this study through the lens of SCT during the design of programs to assist parents of a child with ASD may lead to better outcomes and contribute to best practices (Steiner et al., 2012).

With the addition of new classifications of parental status to include guardians, stepparents, and domestic partners, a new participant demographic was established. Due to the continuous change in family dynamics, it is my sincere hope that information obtained by including these other types of parents will spur new studies that focus on these subgroups whose members are taking on the responsibility of caring for a child with ASD.

Conclusion

The rising number of children diagnosed with ASD equals a rising number of parents of children diagnosed with ASD. These parents face unique challenges to parenting a child with ASD that are not present when parenting a neurotypical child. Paralleling this information is the need to tailor programs that can assist in facilitating increased PSE in parents of a child diagnosed with ASD.

The overarching goal of this quantitative study was to explore whether SSS, social supports, and fatigue were factors that adequately predicted PSE among parents of children with ASD. The data analysis revealed that fatigue was a significant negative factor in predicting PSE in parents of children with ASD. Additionally, data analysis revealed that parental social supports were a significant positive factor in predicting PSE in parents of children with ASD. Data analysis revealed that SSS was not a factor in predicting PSE in parents of a child with ASD.

This study provided much-needed information regarding the bidirectional way in which fatigue and parental social supports interact with PSE in parents of children with ASD. That is, fatigue is likely to negatively affect agency, whereas parental social supports are likely to positively affect agency. Equipping parents and stakeholders with the results of this study may result in the improvement of PSE in the ever-increasing number of parents of a child with ASD.

References

Ackerman, B., Schmid, I., Rudolph, K. E., Seamans, M. J., Susukida, R., Mojtabai, R., & Stuart, E. A. (2019). Implementing statistical methods for generalizing randomized trial findings to a target population. *Addictive Behaviors*, *94*, 124–132. https://doi.org/10.1016/j.addbeh.2018.10.033

Adler, N. E. (2000). MacArthur scale of subjective social status. *Psychosomatic Medicine*, *72*, 35–45. https://doi.org/10.1037/t20985-000

Alicioglu, G., Sun, B., & Ho, S. S. (2020, July 19–24). *Assessing accident risk using ordinal regression and multinomial logistic regression data generation* [Conference session]. 2020 International Joint Conference on Neural Networks, Glasgow, UK. https://doi.org/10.1109/IJCNN48605.2020.9207105

Akerstedt, T., Axelsson, J., Lekander, M., Orsini, N., & Kecklund, G. (2014). Do sleep, stress, and illness explain daily variations in fatigue? A prospective study. *Journal of Psychosomatic Research*, *76*(4), 280–285. https://doi.org/10.1016/j.jpsychores.2014.01.005

Akpinar, F., Kutluk, G., Özmay, G., Yorbik, Ö., & Çetinkaya, F. (2019). Frequencies of allergic diseases among children with autism spectrum disorders. *Asthma Allergy Immunology*, *17*(1), 25–27. https://doi.org/10.21911/aai.170

American Psychiatric Association. (2013). Autism spectrum disorder. In *Diagnostic and statistical manual of mental disorders* (5th ed.). https://dsm.psychiatryonline.org/pbassets/dsm/update/DSM5Update2016.pdf#page=7

Andersson, G. W., Miniscalco, C., & Gillberg, C. (2014). Preschoolers assessed for autism: Parent and teacher experiences of the diagnostic process. *Research in Developmental Disabilities*, *35*(12), 3392–3402. https://doi.org/10.1016/j.ridd.2014.08.027

Angell, A. M., & Solomon, O. (2014). The social life of health records: Understanding families' experiences of autism. *Social Science & Medicine*, *117*, 50–57. https://doi.org/10.1016/j.socscimed.2014.07.020

Angley, M., Divney, A., Magriples, U., & Kershaw, T. (2015). Social support, family functioning and parenting competence in adolescent parents. *Maternal & Child Health Journal*, *19*(1), 67–73. https://doi.org/10.1007/s10995-014-1496-x

Australian Bureau of Statistics. (2019). *Population clock.* https://www.abs.gov.au/ausstats/abs%40.nsf/94713ad445ff1425ca25682000192af2/1647509ef7e25faaca2568a900154b63?OpenDocument

Autin, K. L., Douglass, R. P., Duffy, R. D., England, J. W., & Allan, B. A. (2017). Subjective social status, work volition, and career adaptability: A longitudinal study. *Journal of Vocational Behavior, 99*, 1–10. https://doi.org/10.1016/j.jvb.2016.11.007

Azad, G., Blacher, J., & Marcoulides, G. (2014). Longitudinal models of socio-economic status: Impact on positive parenting behaviors. *International Journal of Behavioral Development*, *38*(6), 509–517.

https://doi.org/10.1177/0165025414532172

Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., Kurzius-Spencer, M., Zahorodny, W., Robinson Rosenberg, C., White, T., Durkin, M. S., Imm, P., Nikolaou, L., Yeargin-Allsopp, M., Lee, L.-C., Harrington, R., Lopez, M., Fitzgerald, R. T., Hewitt, A., … Dowling, N. F. (2018). Prevalence of autism spectrum disorder among children aged 8 years—Autism and Developmental Disabilities Monitoring Network, 11 sites, United States, 2014. *MMWR Surveillance Summaries*, *67*(6), 1–23. https://doi.org/10.1037/e562722010-001

Baltar, F., & Brunet, I. (2012). Social research 2.0: Virtual snowball sampling method using Facebook. *Internet Research*, *22*(1), 57–74. https://doi.org/10.1108/10662241211199960

Bandura, A. (1965). Vicarious processes: A case of no-trial learning. *Advances in Experimental Social Psychology, 2*, 1–55. https://doi.org/10.1016/s0065-2601(08)60102-1

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215. https://doi.org/10.1037/0033-295x.84.2.191

Bandura, A. (1982). Self-efficacy mechanisms in human agency. *American Psychologist, 37*(2), 122-147. https://doi.org/10.1037/0003-066x.37.2.122

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*.

Prentice-Hall.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175–1184. https://doi.org/10.1037/0003-066x.44.9.1175

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). Cambridge University Press. https://doi.org/10.1017/cbo9780511527692.003

Bandura, A. (1997). *Self-efficacy: The exercise of control.* W. H. Freeman and Company.

Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology, 3*(3), 265–299. https://doi.org/10.1207/s1532785xmep0303_03

Bandura, A. (2002). Social cognitive theory in cultural context. *Applied Psychology, 51*(2), 269–290. https://doi.org/10.1111/1464-0597.00092

Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. *Journal of Abnormal & Social Psychology*, *66*(1), 3–11. https://doi.org/10.1037/h0048687

Bandura, A., Ross, D., & Ross, S. A. (1963). Vicarious reinforcement and imitative learning. *Journal of Abnormal & Social Psychology, 67*(6), 601–623. https://doi.org/10.1037/h0045550

Barnham, C. (2015). Quantitative and qualitative research. *International Journal of Market Research*, *57*(6), 837–854. https://doi.org/10.2501/ijmr-2015-070

Belli, G. (2007). Statistics in Plain English (2nd ed.). *Applied Psychological Measurement*, *31*(6), 544–546. https://doi.org/10.1177/0146621606292217

Benson, P. R. (2016). The longitudinal effects of network characteristics on the mental health of mothers of children with ASD: The mediating role of parent cognitions. *Journal of Autism and Developmental Disorders, 46*(5), 1699-1715. https://doi.org/10.1007/s10803-016-2699-3

Benzies, K. M., Trute, B., & Worthington, C. (2013). Maternal self-efficacy and family adjustment in households with children with serious disability. *Journal of Family Studies, 19*(1), 35-43. https://doi.org/10.5172/jfs.2013.19.1.35

Bodera, P., Stankiewicz, W., & Kocik, J. (2014). Interactions of orphanin FQ/nociceptin (OFQ/N) system with immune system factors and hypothalamic–pituitary–adrenal (HPA) axis. *Pharmacological Reports, 66*(2), 288–291. https://doi.org/10.1016/j.pharep.2013.12.003

Bölte, S., Bartl, P. K., Jonsson, U., Berggren, S., Zhang, D., Kostrzewa, E., Falck-Ytter, T., Einspieler, C., Pokorny, F.B., Jones, E.J.H., Roeyers, H., Charman, T., & Marschik, P. (2016). How can clinicians detect and treat autism early? Methodological trends of technology use in research. *Acta Paediatrica, 105*(2), 137–144. https://doi.org/10.1111/apa.13243

Bonis, S. A., & Sawin, K. J. (2016). Risks and protective factors for stress self-management in parents of children with autism spectrum disorder: An integrated review of the literature. *Journal of Pediatric Nursing-Nursing Care of Children & Families, 31*(6), 567-579. https://doi.org/10.1016/j.pedn.2016.08.006

Boshoff, K., Gibbs, D., Phillips, R. L., Wiles, L., & Porter, L. (2016). Parents' voices:

'why and how we advocate'. A meta-synthesis of parents' experiences of advocating for their child with autism spectrum disorder. *Child: Care, Health & Development*, *42*(6), 784-797. https://doi.org/10.1111/cch.12383

Brewer, A. (2018). “We were on our own”: Mothers’ experiences navigating the fragmented system of professional care for autism. *Social Science & Medicine, 215*, 61–68. https://doi.org/10.1016/j.socscimed.2018.08.039

