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Parents' Fear of Addiction, Education, Income, Child's Gender and Perception of Stimulants

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Walden University
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Abstract

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by

Rosi Albuquerque-Shain

MS, University of Phoenix 2010

BS, Cidade University, 2000

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

Research has indicated that the use of stimulant medication in the treatment of attention/deficit hyperactivity disorder (ADHD) in children has increased in the last decades. However, there remains an important gap in the current literature regarding parents' perceptions of stimulants in the treatment of ADHD symptoms. The purpose of this quantitative study was to examine the relationship between parents' fear of addiction, parental level of education, household income, and gender of the child, and parents' perception of stimulant medication to address the symptoms of ADHD in children 6-8 years old. The theory of reasoned action was used to provide an appropriate lens to this study because this theory holds that attitudes and beliefs influence behaviors. Data were collected from 394 parents who reported having a child between ages 6 and 8 diagnosed with ADHD. The participants completed the Treatment Evaluation Inventory and a demographics survey on Survey Monkey website. Binomial logistic regression analysis revealed significant findings in that fear of addiction and household income impacted parents' perceptions of stimulant medication to treat ADHD symptoms. However, analysis of the predictors parents' level of education and gender of the child were found to be not significant. The findings may guide future research to examine and determine more ways to help parents who do not have access to credible information to understand the benefits and contra-indications of different types of treatment available to address ADHD symptoms.

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Dedication

I would like to dedicate this dissertation to my late parents, Geraldo C. de Albuquerque and Sebastiana P. de Albuquerque. I am sure I have made both of you proud, and I wish you were here to celebrate this important accomplishment with me. I love you and miss you both more than words can describe.

I would also like to dedicate this dissertation to my husband, Robert J. Shain Jr. Although you went through a lot, you have been there for me with words of encouragement and support. Your understanding and willingness to give me the time I needed to research and write made this dissertation process less painful. I love you, and I am forever grateful for all you have done to make this degree possible.

I would also like to dedicate this dissertation to my children, Thiago and Gilberto, my daughters-in-law Sarah and Jocelyn, and my grandchildren, Brooklynn, Victor, Kaiden, Damien, Theo, and Victoria, my brother, Roberto Albuquerque, and my sister-in-law, Maria Albuquerque, for listening to me when I was frustrated and for giving me words of motivation to complete this degree. You probably did not realize it, but many of your questions and observations helped me to organize my thoughts around this study. I love you all, and I am grateful for your support and caring.

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I am honored to have met all of you!

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Chapter 1: Introduction to the Study

The vast amount of research conducted on the use of stimulant medication in the treatment of attention deficit-hyperactivity disorder (ADHD) symptoms in children at an early age has emphasized the advances in different types of interventions and successes in their outcome (Ahmed, Borst, Wei, & Aslani, 2017; Gortz-Dorten, Breuer, Hautmann, Rothenberger, & Dopfner, 2011; Mulqueen, Bartley, & Bloch, 2013; Sage et al., 2018). However, study findings show a need for future research addressing the impact of parents' fear of addiction, socioeconomic status, and gender of the child on the parents' perception of stimulant medication when it is related to their intention to adopt a form of treatment they may consider invasive (Lucidi, Faccio, Belloni, & Costa, 2014; Van-Brent, Matza, Classi, & Johnston, 2011). The current study addressed the gap in the proposed topic as it helped to understand the relationship between parents' fear of addiction, level of education, household income, and gender of their child and the possible impact of these factors on their perception of stimulant medication in the treatment of their child diagnosed with ADHD. The study findings may contribute to positive social change by educating parents in understanding their beliefs and perceptions, and the findings may contribute to positive social change by opening up a discussion between healthcare professionals, professionals in the area of education and parents on how their perception of stimulant medication and how their beliefs may contribute to raising children who will have a lifetime of mental illness, which eventually will affect society in general.

Chapter 1 provides a brief overview of the available literature that supports this study. This chapter includes the background of the problem, the problem statement, the purpose of the study, the research questions, and the null and alternative hypotheses. It offers an introduction to the theoretical framework, the nature of the study, and a rationale for the chosen design, variables, and methodology. I also define terms and variables used in this study and discuss the scope, delimitations, and limitations. Lastly, I identify the significance of this study in the discipline of psychology.