Brookman-Frazee, L., Stadnick, N., Chlebowski, C., Baker-Ericzén, M., & Ganger, W. (2018). Characterizing psychiatric comorbidity in children with autism spectrum disorder receiving publicly funded mental health services. *Autism: The International Journal of Research and Practice*, *22*(8), 938–952. https://doi.org/10.1177/1362361317712650

Brooks, P. J., Gaggi, N. L., & Ploog, B. O. (2018). Generalization of content and emotional prosody across speakers varying in gender in youth with autism spectrum disorder. *Research in Developmental Disabilities*, *83*, 57–68. https://doi.org/10.1016/j.ridd.2018.08.004

Buescher, A. S., Cidav, Z., Knapp, M., & Mandell, D. S. (2014). Costs of autism spectrum disorders in the United Kingdom and the United States. *JAMA Pediatrics*, *168*(8), 721-728. https://doi.org/10.1001/jamapediatrics.2014.210

Burrell, A., Ives, J., & Unwin, G. (2017). The experiences of fathers who have offspring with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 47*(4), 1135-1147. https://doi.org/10.1007/s10803-017-3035-2

Call, N. A., Reavis, A. R., McCracken, C. E., Gillespie, S. E., & Scheithauer, M. C. (2014). The impact of delays on parents' perceptions of treatments for problem behavior. *Journal of Autism and Developmental Disorders*, *45*(4), 1013–1025. https://doi.org/10.1007/s10803-014-2257-9

Cantwell, J., Muldoon, O., & Gallagher, S. (2015). The influence of self-esteem and social support on the relationship between stigma and depressive symptomology in parents caring for children with intellectual disabilities. *Journal of Intellectual Disability Research*, *59*(10), 948–957. https://doi.org/10.1111/jir.12205

Cappe, E., Wolff, M., Bobet, R., & Adrien, J. (2011). Quality of life: A key variable to consider in the evaluation of adjustment in parents of children with autism spectrum disorders and in the development of relevant support and assistance programmes. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, *20*(8), 1279-1294. https://doi.org/10.1007/s11136-011-9861-3

Carbone, P., Murphy, N., Norlin, C., Azor, V., Sheng, X., & Young, P. (2013). Parent and pediatrician perspectives regarding the primary care of children with autism spectrum disorders. *Journal of Autism & Developmental Disorders*, *43*(4), 964–972. https://doi.org/10.1007/s10803-012-1640-7

Center for Disease Control and Prevention. (2016). *Mean age of mothers is on the rise: United States, 2000–2014*. https://www.cdc.gov/nchs/products/databriefs/db232.htm#:~:text=The%20mean

%20age%20of%20first,years)%20(Figure%201).

Center for Disease Control and Prevention. (2020). *Prevalence of autism spectrum disorder among children aged 8 years – autism and developmental disabilities monitoring network, 11 sites, united states, 2016.* https://www.cdc.gov/mmwr/volumes/69/ss/ss6904a1.htm?s_cid=ss6904a1_w

Chandroo, R., Strnadova, I., & Cumming, T. M. (2018). A systematic review of the involvement of students with autism spectrum disorder in the transition planning process: Need for voice and empowerment. *Research in Developmental Disabilities*, *83*, 8–17. https://doi.org/10.1016/j.ridd.2018.07.011

Charlot, L., & Beasley, J. (2013). Intellectual disabilities and mental health: United States–based research. *Journal of Mental Health Research in Intellectual Disabilities*, *6*(2), 74–105. https://doi.org/10.1080/19315864.2012.715724

Chau, V., & Giallo, R. (2015). The relationship between parental fatigue, parenting self-efficacy and behaviour: Implications for supporting parents in the early parenting period. *Child: Care, Health and Development, 41*(4), 626-633. https://doi.org/10.1111/cch.12205

Chavis, L. (2016). Mothering and anxiety: Social support and competence as mitigating factors for first-time mothers. *Social Work in Health Care, 55*(6), 461-480. https://doi.org/10.1080/00981389.2016.1170749

Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., Bergeron, A., & Cutler, D. (2016). The association between income and life expectancy in the

United States, 2001-2014. *JAMA: Journal of the American Medical Association*, *315*(16), 1750–1766. https://doi.org/10.1001/jama.2016.4226

Chiang, H., & Gau, S. S. (2016). Comorbid psychiatric conditions as mediators to predict later social adjustment in youths with autism spectrum disorder. *Journal of Child Psychology and Psychiatry*, *57*(1), 103-111. https://doi.org/10.1111/jcpp.12450

Chiang, J. J., Saphire-Bernstein, S., Kim, H. S., Sherman, D. K., & Taylor, S. E. (2013). Cultural differences in the link between supportive relationships and proinflammatory cytokines. *Social Psychological and Personality Science*, *4*(5), 511-520. https://doi.org/10.1177/1948550612467831

Choi, Y., Kim, J. H., & Park, E. C. (2015). The effect of subjective and objective social class on health-related quality of life: new paradigm using longitudinal analysis. *Health and Quality of Life Outcomes*, *13*, 121. https://doi.org/10.1186/s12955-015-0319-0

Chong, W. H., & Kua, S. M. (2017). Parenting self-efficacy beliefs in parents of children with autism: Perspectives from Singapore. *American Journal of Orthopsychiatry*, *87*(3), 365-375. https://doi.org/10.1037/ort0000169

Christensen, D. L., Bilder, D. A., Zahorodny, W., Pettygrove, S., Durkin, M. S., Fitzgerald, R. T., … Yeargin-Allsopp, M. (2016). Prevalence and characteristics of autism spectrum disorder among 4-year-old children in the autism and developmental disabilities monitoring network. *Journal of Developmental and Behavioral Pediatrics*, *37*(1), 1–8.

https://doi.org/10.1097/DBP.0000000000000235

Clifford, T., & Minnes, P. (2013). Who participates in support groups for parents of children with autism spectrum disorders? The role of beliefs and coping style. *Journal of Autism & Developmental Disorders*, *43*(1), 179–187. https://doi.org/10.1007/s10803-012-1561-5

Cohen, J. (1992a). A power primer. *Psychological Bulletin, 111*(1), 155-159. https://doi.org/10.1037/0033-2909.112.1.155

Cohen, J. (1992b). Statistical power analysis. *Current Directions in Psychological Science*, *1*(3), 98–101. https://doi.org/10.1111/1467-8721.ep10768783

Cohen, S. R., Holloway, S. D., Domínguez-Pareto, I., & Kuppermann, M. (2015). Support and self-efficacy among Latino and white parents of children with ID. *American Journal on Intellectual and Developmental Disabilities*, *120*(1), 1-16. https://doi.org/10.1352/1944-7558-120.1.16

Cooklin, A. R., Giallo, R., & Rose, N. (2012). Parental fatigue and parenting practices during early childhood: An Australian community survey. *Child: Care, Health and Development*, *38*(5), 654-664. https://doi.org/10.1111/j.1365-2214.2011.01333.x

Cortiella, C., & National Center for Learning Disabilities, (2006). IDEA parent guide: A comprehensive guide to your rights and responsibilities under the individuals with disabilities education act (IDEA 2004). *National Center for Learning Disabilities*. https://files.eric.ed.gov/fulltext/ED495879.pdf

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. https://doi.org/10.1037/0021-9010.78.1.98

Croen, L. A., Zerbo, O., Qian, Y., Massolo, M. L., Rich, S., Sidney, S., & Kripke, C. (2015). The health status of adults on the autism spectrum. *Autism: The International Journal of Research & Practice*, *19*(7), 814–823. https://doi.org/10.1177/1362361315577517

Cumming, T. B., & Mead, G. (2017). Classifying post-stroke fatigue: Optimal cut-off on the fatigue assessment scale. *Journal of Psychosomatic Research*, *103*, 147–149. https://doi.org/10.1016/j.jpsychores.2017.10.016

Cundiff, J. M., Smith, T. W., Uchino, B. N., & Berg, C. A. (2013). Subjective social status: Construct validity and associations with psychosocial vulnerability and self-rated health. *International Journal of Behavioral Medicine, 20*(1), 148-158. https://doi.org/10.1007/s12529-011-9206-1

Cuzzocrea, F., Murdaca, A. M., Costa, S., Filippello, P., & Larcan, R. (2016). Parental stress, coping strategies and social support in families of children with a disability. *Child Care in Practice*, *22*(1), 3–19. https://doi.org/10.1080/13575279.2015.1064357

Dakopolos, A. J., & Jahromi, L. B. (2018). Differences in sensory responses among children with autism spectrum disorder and typical development: Links to joint attention and social competence. *Infant and Child Development, 28*(1), 1-19.

https://doi.org/10.1002/icd.2117

Dawson-Squibb, J.-J., & de Vries, P. J. (2019). Developing an evaluation framework for parent education and training in autism spectrum disorder: Results of a multi-stakeholder process. *Journal of Autism and Developmental Disorders*, *49*(11), 4468–4481.

de Andrés-García, S., Sariñana-González, P., Romero-Martínez, A., Moya-Albiol, L., & Gonzalez-Bono, E. (2013). Cortisol response to stress in caregivers of offspring with autism spectrum disorder is associated with care recipient characteristics. *Stress (Amsterdam, Netherlands)*, *16*(5), 510-519. https://doi.org/10.3109/10253890.2013.798294

Deliens, G., Papastamou, F., Ruytenbeek, N., Geelhand, P., & Kissine, M. (2018). Selective pragmatic impairment in autism spectrum disorder: Indirect requests versus irony. *Journal of Autism and Developmental Disorders*, *48*(9), 2938–2952. doi:10.1007/s10803-018-3561-6

DeVellis, R. (2012). *Scale development: Theory and applications.* Sage Publishing.

D’Hooge, L., Achterberg, P., & Reeskens, T. (2018). Imagining class: A study into material social class position, subjective identification, and voting behavior across Europe. *Social Science Research*, *70*, 71–89. https://doi.org/10.1016/j.ssresearch.2017.11.003

Dieleman, L. M., Moyson, T., De Pauw, S. S. W., Prinzie, P., & Soenens, B. (2018). Parents’ need-related experiences and behaviors when raising a child with autism spectrum disorder. *Journal of Pediatric Nursing*, *42*, e26–e37. https://doi.org/10.1016/j.pedn.2018.06.005

Diemer, M. A., Mistry, R. S., Wadsworth, M. E., López, I., & Reimers, F. (2013). Best practices in conceptualizing and measuring social class in psychological research. *Analyses of Social Issues & Public Policy*, *13*(1), 77–113. https://doi.org/10.1111/asap.12001

Don, B. P., Chong, A., Biehle, S. N., Gordon, A., & Mickelson, K. D. (2014). Anxiety across the transition to parenthood: Change trajectories among low-risk parents. *Anxiety, Stress & Coping: An International Journal*, *27*(6), 633–649. https://doi.org/10.1080/10615806.2014.903473

Doshi-Velez, F., Ge, Y., & Kohane, I. (2014). Comorbidity clusters in autism spectrum disorders: An electronic health record time-series analysis. *Pediatrics*, *133*(1), e54-e63. https://doi.org/10.1542/peds.2013-0819

Dunn, W., Cox, J., Foster, L., Mische-Lawson, L., & Tanquary, J. (2012). Impact of a contextual intervention on child participation and parent competence among children with autism spectrum disorders: A pretest-posttest repeated-measures design. *American Journal of Occupational Therapy*, *66*(5), 520–528. https://doi.org/10.5014/ajot.2012.004119

Dunning, M. J., & Giallo, R. (2012). Fatigue, parenting stress, self-efficacy and satisfaction in mothers of infants and young children. *Journal of Reproductive and Infant Psychology*, *30*(2), 145-159.

https://doi.org/10.1080/02646838.2012.693910

Earle, F., Hockey, B., Earle, K., & Clough, P. (2015). Separating the effects of task load and task motivation on the effort–fatigue relationship. *Motivation and Emotion, 39*(4), 467-476. https://doi.org/10.1007/s11031-015-9481-2

Easter Seals. (2014). State autism profiles: Oregon. http://www.easterseals.com/explore-resources/living-with-autism/2014_autism_oregon.pdf

Ekas, N., Timmons, L., Pruitt, M., Ghilain, C., & Alessandri, M. (2015). The power of positivity: Predictors of relationship satisfaction for parents of children with autism spectrum disorder. *Journal of Autism & Developmental Disorders, 45*(7), 1997-2007. https://doi.org/10.1007/s10803-015-2362-4

Ekas, N. V., Pruitt, M. M., & McKay, E. (2016). Hope, social relations, and depressive symptoms in mothers of children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 29-30,* 8-18. https://doi.org/10.1016/j.rasd.2016.05.006

Elgar, F. J., McKinnon, B., Torsheim, T., Schnohr, C. W., Mazur, J., Cavallo, F., & Currie, C. (2016). Patterns of socioeconomic inequality in adolescent health differ according to the measure of socioeconomic position. *Social Indicators Research, 127*(3), 1169. https://doi.org/10.1007/s11205-015-0994-6

El-Masri, M. M. (2017). Non-probability sampling: The process of selecting research participants non-randomly from a target population. *Canadian Nurse, 113*(3), 17. https://www.cna-aiic.ca

Enoka, R. M., & Duchateau, J. (2016). Translating fatigue to human performance. *Medicine and Science in Sports and Excercise*, *48*(11), 2228–2238. https://doi.org/10.1249/MSS.0000000000000929

Erford, B. T., & Gavin, K. (2013). Brief psychometric analysis of the self-efficacy parent report scale (SEPRS). *Measurement and Evaluation in Counseling and Development*, *46*(2), 79-87. https://doi.org/10.1177/0748175612467464

Falk, N. H., Norris, K., & Quinn, M. G. (2014). The factors predicting stress, anxiety and depression in the parents of children with autism. *Journal of Autism and Developmental Disorders, 44*(12), 3185-3203. https://doi.org/10.1007/s10803-014-2189-4

Faul, F., Erdfelder, E., Lang, A.-G. & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175-191. https://goi.org/10.3758/bf03193146

Feldman, J. I., Kuang, W., Conrad, J. G., Tu, A., Santapuram, P., Simon, D. M., … Woynaroski, T. G. (2019). Brief report: Differences in multisensory integration covary with sensory responsiveness in children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *49*(1), 397–403. https://doi.org/10.1007/s10803-018-3667-x

Ferguson, B. J., Marler, S., Altstein, L. L., Lee, E. B., Mazurek, M. O., McLaughlin, A., & ... Beversdorf, D. Q. (2016). Associations between cytokines, endocrine stress response, and gastrointestinal symptoms in autism spectrum disorder. *Brain, Behavior & Immunity, 58,* 5857-62. https://doi.org/10.1016/j.bbi.2016.05.009

Ferreira, W. de A., Camelo, L., Viana, M. C., Giatti, L., & Barreto, S. M. (2018). Is subjective social status a summary of life-course socioeconomic position? *Cadernos De Saude Publica*, *34*(5). https://doi.org/10.1590/0102-311X00024317

Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (4th ed.). Sage Publications.

Fishman, C., & Nickerson, A. (2015). Motivations for involvement: A preliminary investigation of parents of students with disabilities. *Journal of Child & Family Studies*, *24*(2), 523. https://doi.org/10.1007/s10826-013-9865-4

Flippin, M., & Watson, L. R. (2018). Parental broad autism phenotype and the language skills of children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *48*(6), 1895–1907. https://doi.org/10.1007/s10803-017-3431-7

Foody, C., James, J. E., & Leader, G. (2015). Parenting stress, salivary biomarkers, and ambulatory blood pressure: A comparison between mothers and fathers of children with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, *45*(4), 1084-1095. https://doi.org/10.1007/s10803-014-2263-y

Fryling, M. J., Johnston, C., & Hayes, L. J. (2011). Understanding Observational Learning: An Interbehavioral Approach. *Analysis of Verbal Behavior, 27,* 191–203. https://doi.org/10.1007/bf03393102

Fung, S., Lunsky, Y., & Weiss, J. A. (2015). Depression in youth with autism spectrum disorder: The role of ASD vulnerabilities and family–environmental stressors. *Journal of Mental Health Research in Intellectual Disabilities*, *8*(3–4), 120–139. https://doi.org/10.1080/19315864.2015.1017892

Gage-Bouchard, E. A., & Devine, K. A. (2014). Examining parents' assessments of objective and subjective social status in families of children with cancer. *PLoS ONE*, *9*(3), 1–10. https://doi.org/10.1371/journal.pone.0089842

Gallagher, S., Howard, S., & Heffernan, M. (2015). Differential hemodynamic effects during the provision of active and passive support in the laboratory. *Psychology & Health*, *30*(9), 1088–1102. https://doi.org/10.1080/08870446.2015.1024246

García-López, C., Sarriá, E., & Pozo, P. (2016). Multilevel approach to gender differences in adaptation in father-mother dyads parenting individuals with autism spectrum disorder. *Research in Autism Spectrum Disorder*s, *28,* (7-16). https://doi.org/10.1016/j.rasd.2016.04.003

Gergelyfi, M., Jacob, B., Olivier, E., & Zénon, A. (2015). Dissociation between mental fatigue and motivational state during prolonged mental activity. *Frontiers in Behavioral Neuroscience, 9*. https://doi.org/10.3389/fnbeh.2015.00176

Giallo, R., Dunning, M., Cooklin, A., Seymour, M., Graessar, H., Zerman, N., & Vittorino, R. (2012). Acceptability of wide awake parenting: A psycho-educational intervention to manage parental fatigue. *Journal of Reproductive and Infant Psychology*, *30*(5), 450-460.

https://doi.org/10.1080/02646838.2012.742999

Giallo, R., Rose, N., Cooklin, A., & McCormack, D. (2013). In survival mode: Mothers and fathers’ experiences of fatigue in the early parenting period. *Journal of Reproductive and Infant Psychology*, *31*(1), 31-45. https://doi.org/10.1080/02646838.2012.751584

Giallo, R., Treyvaud, K., Cooklin, A., & Wade, C. (2013). Mothers’ and fathers’ involvement in home activities with their children: Psychosocial factors and the role of parental self-efficacy. *Early Child Development and Care*, *183*(3), 343–359. https://doi.org/10.1080/03004430.2012.711587

Giallo, R., Wade, C., Cooklin, A., & Rose, N. (2011). Assessment of maternal fatigue and depression in the postpartum period: support for two separate constructs. *Journal of Reproductive & Infant Psychology*, *29*(1), 69–80. https://doi.org/10.1080/02646838.2010.513050

Giallo, R., Wood, C. E., Jellett, R., & Porter, R. (2013). Fatigue, wellbeing and parental self-efficacy in mothers of children with an autism spectrum disorder. *Autism*, *17*(4), 465-480. https://doi.org/10.1177/1362361311416830

Gibaud-Wallston, J., & Wandersman, L. P. (1978). Parenting sense of competence scale. *Psyctests*, https://doi.org/10.1037/t01311-000