Background of the Study

ADHD is a pervasive pediatric psychological condition that affects 3% - 5% of the children around the world (Ahmed et al., 2017). The onset of ADHD occurs in children as young as 6 years old, and the most common symptoms are hyperactivity, inattention, and impulsivity (Ahmed et al., 2013). Because ADHD is often first detected in the school environment (Pottegard, Hallas, Diaz, & Zoega, 2014), children affected by these symptoms may experience problems with social interaction, poor peer relationships, and low academic achievements due to inattention (Elhm, Koerner, Gawrilow, Hasselhorn, & Schmiedek, 2016). Inattention is the most common reason for low academic performance, and the use of stimulant medication (i.e., methylphenidate and amphetamine) is the most common and efficient form of treatment used for behavior modification (Waschbusch et al., 2011). As attention problems may hinder academic progress (Lobby & Earleywine, 2011), the parents of children in the early years of schooling may face a difficult decision because they will be anxious to keep their child

from falling behind in school, and therefore will feel pressure to adopt a form of intervention for their child (Pottegard et al., 2014).

Parents' Fear of Addiction

The chosen intervention to address the symptoms of ADHD is likely to be adopted based on the parents' preferences and beliefs (Heins, Bruggers, Dijk, & Korevaar, 2016). The available literature on this topic suggested that among the factors that impact parents' preferences and perception of stimulant medication in the treatment of their child were the fear of their child developing addictive behaviors in later adulthood (Weyandt et al., 2013); discomfort with side effects, which include sleep disturbance, zombie-like behavior, or appetite disturbance (Ahmed et al., 2017); and respondent demographics such as gender, age, socioeconomic status, to cite a few (Van-Brent et al., 2011). Additionally, with the increased number of deaths by overdose in the country in the recent years (National Institute on Drug Abuse [NIDA], 2018), parents are more concerned with the risk of dependence and misuse of this medication in early adulthood (Madsen & Dalsgaard, 2013; Pham, Milanaik, Kaplan, Papaioannou, & Adesman, 2017). Findings from one meta-analysis (Mulqueen et al, 2013) of studies corroborate the notion that stimulant medications are the most effective type of treatment for ADHD. However, parents may still hesitate when they need to make a decision to adopt this form of treatment when their child is very young (prekindergarten) because they may be aware that ADHD medication tends to cause more side effects in children at such an early age (Mulqueen et al.).

Parents' Level of Education

Although understanding that acquiring information regarding a specific topic does not necessarily correlate to an individual's level of education, Hinojosa et al. (2015) argued that lower level of education directly impacts parents' understanding of their child's disorder and the resources that they may have available or are aware that they can seek out. Similar studies suggested that because of parents' inadequate knowledge of the disorder (Abid, Hamdani, Shafique, & Aadil, 2018; Johnston et al., 2005), they tend to rely on their beliefs or their children's doctor's recommendation (Pham et al., 2010). The authors also suggested that parents who had completed a high school were more inclined to seek information regarding the disorder and the implications of stimulant medication than those who had not completed high school. However, the literature addressing the level of education impacting parents' perception of stimulant medication in the treatment of ADHD symptoms is limited.

Household Income

The cost of the treatment and its outcome may play a significant role in the parents' choice of intervention. Recent study findings suggested that parents would try means of treatment that would provide similar results at a lower cost or they would instead engage their child in procedures that do not require a significant time-consuming or a low-cost behavior modification approach before adopting stimulant medication as a treatment of choice (Page et al., 2016).

Gender of the Child

Several studies suggested that ADHD is a disorder prevalent in males (Barkley, 2015; Hanc et al.; 2015, Keshavarzi, bajoghli, Mohammadi & Holsboer-Trachsler, 2014; Waschbusch et al., 2011). However, other research findings suggest that girls are probably underdiagnosed because the symptoms of the disorder may differ by gender, with boys showing more externalized behaviors than girls (Moldavsky, Groenewald, Owen, & Sayal, 2013). Additionally, many study results suggested that medications such as Ritalin have different effects on children, as it was noticed that boys decreased academic performance, and the emotional functioning of girls was improved (Dalsgaard, Nielsen, & Simonsen, 2014), which may be one of the reasons parents have difficulty seeing stimulant medications as a valid form of treatment to address the symptoms of ADHD.

The Gap in Knowledge

The current literature suggests the need to address the gap in the literature to understand how parents' perceive stimulant medication as a risk that may cause their child to develop addicted behavior in adulthood (Ahmed et al., 2017; Heins et al., 2016) as one of the factors, and how this contributes to the parents' perception of stimulant medication as a means of treatment (DosReis & Myers, 2008). By examining this gap, this study added to the literature in the field and may help to improve parents' awareness of stimulant medication to treat ADHD symptoms and decrease beliefs that stimulants are the leading cause of developing addictive behaviors later in adulthood.