Gill, M. (2016). The other 25%: Autistic girls and women. *European Psychiatry*, *33*, S432. https://doi.org/10.1016/j.eurpsy.2016.01.1246

Gilmore L, & Cuskelly M. (2009). Factor structure of the parenting sense of competence scale using a normative sample. *Child: Care, Health & Development*, *35*(1), 48–55. https://doi.org/10.1111/j.1365-2214.2008.00867.x

Glatz, T., & Buchanan, C. M. (2015). Change and predictors of change in parental self-efficacy from early to middle adolescence. *Developmental Psychology, 51*(10), 1367-1379. https://doi.org/10.1037/dev0000035

Glatz, T., Cotter, A., & Buchanan, C. (2017). Adolescents' behaviors as moderators for the link between parental self-efficacy and parenting practices. *Journal of Child & Family Studies*, *26*(4), 989–997. https://doi.org/10.1007/s10826-016-0623-2

Goin-Kochel, R. P., Esler, A. N., Kanne, S. M., & Hus, V. (2014). Developmental regression among children with autism spectrum disorder: Onset, duration, and effects on functional outcomes. *Research in Autism Spectrum Disorders*, *8*(7), 890–898. https://doi.org/10.1016/j.rasd.2014.04.00

Goodman, E., Maxwell, S., Malspeis, S., & Adler, N. (2015). Developmental trajectories of subjective social status. *Pediatrics, 136*(3), e633-e640. https://doi.org/10.1542/peds.2015-1300

Gouin, J., Estrela, C., Desmarais, K., & Barker, E. T. (2016). The impact of formal and informal support on health in the context of caregiving stress. *Family Relations*, *65*(1), 191-206. https://doi.org/10.1111/fare.12183

Gouin, J., Scarcello, S., da Estrela, C., Barker, E. T., & Paquin, C. (2016). Dyadic coping and inflammation in the context of chronic stress. *Health Psychology*, *35*(10), 1081-1084. https://doi.org/10.1037/hea0000395

Graff, H. J., Berkeley, S., Evmenova, A. S., & Park, K. L. (2014). Trends in autism research: A systematic journal analysis. *Exceptionality*, *22*(3), 158-172**.** https://doi.org/10.1080/09362835.2013.865532

Grillon, C., Quispe-Escudero, D., Mathur, A., & Ernst, M. (2015). Mental fatigue impairs emotion regulation. *Emotion*, *15*(3), 383-389. https://doi.org/10.1037/emo0000058

Groves, R., Fowler, F., Couper, M., Lepkowski, J., Singer, E., & Tourangean., R. (2009). *Survey methodology* (2nd ed.). John Wiley & Sons Inc.

Hammond, R. K., & Hoffman, J. M. (2014). Adolescents with high-functioning autism: An investigation of comorbid anxiety and depression. *Journal of Mental Health Research in Intellectual Disabilities*, *7*(3), 246-263. https://doi.org/10.1080/19315864.2013.843223

Handley, M. A., Lyles, C. R., Mcculloch, C., & Cattamanchi, A. (2018). Selecting and improving quasi-experimental designs in effectiveness and implementation research. *Annual Review of Public Health*, *39*, 5–25. https://doi.org/10.1146/annurev-publhealth-040617-014128

Harrell, F. (2015). *Regression modeling strategies with applications to linear models, logistic and ordinal regression and survival analysis (*2nd edition*)*. Springer International Publishing.

Haught, H. M., Rose, J., Geers, A., & Brown, J. A. (2015). Subjective social status and well-being: The role of referent abstraction. *Journal of Social Psychology*, *155*(4), 356–369. https://doi.org/10.1080/00224545.2015.1015476

Hayes, S., & Watson, S. (2013). The impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism & Developmental Disorders*, *43*(3), 629–642. https://doi.org/10.1007/s10803-012-1604-y

Heckathorn, D. D. (2011). Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*, *41*, 355–366. https://doi.org/10.1111/j.1467-9531.2011.01244.x

Helms, J. E., Henze, K. T., Sass, T. L., & Mifsud, V. A. (2006). Treating Cronbach's alpha reliability coefficients as data in counseling research. *The Counseling Psychologist*, *34*(5), 630. https://doi.org/10.1177/0011000006288308

Hockey, G. J. (2011). A motivational control theory of cognitive fatigue. In P. L. Ackerman, P. L. Ackerman (Eds.), *Cognitive fatigue: Multidisciplinary perspectives on current research and future applications* (pp. 167-187). American Psychological Association. https://doi.org/10.1037/12343-008

Hoefman, R., Payakachat, N., van Exel, J., Kuhlthau, K., Kovacs, E., Pyne, J., & Tilford, J. M. (2014). Caring for a child with autism spectrum disorder and parents' quality of life: Application of the CarerQol. *Journal of Autism and Developmental Disorders*, *44*(8), 1933-1945. https://doi.org/10.1007/s10803-014-2066-1

Hopstaken, J. F., van der Linden, D., Bakker, A. B., Kompier, M. J., & Leung, Y. K. (2016). Shifts in attention during mental fatigue: Evidence from subjective, behavioral, physiological, and eye-tracking data. *Journal of Experimental Psychology: Human Perception and Performance, 42*(6), 878-889. https://doi.org/10.1037/xhp0000189

Huang, C., Yen, H., Tseng, M., Tung, L., Chen, Y., & Chen, K. (2014). Impacts of autistic behaviors, emotional and behavioral problems on parenting stress in caregivers of children with autism. *Journal of Autism and Developmental Disorders*, *44*(6), 1383-1390. https://doi.org/10.1007/s10803-013-2000-y

Jackman, M. R., & Jackman, R. W. (1973). An interpretation of the relation between objective and subjective social status. *American Sociological Review, 38*(5), 569-582. https://doi.org/10.2307/2094408

Jellett, R., Wood, C. E., Giallo, R., & Seymour, M. (2015). Family functioning and behaviour problems in children with autism spectrum disorders: The mediating role of parent mental health. *Clinical Psychologist, 19*(1), 39-48 10p. https://doi.org/10.1111/cp.12047

Jeong, Y., & Jung, M. J. (2016). Application and interpretation of hierarchical multiple regression. *Orthopaedic Nursing, 35*(5), 338–341. https://doi.org/10.1097/nor.0000000000000279

Jess, M., Hastings, R. P., & Totsika, V. (2017). The construct of maternal positivity in mothers of children with intellectual disability. *Journal of Intellectual Disability Research, 61*(10), 928–938. https://doi.org/10.1111/jir.12402

John-Henderson, N., Jacobs, E. G., Mendoza-Denton, R., & Francis, D. D. (2013).

Wealth, health, and the moderating role of implicit social class bias. *Annals of Behavioral Medicine*, *45*(2), 173-179. https://doi.org/10.1007/s12160-012-9443-9

Johnston, C., & Mash, E. J. (1989). A measure of parenting satisfaction and efficacy. *Journal of Clinical Child Psychology*, *18*(2). 167. https://doi.org/10.1207/s15374424jccp1802_8

Johnson, V. E. & Albert, J. H. (2004). Ordinal regression models. In *The SAGE handbook of quantitative methodology for the social sciences* (pp. 152-175). SAGE Publications, Inc. https://doi-org/10.4135/978141298

Junttila, N., Aromaa, M., Rautava, P., Piha, J., & Raiha, H. (2015). Measuring multidimensional parental self-efficacy of mothers and fathers of children ages 1.5 and 3 years. *Family Relations*, *64*(5), 665. https://doi.org/10.1111/fare.12161

Kaufman, R. L. (2019). Ordinal regression models. In *Interaction effects in linear and generalized linear models* (pp. 411-478). SAGE Publications, Inc. https://doi.org/10.4135/97815063

Kelder, S. H., Hoelscher, D., & Perry, C. L. (2015). How individuals, environments, and health behaviors interact: Social cognitive theory. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior: Theory, research, and practice.* (pp. 159–181). Jossey-Bass.

Kern, J. K., Geier, D. A., Deth, R. C., Sykes, L. K., Hooker, B. S., Love, J. M., Bjorklund, G., Chaigneau, C., Haley, B., & Geier, M. R. (2017). Systematic assessment of research on autism spectrum disorder (ASD) and mercury reveals conflicts of interest and the need for transparency in autism research. *Science and Engineering Ethics*, 23(6), 1691-1718. https://doi.org/10.1007/s11948-017-9983-2

Kissel, S. D., & Nelson, W. I. (2016). Parents’ perceptions of the severity of their child’s autistic behaviors and differences in parental stress, family functioning, and social support. *Focus on Autism and Other Developmental Disabilities, 31*(2), 152-160. https://doi.org/10.1177/1088357614537352

Korja, R., Piha, J., Otava, R., Scaiola, C. L., Ahlqvist-Björkroth, S., Junttila, N., & ... Räihä, H. (2015). Parents' psychological well-being and parental self-efficacy in relation to the family's triadic interaction. *Infant Mental Health Journal, 36*(3), 298-307. https://doi.org/10.1002/imhj.21512

Krabbe, D., Ellbin, S., Nilsson, M., Jonsdottir, I. H., & Samuelsson, H. (2017). Executive function and attention in patients with stress-related exhaustion: Perceived fatigue and effect of distraction. *Stress: The International Journal on the Biology of Stress*, *20*(4), 333–340. https://doi.org/10.1080/10253890.2017.1336533

Kuusikko-Gauffin, S., Pollock-Wurman, R., Mattila, M.-L., Jussila, K., Ebeling, H., Pauls, D., & Moilanen, I. (2013). Social anxiety in parents of high-functioning children with autism and asperger syndrome. *Journal of Autism & Developmental Disorders*, *43*(3), 521–529. https://doi.org/10.1007/s10803-012-1581-1

Lavelle, T., Weinstein, M., Newhouse, J., Munir, K., Kuhlthau, K., & Prosser, L. (2014). Economic burden of childhood autism spectrum disorders. *Pediatrics, 133*(3), E520-E529. https://doi.org/10.1542/peds.2013-0763

Lavenda, O., & Kestler-Peleg, M. (2017). Parental self-efficacy mitigates the association between low spousal support and stress. *Psychiatry Research*, *256*, 228-230. https://doi.org/10.1016/j.psychres.2017.06.060

Leech, N. L., & Onwuegbuzie, A. J. (2019). A call for greater use of nonparametric statistics. *Research in the Schools, 25*(2), xiii-xxvi.