Problem Statement

An initial review of the literature showed that most of the children diagnosed with ADHD experience problems with social interactions, peers, and attention that may hinder academic progress (Elhm et al., 2016; Lobby & Earleywine, 2011). Academic problems due to inattention are just one of the several symptoms of ADHD, and it has been vastly discussed in the literature (Davis, Cohen, Davis, & Rabinsranath, 2015; Elhm et al., 2016). However, although parents' acceptance of stimulants as a treatment and adherence to the treatment instructions for school-age children diagnosed with the disorder have increased, parents' decision to adopt one kind of intervention over the other can be influenced by their previous experiences, such as their own side effects when they were receiving treatment to address their own symptoms of ADHD (Heins et al., 2016), perceptions, and beliefs. The deficit in understanding the relationship between parents' fear of addiction, level of education, household income, and gender of the child, in their perception of stimulant medication in the treatment of their child diagnosed with ADHD has been identified (Ahmed et al., 2017; Heins et al., 2016). Therefore, the specific problem addressed within this study was that parents' fear of addiction, socioeconomic factors (here understood as the level of education and household income), and the gender of their child might impact parents' perception of stimulant medication in the treatment to address their child's ADHD symptoms.

Purpose of the Study

The purpose of this quantitative nonexperimental study was to examine the relationship between parents' fear of addiction, level of education, household income,

and their child's gender in terms of how these variables impacted their perception of stimulant medication in the treatment of their child diagnosed with ADHD. This study used a binary categorical dependent variable, parents' perception of stimulant medication (negative/positive), and four categorical independent variables, household income (1 = below $60,000; 2 = above $60,000), parents' fear of addiction (1 = yes; 2 = no), parents' level of education (1 = below associates degree; 2 = above undergraduate/bachelor's degree), and gender of the child, (1 = male; 2 = female). The intention was to determine whether there was a change in parents' perception of stimulant medication in the treatment of their child's ADHD symptoms amongst the independent variables.

Research Questions and Hypotheses

The following research questions and hypotheses guided this quantitative study.

RQ1: Is there a relationship between fear of addiction and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$1: There is no statistically significant relationship between parents' fear of addiction and their perception of stimulant medication in the treatment, as measured by the Treatment Evaluation Inventory (TEI), of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

H_a1: There is a statistically significant relationship between parents' fear of addiction and their perception of stimulant medication in the treatment, as measured by the TEI, of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ2: To what extent does a child's gender affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$2: There is no statistically significant relationship between a child's gender, as measured by the demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a2: There is a statistically significant relationship between the child's gender, as measured by a demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ3: To what extent does parents' level of education affect their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$3: There is no statistically significant relationship between parents' level of education, as measured by the demographics survey, and their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a3: There is a statistically significant relationship between parents' level of education, as measured by the demographics survey, and their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ4: To what extent does household income affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$4: There is no statistically significant relationship between household income, as measured by the demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

*H*a4: There is a statistically significant relationship between household income, as measured by the demographics survey, and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

Theoretical Framework

Fishbein's and Ajzen's (1975) theory of reasoned action (TRA) was the theoretical framework for this study. The TRA has been used to explain and clarify the relationship between attitude and behavior to human actions (Fishbein & Ajzen, 1980). The TRA has also been used to describe people's attitudes (Fishbein, 1980; Fu, Richard, Hughes, & Jones, 2010), and it proposes that the person's intent determines behaviors, but the person's attitudes represent a subjective evaluation of that behavior and whether the behavior is ultimately carried out (Fishbein & Ajzen, 1980). From this perspective, the TRA worked as a framework through which to investigate the possible relationship between the variables that could influence a person's perception of stimulant medication (Kumar & Kumar, 2013) as a type of treatment to address ADHD symptoms.

According to TRA, parents may have a strong intention to adopt stimulant medication as a form of treatment to address their child's symptoms of ADHD, but parents' perceptions and other societal norms may interfere with their final decision. For example, the parent's intention to use stimulant medication as part of their child's treatment will be determined by their attitudes (beliefs), and the influence of other societal expectations related to their level of education and household income (Martinez-Garcia, Dorward, & Rehman, 2013, Radisic, Chapman, Flight, & Wilson, 2017). The TRA directly related to this research as it helped to frame parents' perception of stimulant medication in treatment based on their beliefs. As applied to this study, the TRA holds that the propositions (beliefs and societal norms) could allow participants to efficiently explore their behavioral options because these factors relate mostly to their perceptions.

Nature of the Study

The chosen research design allowed an examination of the independent variables: (a) parents' fear of addiction, (b) parents' level of education, (c) household income, and (d) gender of the child and their relation to the dependent variable - parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD. I got permission to use the TEI (Kazdin, 1980; see Appendix A), which was used to measure parents' perception of stimulant medication, the dependent variable. The independent variables (fear of addiction, parents' level of education, household income, and gender of the child) were measured by the demographics survey (see Appendix B). These variables were measured using data gathered from parents who reported that their child had the diagnosis of ADHD, parents who resided in a metropolitan district, and who voluntarily

agreed to participate in the study. The TEI is a measure of treatment acceptability (Kazdin, French, & Sherick 1981; Kazdin, 1984). A demographics survey asked questions regarding a child's gender, child's age, parents' level of education, household income, fear of addiction, and ADHD diagnosis. It must be noted that any causal conclusions cannot be made with the results of this study. Results may be influenced by several other factors. I used binomial logistic regression in this study as it provided an appropriate analysis for this study. This type of analysis allowed me to analyze the role of multiple independent variables that could predict a dichotomous dependent variable.

Definitions and Key Terms

Academic performance: Academic performance is a gradual level of achievement a student shows through measuring grades throughout his or her educational life (Gut, Reimann, & Grob, 2013).

Addiction: Addiction is a type of dysfunctional behavior that causes unhealthy dependence, craving, and impaired control of behavior despite the person's experience of adverse consequences (Maremmani et al., 2018)

Attention-deficit/hyperactivity disorder: ADHD is a pervasive pediatric psychological condition (Ahmed et al., 2017) that "shows a pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development" (DSM-5, 2013).

Fear: Fear is an emotional signal a person experiences when exposed to physical or psychological danger, fear of loss os a relationship, fear of being caught doing something wrong (Scheff, 2015).

Healthcare provider: Healthcare provider is the professional who works in any health-related field such as nurses, doctors, psychologists, and therapists (Hinderer, VonRueden, Friedmann, McQuillan, Gilmore, Kramer, & Murray, 2014).

Hyperactivity: Hyperactivity is a pattern of behavior and motor activities that are not appropriate to an extent when compared to same-age children ((Alderson & Hudec, 2011).

Impulsivity: Impulsivity is the action of acting without deliberation, reflection, and consideration of consequences (Ahmed et al., 2017).

Inattention: Inattention is a mental process in which an individual involuntarily shows difficulty in maintaining sustained attention to a determined task for a period of time (Regan, Hallett, & Gordon, 2011).

Household income: Household income is the total amount of income members of a household who are in the same family and cohabiting and sharing living arrangements receive from diverse sources (Wambiri & Ndami, 2015).

Low self-esteem: Low self-esteem is a result of an individual's distorted or negative interpretation of events that would contribute to a weak positive sense of self (Beauregard & Dunning, 2001).

Peer: For children, peers are friends or school colleagues, typically at the same age (Peterson, Bialik, & Hagen, 2017).

Socioeconomic status: Socioeconomic status is a set of stratified status characteristics and traits an individual possesses, and that identifies the person's position in the society (Durkheim, 1893/1984).

Stimulant medication: Stimulant medication is a type of psychoactive drug that is absorbed by the central nervous system, helping to control ADHD symptoms such as inattention, hyperactivity, aggressive behaviors, and impulsivity (Gortz-Dorten, Breuer, Hautmann, Rothenberger, & Dopfner, 2011).

Assumptions

This study involved several assumptions, including the assumption that the sampling was representative of a larger population of parents of young children who reported that their child had received the diagnosis of ADHD and who were interested in being part of this study. It was also assumed that those participating in this study were able to understand and provide appropriate and honest responses for the measuring instruments used in this study to the best of their ability. Another assumption was that the dependent variable (parents' perception of stimulant medication), measured by the TEI, would be impacted by the independent variables, parents' fear of addiction, level of education, household income, and gender of the child, as measured by the demographics survey. The two selected tools used to measure these variables, were appropriate and met criteria for reliability and validity as they showed a Cronbach alpha of .94.