Lobar, S. L. (2016). DSM-V changes for autism spectrum disorder (ASD): Implications for diagnosis, management, and care coordination for children with ASDs. *Journal of Pediatric Health Care*, *30*(4), 359–365. https://doi.org/10.1016/j.pedhc.2015.09.005

Loukusa, S., Mäkinen, L., Kuusikko-Gauffin, S., Ebeling, H., & Leinonen, E. (2018). Assessing social-pragmatic inferencing skills in children with autism spectrum disorder. *Journal of Communication Disorders*, *73*, 91–105. https://doi.org/10.1016/j.jcomdis.2018.01.006

Loutzenhiser, L., McAuslan, P., & Sharpe, D. P. (2015). The trajectory of maternal and paternal fatigue and factors associated with fatigue across the transition to parenthood. *Clinical Psychologist, 19*(1), 15-27 13p. https://doi.org/10.1111/cp.12048

Malm, E. K., Henrich, C., Varjas, K., & Meyers, J. (2017). Parental self-efficacy and bullying in elementary school. *Journal of School Violence, 16*(4), 411-425. https://doi.org/10.1080/15388220.2016.1168743

Manelis, L., Meiri, G., Ilan, M., Flusser, H., Michaelovski, A., Faroy, M., Kerub, O., Dinstein, I., & Menashe, I. (2019). Language regression is associated with faster early motor development in children with autism spectrum disorder. *Autism Research: Official Journal of the International Society for Autism Research*, *13*(1), 145-156. https://doi.org/10.1002/aur.2197

Marcus, B., Weigelt, O., Hergert, J., Gurt, J., & Gelléri, P. (2017). The use of snowball sampling for multi-source organizational research: Some cause for concern. *Personnel Psychology*, *70*(3), 635–673. https://doi.org/10.1111/peps.12169

Masi, A., DeMayo, M. M., Glozier, N., & Guastella, A. J. (2017). An overview of autism spectrum disorder, heterogeneity and treatment options. *Neuroscience Bulletin*, *33*(2), 183-193. https://doi.org/10.1007/s12264-017-0100-y

Maskey, M., Warnell, F., Parr, J., Couteur, A., & McConachie, H. (2013). Emotional and behavioural problems in children with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, *43*(4), 851–859. https://doi.org/10.1007/s10803-012-1622-9

Maxwell, E. E., Kelley, K., Rausch, J. R. (2008). Sample size planning for statistical power and accuracy in parameter estimation. *Annual Review of Psychology*, *59*(1), 537-563. https://doi.org/ 10.1146/annurev.psych.59.103006.093735

May, C., Fletcher, R., Dempsey, I., & Newman, L. (2015). Modeling relations among co-parenting quality, autism-specific parenting self-efficacy, and parenting stress in mothers and fathers of children with ASD. *Parenting: Science & Practice*, *15*(2), 119–133. https://doi.org/10.1080/15295192.2015.1020145

McAlister, A. L., Perry, C. L., & Parcel, G. S. (2008). How individuals, environments, and health behaviors interact: Social cognitive theory. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice.* (pp. 169–188). Jossey-Bass.

McBean, A. L., & Schlosnagle, L. (2016). Sleep, health and memory: Comparing parents of typically developing children and parents of children with special health-care needs. *Journal of Sleep Research, 25*(1), 78-87. https://doi.org/10.1111/jsr.12329

McDaniels, J. (2016). Family advocates for parents with children with an autism spectrum disorder. A letter to the editor on the article "parent perceptions of care received by children with an autism spectrum disorder". *Journal of Pediatric Nursing-Nursing Care of Children and Families, 31*(5), 470. https://doi.org/10.1016/j.pedn.2016.04.005

McStay, R. L., Trembath, D., & Dissanayake, C. (2014). Maternal stress and family quality of life in response to raising a child with autism: From preschool to adolescence. *Research in Developmental Disabilities, 35*(11), 3119-3130. https://doi.org/10.1016/j.ridd.2014.07.043

Meadan, H., Stoner, J. B., & Angell, M. E. (2015). Fathers of children with autism: Perceived roles, responsibilities, and support needs. *Early Child Development & Care, 185*(10), 1678. https://doi.org/10.1080/03004430.2015.1019876

Menard, S. (2010). Ordinal logistic regression. In *Logistic regression: From introductory* *to advanced concepts and applications* (pp. 193-221). SAGE Publications, Inc. https://doi.org/10.4135/97814833

Michelson, N., Riis, J. L., & Johnson, S. B. (2016). Subjective social status and psychological distress in mothers of young children. *Maternal and Child Health Journal, 20*(10), 2019-2029. https://doi.org/10.1007/s10995-016-2027-8

Michielsen, H. J., De Vries, J., Van Heck, G. L., Van de Vijver, F. R., & Sijtsma, K. (2004). Fatigue assessment scale. *Psyctests*, https://doi.org/10.1037/t03811-000

Miller-Kuhaneck, H., Madonna, S., Novak, A., & Pearson, E. (2015). Effectiveness of interventions for children with autism spectrum disorder and their parents: A systematic review of family outcomes. *American Journal of Occupational Therapy, 69*(5), 1-12A. https://doi.org/10.5014/ajot.2015.017855

Mlynski, C., Wright, R. A., Agtarap, S. D., & Rojas, J. (2017). Naturally-occurring fatigue and cardiovascular response to a simple memory challenge. *International Journal of Psychophysiology, 119*, 73–78. https://doi.org/10.1016/j.ijpsycho.2017.02.011

Moody, E. J., Kaiser, K., Sharp, D., Kubicek, L. F., Rigles, B., Davis, …Rosenberg, C. R. (2019). Improving family functioning following diagnosis of ASD: A randomized trial of a parent mentorship program. *Journal of Child & Family Studies*, *28*(2), 424–435. https://doi.org/10.1007/s10826-018-1293-z

Moriuchi, J. M., Klin, A., & Jones, W. (2017). Mechanisms of diminished attention to eyes in autism. *The American Journal of Psychiatry, 174*(1), 26–35.

https://doi.org/10.1176/appi.ajp.2016.15091222

Mount, N., & Dillon, G. (2014). Parents’ experiences of living with an adolescent diagnosed with an autism spectrum disorder. *Educational & Child Psychology, 31*(4), 72–81. Retrieved from https://www.bps.org.uk/publications/educational-child-psychology

Mouton, B., Loop, L., Stiévenart, M., & Roskam, I. (2018). Confident parents for easier children: A parental self-efficacy program to improve young children’s behavior. *Education Sciences*, *8*(3), 134. https://doi.org/10.3390/educsci8030134

Muenks, K., Miele, D. B., Ramani, G. B., Stapleton, L. M., & Rowe, M. L. (2015). Parental beliefs about the fixedness of ability. *Journal of Applied Developmental Psychology*, *41*, 78-89. https://doi.org/10.1016/j.appdev.2015.08.002

Murdock, K. W. (2013). An examination of parental self-efficacy among mothers and fathers. *Psychology of Men & Masculinity*, *14*(3), 314–323. https://doi.org/10.1037/a0027009

Musick, K., Meier, A., & Flood, S. (2016). How parents fare: Mothers’ and fathers’ subjective well-being in time with children. *American Sociological Review, 81*(5), 1069-1095. https://doi.org/10.1177/0003122416663917

Nabi, R. L., & Clark, S. (2008). Exploring the limits of social cognitive theory: Why negatively reinforced behaviors on TV may be modeled anyway. *Journal of Communication, 58*(3), 407-427. https://doi.org/10.1111/j.1460-2466.2008.00392.x

National Center for Education Statistics. (2019). *Digest of Education Statistics, 2017*. https://nces.ed.gov/fastfacts/display.asp?id=64

Nelson, S. K., Kushlev, K., & Lyubomirsky, S. (2014). The pains and pleasures of parenting: When, why, and how is parenthood associated with more or less well-being?. *Psychological Bulletin*, *140*(3), 846-895. https://doi.org/10.1037/a0035444

Nielsen, F., Roos, J. M., & Combs, R. (2015). Clues of subjective social status among young adults. *Social Science Research*, *52*, 370-388. https://doi.org/10.1016/j.ssresearch.2015.02.006

Norlin, D., Axberg, U., & Broberg, M. (2014). Predictors of harsh parenting practices in parents of children with disabilities. *Early Child Development and Care*, *184*(9–10), 1472–1484. https://doi.org/10.1111/j.1365-2788.2012.01564.x

O'Connell, A. A. (2006). *Logistic regression models for ordinal response variables*. SAGE Publications, Inc. https://doi.org/10.4135/9781412984812

Ohan, J. L., Leung, D. W., & Johnston, C. (2000). The parenting sense of competence scale: Evidence of a stable factor structure and validity. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, *32*(4), 251–261. https://doi.org/10.1037/h0087122

Oregon State Legislature. (2017 a). *Oregon administrative rules (OARs) chapter 106 — Marriage; Domestic partnership.*

https://www.oregonlegislature.gov/bills_laws/ors/ors106.html

Oregon State Legislature. (2017 b). *Oregon administrative rules (OARs) chapter 743A health insurance: Required reimbursements 2017 ORS 743A.190¹: Children with pervasive developmental disorder*. https://www.oregonlegislature.gov/bills_laws/Archive/2013ors743A.pdf

Oregon State Legislature. (2017 c). *Oregon revised statutes (ORS) 2017 edition: Chapter 334 — Education service districts*. https://www.oregonlegislature.gov/bills_laws/ors/ors334.html

Padden, C., & James, J. E. (2017). Stress among parents of children with and without autism spectrum disorder: A comparison involving physiological indicators and parent self-reports. *Journal of Developmental and Physical Disabilities*, *29*(4), 567-586. https://doi.org/10.1007/s10882-017-9547-z

Pallant, J. (2020). *SPSS survival manual* (7th ed.). Open University Press.

Parsons, N. R., Costa, M. L., Achten, J., & Stallard, N. (2009). Repeated measures proportional odds logistic regression analysis of ordinal score data in the statistical software package R. *Computational Statistics and Data Analysis*, *53*(3), 632–641. https://doi.org/10.1016/j.csda.2008.08.004

Paynter, J. M. (2015). Assessment of school-aged children with autism spectrum disorder. *Journal of Psychologists and Counsellors in Schools, 25*(1), 104-115. https://doi.org/10.1017/jgc.2015.2

Pearson, N., Charman, T., Happe, F., Bolton, P. F., & McEwen, F. S. (2018). Regression in autism spectrum disorder: Reconciling findings from retrospective and prospective research. *Autism Research*, *11*(12), 1602–1620. https://doi.org/10.1002/aur.2035

Pedhazur, E., & Schmelkin, L. (1991). *Measurement, design, and analysis: An integrated approach*. Lawrence Erlbaum Associates Inc.

Penner, M., Rayar, M., Bashir, N., Roberts, S. W., Hancock-Howard, R. L., & Coyte, P. C. (2015). Cost-effectiveness analysis comparing pre-diagnosis autism spectrum disorder (ASD)-targeted intervention with Ontario's autism intervention program. *Journal of Autism and Developmental Disorders*, *45*(9), 2833–2847. https://doi.org/10.1007/s10803-015-2447-0

Pennington, R. C. (2017). An IEP for me: Program improvement for rural teachers of students with moderate to severe disability and autism spectrum disorder. *Rural Special Education Quarterly, 36*(3), 146–154. https://doi.org/10.1177/8756870517717950

Petrocelli, J. V. (2003). Hierarchical multiple regression in counseling research: Common problems and possible remedies. *Measurement & Evaluation in Counseling & Development, 36*(1), 9-22. https://doi.org/10.1080/07481756.2003.12069076

Petrou, A. M., Parr, J. R., & McConachie, H. (2018). Gender differences in parent-reported age at diagnosis of children with autism spectrum disorder. *Research in Autism Spectrum Disorders, 50*, 32–42. https://doi.org/10.1016/j.rasd.2018.02.003

Pickard, K. E., & Ingersoll, B. R. (2016). Quality versus quantity: The role of socioeconomic status on parent-reported service knowledge, service use, unmet service needs, and barriers to service use. *Autism: The International Journal of Research and Practice*, *20*(1), 106-115. https://doi.org/10.1177/1362361315569745

Ponnet, K., Wouters, E., Mortelmans, D., Pasteels, I., De Backer, C., Van Leeuwen, K., & Van Hiel, A. (2013). The influence of mothers' and fathers' parenting stress and depressive symptoms on own and partner's parent-child communication. *Family Process*, *52*(2), 312–324. https://doi.org/10.1111/famp.12001

Pozo, P., & Sarriá, E. (2015). Still stressed but feeling better: Well-being in autism spectrum disorder families as children become adults. *Autism, 19*(7), 805-813. https://doi.org/10.1177/1362361315583191

Prévôt, T. D., Gastambide, F., Viollet, C., Henkous, N., Martel, G., Epelbaum, J., Beracochea, D., & Guillou, J.-L. (2017). Roles of hippocampal somatostatin receptor subtypes in stress response and emotionality. *Neuropsychopharmacology*, *42*(8), 1647–1656. https://doi.org/10.1038/npp.2016.281

Rankin, J. A., Weber, R. J., Kang, E., & Lerner, M. D. (2016). Parent- and self-reported social skills importance in autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *46*(1), 273-286. https://doi.org/10.1007/s10803-015-2574-7

Rattaz, C., Alcaraz-Darrou, C., & Baghdadli, A. (2015). Benefits of a parental program on stress and quality of life after a diagnosis of autism spectrum disorder (ASD) in their child. *Annales Medico-Psychologiques, 174*(8), 644-650. https://doi.org/10.1016/j.amp.2015.10.023

Reinke, J. S., & Solheim, C. A. (2015). Online social support experiences of mothers of children with autism spectrum disorder. *Journal of Child and Family Studies, 24*(8), 2364-2373. https://doi.org/10.1007/s10826-014-0039-9

Remington, A., & Fairnie, J. (2017). A sound advantage: Increased auditory capacity in autism. *Cognition*, *166*, 459–465. https://doi.org/10.1016/j.cognition.2017.04.002

Robinson, R. L., Stephenson, J. J., Dennehy, E. B., Grabner, M., Faries, D., Palli, S. R., & Swindle, R. W. (2015). The importance of unresolved fatigue in depression: Costs and comorbidities. *Psychosomatics: Journal of Consultation and Liaison Psychiatry*, *56*(3), 274–285. https://doi.org/10.1016/j.psym.2014.08.003

Román-Oyola, R., Reynolds, S., Soto-Feliciano, I., Cabrera-Mercader, L., & Vega-Santana, J. (2017). Child's sensory profile and adult playfulness as predictors of parental self-efficacy. *American Journal of Occupational Therapy*, *71*(2), 1-8. https://doi.org/10.5014/ajot.2017.021097

Rosen, T. E., Mazefsky, C. A., Vasa, R. A., & Lerner, M. D. (2018). Co-occurring psychiatric conditions in autism spectrum disorder. *International Review of Psychiatry (Abingdon, England)*, *30*(1), 40–61. https://doi.org/10.1080/09540261.2018.1450229

Roskam, I., Meunier, J.-C., & Stievenart, M. (2016). Do mothers and fathers moderate the influence of each other’s self-efficacy beliefs and parenting behaviors on children’s externalizing behavior? *Journal of Child and Family Studies*, *25*(6), 2034–2045. https://doi.org/10.1007/s10826-016-0365-1

Roy, A. L., Godfrey, E. B., & Rarick, J. R. (2016). Do we know where we stand? Neighborhood relative income, subjective social status, and health. *American Journal of Community Psychology, 57*(3-4), 448-458. https://doi.org/10.1002/ajcp.12049

Roy, A. L., Isaia, A., & Li-Grining, C. P. (2019). Making meaning from money: Subjective social status and young children’s behavior problems. *Journal of Family Psychology, 33*(2), 240–245. https://doi.org/10.1037/fam0000487

Roubinov, D. S., & Boyce, W. T. (2017). Parenting and SES: Relative values or enduring principles? *Current Opinion in Psychology*, *15,* 162–167. https://doi.org/10.1016/j.copsyc.2017.03.001

Ruiz-Robledillo, N., De Andrés-García, S., Pérez-Blasco, J., González-Bono, E., & Moya-Albiol, L. (2014). Highly resilient coping entails better perceived health, high social support and low morning cortisol levels in parents of children with autism spectrum disorder. *Research in Developmental Disabilities*, *35*(3), 686-695. https://doi.org/10.1016/j.ridd.2013.12.007

Ruiz-Robledillo, N., & Moya-Albiol, L. (2015). Lower electrodermal activity to acute stress in caregivers of people with autism spectrum disorder: an adaptive habituation to stress. *Journal of Autism and Developmental Disorders, 45*(2), 576-

588. https://doi.org/10.1007/s10803-013-1996-3

Russa, M. B., Matthews, A. L., & Owen-DeSchryver, J. S. (2015). Expanding supports to improve the lives of families of children with autism spectrum disorder. *Journal of Positive Behavior Interventions, 17*(2), 95-104. https://doi.org/10.1177/1098300714532134

Russell, S., & McCloskey, C. R. (2016). Parent perceptions of care received by children with an autism spectrum disorder. *Journal of Pediatric Nursing*, *31*(1), 21–31. https://doi.org/10.1016/j.pedn.2015.11.002

Sachin, R., & Ekambaram, V. (2018). Pharmacological approach to sleep disturbances in autism spectrum disorders with psychiatric comorbidities: A literature review. *Medical Sciences*, *6*(4), 95. https://doi.org/10.3390/medsci6040095

Salas, B. L., Rodríguez, V. Y., Urbieta, C. T., & Cuadrado, E. (2017). The role of coping strategies and self-efficacy as predictors of life satisfaction in a sample of parents of children with autism spectrum disorder. *Psicothema, 29*(1), 55-60. https://doi.org/10.7334/psicothema2016.96

Schafer, J. L. (1999). Multiple imputation: a primer. *Statistical Methods in Medical Research*, *8*(1), 3–15. https://doi.org/10.1177/096228029900800102

Schunk, D. H. (2012). Social cognitive theory. In K. R. Harris, S. Graham, T. Urdan, C. B. McCormick, G. M. Sinatra, & J. Sweller (Eds.), *APA educational psychology handbook, Vol 1: Theories, constructs, and critical issues.* (pp. 101–123). American Psychological Association. https://doi.org/10.1037/13273-005

Semansky, R., Xie, M., Lawer, L., & Mandell, D. (2013). How states use Medicaid to fund community-based services to children with autism spectrum disorders. *Psychiatric Services, 64*(10), 1051-1055. https://doi.org/10.1176/appi.ps.201200390

September, S. J., Rich, E. G., & Roman, N. V. (2016). The role of parenting styles and socio-economic status in parents' knowledge of child development. *Early Child Development and Care*, *186*(7), 1060–1078. https://doi.org/10.1080/03004430.2015.1076399

Seymour, M., Dunning, M., Cooklin, A., & Giallo, R. (2014). Socioecological factors associated with fathers' well-being difficulties in the early parenting period. *Clinical Psychologist*, *18*(2), 63-73. https://doi.org/10.1111/cp.12016

Seymour, M., Giallo, R., & Wood, C. E. (2017). The psychological and physical health of fathers of children with autism spectrum disorder compared to fathers of children with long-term disabilities and fathers of children without disabilities. *Research in Developmental Disabilities*, *69*(2), 8-17. https://doi.org/10.1016/j.ridd.2017.07.018

Seymour, M., Wood, C., Giallo, R., & Jellett, R. (2013). Fatigue, stress and coping in mothers of children with an autism spectrum disorder. *Journal of Autism and Developmental Disorders, 43*(7), 1547-1554. https://doi.org/10.1007/s10803-012-1701-y

Shaked, D., Williams, M., Evans, M. K., & Zonderman, A. B. (2016). Indicators of subjective social status: Differential associations across race and sex. *SSM - Population Health*, *2*(7), 700-707. https://doi.org/10.1016/j.ssmph.2016.09.009

Shi, D., Lee, T., Fairchild, A. J., & Maydeu-Olivares, A. (2020). Fitting ordinal factor analysis models with missing data: A comparison between Pairwise Deletion and Multiple Imputation. *Educational and Psychological Measurement*, *80*(1), 41–66.

Singh, J. S. (2016). *Multiple autisms: Spectrums of advocacy and genomic science*. University of Minnesota Press. https://doi.org/10.5749/minnesota/9780816698301.003.0001

Siu, A. L. (2016). Screening for autism spectrum disorder in young children: US preventive services task force recommendation statement. *JAMA: Journal of the American Medical Association*, *315*(7), 691-696. https://doi.org/10.1001/jama.2016.0018

Slade, N., Eisenhower, A., Carter, A. S., & Blacher, J. (2018). Satisfaction with individualized education programs among parents of young children with ASD. *Exceptional Children*, *84*(3), 242–260. https://doi.org/10.1177/0014402917742923

Smith, L., Hong, J., Seltzer, M., Greenberg, J., Almeida, D., & Bishop, S. (2010). Daily experiences among mothers of adolescents and adults with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, *40*(2), 167-178. https://doi.org/10.1007/s10803-009-0844-y

Smith, L., Seltzer, M., & Greenberg, J. (2012). Daily health symptoms of mothers of adolescents and adults with fragile X syndrome and mothers of adolescents and adults with autism spectrum disorder. *Journal of Autism & Developmental Disorders*, *42*(9), 1836-1846. https://doi.org/10.1007/s10803-011-1422-7

Soke, G. G., Rosenberg, S., Hamman, R., Fingerlin, T., Robinson, C., Carpenter, L., … DiGuiseppi, C. (2016). Brief report: Prevalence of self-injurious behaviors among children with autism spectrum disorder-a population-based study. *Journal of Autism & Developmental Disorders*, *46*(11), 3607–3614. https://doi.org/10.1007/s10803-016-2879-1

Soriano, M. F., Ibáñez-Molina, A. J., Paredes, N., & Macizo, P., 2018). Autism: Hard to switch from details to the whole. *Journal of Abnormal Child Psychology*, *46*(6), 1359–1371. https://doi.org/10.1007/s10802-017-0384-4

Srinath, S., Seshadri, S. P., Girimaji, S. C., & Kommu, J. V. S. (2017). Lost time—need for more awareness in early intervention of autism spectrum disorder. *Asian Journal of Psychiatry*, *25*, 13–15. https://doi.org/10.1016/j.ajp.2016.07.021

State of Oregon. (2019). *Oregon revised statutes (ORS). 1999-2015 archives chapter 743A — Health insurance: Reimbursement of claims 2017*. https://www.oregonlegislature.gov/bills_laws/ors/ors743a.html

Steiner, A. M., Koegel, L. K., Koegel, R. L., & Ence, W. A. (2012). Issues and theoretical constructs regarding parent education for autism spectrum disorders. *Journal of Autism and Developmental Disorders, 42*(6), 1218–1227. https://doi.org/10.1007/s10803-011-1194-0

Stevens, T., Peng, L., & Barnard-Brak, L. (2016). The comorbidity of ADHD in children diagnosed with autism spectrum disorder. *Research in Autism Spectrum Disorders*, *31*, 11-18. https://doi.org/10.1016/j.rasd.2016.07.003

Stuttard, L., Beresford, B., Clarke, S., Beecham, J., Todd, S., & Bromley, J. (2014). Riding the rapids: Living with autism or disability-an evaluation of a parenting support intervention for parents of disabled children. *Research in Developmental Disabilities*, *35*(10), 2371–2383. https://doi.org/10.1016/j.ridd.2014.05.021

Suen, L., Huang, H., & Lee, H. (2014). A comparison of convenience sampling and purposive sampling. *Journal of Nursing, 61*(3), 105–111. https://doi.org/10.6224/JN.61.3.105

Sukajaya, I. N., Sabrina, D., & Suharta, I. (2020). Classification of students' mathematics learning achievement on bloom's taxonomy-based serious game using ordinal logistic regression. *2020 International Conference on Computer Engineering, Network, and Intelligent Multimedia (CENIM), Computer Engineering, Network, and Intelligent Multimedia (CENIM),2020 International Conference On*, 132–137. https://doi.org/10.1109/CENIM51130.2020.9297886

Suveg, C., Raley, J., Morelen, D., Wang, W., Han, R., & Campion, S. (2014). Child and family emotional functioning: A cross-national examination of families from China and the United States. *Journal of Child & Family Studies, 23*(8), 1444–1454. https://doi.org/10.1007/s10826-013-9800-8

SurveyPlanet. (2019). A simple & powerful online survey tool. https://surveyplanet.com/

Szidon, K., Ruppar, A., & Smith, L. (2015). Five steps for developing effective transition plans for high school students with autism spectrum disorder. *Teaching Exceptional Children*, *47*(3), 147–152. https://doi.org/10.1177/0040059914559780

Tanaka, J. W., & Sung, A. (2016). The "eye avoidance" hypothesis of autism face processing. *Journal of Autism and Developmental Disorders, 46(5),* 1538–1552. https://doi.org/10.1007/s10803-013-1976-7

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, *2,* 53–55. https://doi.org/10.5116/ijme.4dfb.8dfd

Taylor, J. L., & Henninger, N. A. (2015). Frequency and correlates of service access among youth with autism transitioning to adulthood. *Journal of Autism and Developmental Disorders, 45*(1), 179-191. https://doi.org/10.1007/s10803-014-2203-x

Telleen, S. (1985). *Parenting social support index: Reliability and validity* (Tech. Rep. No. I). Chicago: University of Illinois at Chicago, School of Public Health.

Telleen, S., Herzog, A., & Kilbane, T. L. (1989). Impact of a family support program on mothers' social support and parenting stress. *American Journal of Orthopsychiatry*, *59*(3), 410-419. https://doi.org/10.1111/j.1939-0025.1989.tb01676.x

Tétreault, S., Blais-Michaud, S., Marier Deschênes, P., Beaupré, P., Gascon, H., Boucher, N., & Carrière, M. (2014). How to support families of children with disabilities?

An exploratory study of social support services. *Child & Family Social Work, 19*(3), 272-281. https://doi.org/10.1111/j.1365-2206.2012.00898.x

Thomas, S., Hovinga, M. E., Rai, D., & Lee, B. K. (2017). Brief report: Prevalence of co-occurring epilepsy and autism spectrum disorder--the U.S. national survey of children's health 2011-2012. *Journal of Autism and Developmental Disorders*, *47*(1), 224–229. Retrieved from https://doi.org/10.1007/s10803-016-2938-7

Thompson, M. G., Gaglani, M. J., Naleway, A., Thaker, S., & Ball, S. (2014). Changes in self-rated health and subjective social status over time in a cohort of healthcare personnel. *Journal of Health Psychology, 19*(9), 1185-1196. https://doi.org/10.1177/1359105313485486

Thompson, C. B., & Panacek, E. A. (2007). Research study designs: Non-experimental. *Air Medical Journal*, *26*(1), 18–22. https://doi.org/10.1016/j.amj.2006.10.003

Tint, A., & Weiss, J. A. (2016). Family wellbeing of individuals with autism spectrum disorder: A scoping review. *Autism: The International Journal of Research & Practice, 20*(3), 262-275. https://doi.org/10.1177/1362361315580442

Trammell, B., Wilczynski, S. M., Dale, B., & Mcintosh, D. E. (2013). Assessment and differential diagnosis of comorbid conditions in adolescents and adults with autism spectrum disorders. *Psychology in the Schools*, *50*(9), 936-946. https://doi.org/10.1002/pits.21720

Tureck, K., Matson, J. L., May, A., Whiting, S. E., & Davis, T. I. (2014). Comorbid symptoms in children with anxiety disorders compared to children with autism spectrum disorders. *Journal of Developmental and Physical Disabilities, 26*(1), 23-33. https://doi.org/10.1007/s10882-013-9342-4

Tye, C., Runicles, A. K., Whitehouse, A. J. O., & Alvares, G. A. (2019). Characterizing the interplay between autism spectrum disorder and comorbid medical conditions: An integrative review. *Frontiers in Psychiatry*, *9*. https://doi.org/10.3389/fpsyt.2018.00751

Ursache, A., Noble, K. G., & Blair, C. (2015). Socioeconomic status, subjective social status, and perceived stress: Associations with stress physiology and executive functioning. *Behavioral Medicine*, *41*(3), 145–154. https://doi.org/10.1080/08964289.2015.1024604

U.S. Census Bureau. (2018). *Quick facts Oregon*. https://www.census.gov/quickfacts/OR

U.S. Census Bureau. (2019 a). *Oregon 2018 population estimates*. https://www.census.gov/search-results.html?q=population+oregon&page=1&stateGeo=none&searchtype=web&cssp=SERP

U.S. Census Bureau. (2019 b). *Center for statistical research and methodology: Survey sampling: Estimation and modeling*. https://www.census.gov/srd/csrm/SurveySamp.html

U.S. Census Bureau. (2019 c). *U.S. and World Population Clock.* https://www.census.gov/popclock/

U.S. Department of Education. (2018). *Family educational rights and privacy act* *regulations*. https://www2.ed.gov/policy/gen/guid/fpco/pdf/ferparegs.pdf

U.S. Department of Education. (2019). *Individual with disabilities education act (2004) 20 US. code chapter 33 – Education of individuals with disabilities*. https://sites.ed.gov/idea/statute-chapter-33

Vacca, J. J. (2013). The parenting process from the father's perspective: Analysis of perceptions of fathers about raising their child with autism spectrum disorder. *Best Practices in Mental Health: An International Journal, 9*(2), 79-93. Retrieved from http://www.lyceumbooks.com

Vasilopoulou, E., & Nisbet, J. (2016). The quality of life of parents of children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders*, *23*, 36–49. https://doi.org/10.1016/j.rasd.2015.11.008

Vissoker, R. E., Latzer, Y., Stolar, O., Rabenbach, A., & Gal, E. (2019). Eating problems and patterns among toddlers and young boys with and without autism spectrum disorders. *Research in Autism Spectrum Disorders*, *59*, 1–9. https://doi.org/10.1016/j.rasd.2018.12.001

Wang, Q., Lu, L., Zhang, Q., Fang, F., Zou, X., & Yi, L. (2018). Eye avoidance in young children with autism spectrum disorder is modulated by emotional facial expressions. *Journal of Abnormal Psychology*, *127*(7), 722–732. https://doi.org/10.1037/abn0000372

Weber, R. J., & Gadow, K. D. (2017). Relation of psychiatric symptoms with epilepsy, asthma, and allergy in youth with ASD vs psychiatry referrals. *Journal of*

Abnormal Child Psychology, *45*(6), 1247–1257. https://doi.org/10.1007/s10802-016-0212-2

Weiss, J. A., Robinson, S., Fung, S., Tint, A., Chalmers, P., & Lunsky, Y. (2013). Family hardiness, social support, and self-efficacy in mothers of individuals with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *7*(11), 1310–1317. https://doi.org/10.1016/j.rasd.2013.07.016

Weiss, J. A., Tint, A., Paquette-Smith, M., & Lunsky, Y. (2015). Perceived self-efficacy in parents of adolescents and adults with autism spectrum disorder. *Autism*, *20*(4), 425–434. https://doi.org/10.1177/1362361315586292

White, C., Bradley, S., Neverve, L., Stirewalt, L., & Summers, X. (2015). Does maternal fatigue influence maternal verbal control in a stressful parenting task with toddlers?. *Journal of Child & Family Studies, 24*(2), 351-362. https://doi.org/10.1007/s10826-013-9843-x

Williams, Z., Failla, M., Davis, S., Heflin, B., Okitondo, C., Moore, D., & Cascio, C. (2019). Thermal perceptual thresholds are typical in autism spectrum disorder but strongly related to intra-individual response variability. *Scientific Reports*, *9*(1), 1. https://doi.org/10.1038/s41598-019-49103-2

Williams, K. L., Kirby, A. V., Watson, L. R., Sideris, J., Bulluck, J., & Baranek, G. T. (2018). Sensory features as predictors of adaptive behaviors: A comparative longitudinal study of children with autism spectrum disorder and other developmental disabilities. *Research in Developmental Disabilities*, *81*, 103–112.

https://doi.org/10.1016/j.ridd.2018.07.002

Wilson, S. R., Gettings, P. E., Guntzviller, L. M., & Munz, E. A. (2014). Parental self-efficacy and sensitivity during playtime interactions with young children: Unpacking the curvilinear association. *Journal of Applied Communication Research, 42*(4), 409-431. https://doi.org/10.1080/00909882.2014.911937

Wilson, M., Hamilton, D., Whelan, T., & Pilkington, P. (2018). A systematic review of factors related to parents' treatment decisions for their children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *48,* 17–35. https://doi.org/10.1016/j.rasd.2018.01.004

Wilson, N., Wynter, K., Fisher, J., & Bei, B. (2018). Related but different: distinguishing postpartum depression and fatigue among women seeking help for unsettled infant behaviours. *BMC Psychiatry, 18*(1), 1-9. https://doi.org/10.1186/s12888-018-1892-7

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, *14*(3), 361–384. https://doi.org/10.2307/258173

Woodman, A. C., & Hauser-Cram, P. (2013). The role of coping strategies in predicting change in parenting efficacy and depressive symptoms among mothers of adolescents with developmental disabilities. *Journal of Intellectual Disability Research, 57*(6), 513-530. https://doi.org/10.1111/j.1365-2788.2012.01555.x

Wu, H., & Leung, S.-O. (2017). Can Likert scales be treated as interval scales?—A simulation study. *Journal of Social Service Research*, *43*(4), 527–532.

https://doi.org/10.1080/01488376.2017.1329775

Zablotsky, B., Kalb, L. G., Freedman, B., Vasa, R., & Stuart, E. A. (2014). Health care experiences and perceived financial impact among families of children with an autism spectrum disorder. *Psychiatric Services*, *65*(3), 395-398. https://doi.org/10.1176/appi.ps.201200552

Zell, E., Strickhouser, J. E., & Krizan, Z. (2018). Subjective social status and health: A meta-analysis of community and society ladders. *Health Psychology*, *37*(10), 979–987. https://doi.org/10.1037/hea0000667

Zilberstein, K. (2016). Soapbox: Class matters in parenting interventions. *Clinical Child Psychology and Psychiatry*, *21*(3), 359–367. https://doi.org/10.1177/1359104516630774

Appendix A: Organizational Participation Survey Request

XX/XX/XXXX Date

Dear XXXXXX,

My name is Robert Guy and I am a doctoral candidate in the Health Psychology Department, at Walden University. For my dissertation I am examining the predictability of subjective social status, social supports, and fatigue on parental self-efficacy in parents of children diagnosed with autism spectrum disorder. The intention is to utilize the results of the study to create specific programs to assist parents and organizations in addressing the nuances of parenting a child with ASD.

Because your organization serves parents of children diagnosed with autism, I am kindly inviting your organization to participate in my research. Participation will take the form of notifying your members of my study and directing them to the survey. This can take the form of employing social media, flyers, and/or other methods you deem acceptable. I will be able to assist as much or as little as you would like. Please note that I am not asking you to direct your members to take the survey, only its purpose and how they may access it.

I am attaching a link to the survey and the opening page that discusses the parameters of the survey, as will be seen by individual participants including ethical information, expectations, and contact information for both me and Walden University. I am also attaching the Parent Survey Request, which is a pre-made document that is both an invitation to, and explanation of, my study. I created the Parent Survey Request to minimize the amount of effort you and your organization will need to exert, and to explain key elements of my study to your members.

If you wish for your organization to participate, please reply to this email letting me know.

Thank you,

Robert Guy, PhD candidate Walden University

Appendix B: Parent Survey Request

Dear Parent:

My name is Robert Guy and I am a doctoral candidate in the Health Psychology Department, at Walden University. I am a father of three children, one of whom has ASD. For my dissertation I am examining the predictability of subjective social status, social supports, and fatigue on parental self-efficacy in parents of children diagnosed with autism spectrum disorder.

With the help of [insert organization name], I am seeking the help of all Oregon parents with a child diagnosed with ASD to participate in my research. The survey is confidential and does not require your name, your signature, or the name of your child. I know that your free time is valuable, so please note that the survey is brief and should only take about 10 minutes of your time. Let me assure you that there are no right or wrong answers. Your participation will provide valuable information that will be used in creating programs designed to aid fellow parents who are trying to navigate the ins and outs of raising a child with ASD.

If you are interested in participating in the study here is the link to the survey:

If you share my belief that this study is valuable, I ask that you inform and encourage others to participate.

Thank you,

Robert Guy, PhD candidate Walden University