Scope and Delimitations

Some topics were identified in the presented literature that warranted a discussion about the scope and delimitations of this study. This study specifically looked at the impact of parents' fear of addiction, parents' level of education, household income, and gender of their child in their perception of stimulant medication in the treatment of ADHD symptoms of their child at an early age. I chose this topic because previous

researchers had discussed the use of stimulant medication in the treatment of ADHD as an efficient form of intervention; however, parents' beliefs that ADHD medication could lead to addiction in adulthood was still expected to play a role in the decision to accept this treatment for their child (Molina & Pelham, 2014). Numerous studies revealed that co-occurring disorders such as conduct disorders and oppositional defiant disorder might play a significant role in developing addictive behaviors. Additionally, in some studies, medication decreased the incidence of substance use (e.g., van den Ban et al., 2015) and the age of the child when he or she commences stimulant medication as a form of treatment was not always related to later substance abuse (Winters et al., 2011). Although younger children might show different side-effects when receiving treatment as compared to older children (Mulqueen et al., 2013), there is no evidence that the side effects would lead to or predict addictive behaviors. The available research revealed a gap in parents' perception of stimulant medication in the treatment of ADHD symptoms that may be influenced by factors such as fear of addiction, parents' level of education, household income, and the gender of the child. The role that these variables may play in parents' perceptions was an area that had not been deeply investigated (Ahmed et al., 2017; Heins et al., 2016; Lucidi et al., 2014;). The sample for this study consisted of parents who reported having a child, aged 6 to 8 years, diagnosed with ADHD. The feasibility of this study depended on collecting responses from the 394 participants who voluntarily completed and returned the survey and inventories completed online within a reasonable time frame. This study received 452 responses; however, 53 participants did not complete the survey and were therefore removed from the analysis. The final number

of participants was 394, and above the minimum of 379 participants suggested by the C*Power 3.1 calculation. The guiding theory for this study was the TRA, which helped to explain and clarify the relationship between attitude and behavior within the human action (Fishbein & Ajzen, 1980).

Limitations

The challenges in conducting this study were related to sampling techniques, biases, and internal and external validity of the TEI and demographics survey used to collect data. Another aspect that could be understood as a limitation that deserved attention was regarding the sample population. The study focused exclusively on parents who disclosed that their child received the diagnosis of ADHD; however, because some of the parents may deny the existence of a disorder, the sample size could be affected. Secondly, the demographic variables could have been challenging for this study as they were being reported in an average range that may differ from respondents' reality. Therefore, if respondents decided to exaggerate or report a level of education or a household income that was not a reflection of their reality, there was no way for me to control dishonest responses. Additionally, although this study has identified fear of addiction, parents' level of education, household income, and gender of the child as the independent variables, other unknown factors could influence parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD. Regarding external validity, one of the main challenges in this study was related to generalizability. In order to safeguard external validity, I would have needed to randomly select the participants who were a good representation of the general population. The first step to

achieve this goal was to make sure that power was significant enough. After receiving the survey back, I was able to check for threats of internal and external validity, although previous research showed good reliability and validity of each scale. Both scales, the TEI and the demographics survey, showed good reliability with a Cronbach's alpha of .94

Significance of the Study

Significance to Theory

The TRA (Fishbein & Ajzen, 1975) was an appropriate theory on which to base this study as it helped to examine human behaviors as the result of their intentions and attitudes towards those intentions. In this study, I analyzed parents' behaviors as they related to their intention, attitude, and societal norms. I examined how parents' fear of addiction, parents' level of education, household income, and the child's gender impacted their perception of stimulant medication in the treatment of their children's ADHD symptoms. Because a mix of variables was used to narrow down the focus of this study, the use of this framework probably added a broader insight to understand whether parents' beliefs impacted their perceptions, and subsequently, their children's academic performance and mental health.

Significance to Practice

Parents' fear of using stimulant medication for their children at an early age and the possible later development of addictive behavior may be boosted by reports of an increased number of deaths by an overdose in the country in the past years (NIDA, 2018). The findings of this study may contribute to practice as they may offer insights to clinicians about parents' concerns about treatments that help their child improve

academics. Schatz et al. (2015) argued that parents would experience a difficult decision because they have mixed feelings regarding the benefits of stimulant medication as a form of intervention at an early age, and this may lead to parents' emotional distress. Ultimately, the results of this study will contribute to psychoeducational material that may help parents understand how their fears, their level of education, household income, and the gender of their child might impact their perceptions and, therefore, treatment choice.

Significance to Social Change

The findings of this study may contribute to positive social change by creating an opportunity to healthcare professionals, professionals in the area of education, and the public in general that includes how parents' fear of addiction, parents' level of education, household income, and gender of the child diagnosed with ADHD may impact the clinical treatment. By creating an open dialogue and exploring how parents' fears and socioeconomic status may be a critical factor in perception and what type of treatment these parents will adopt to treat their child's ADHd symptoms.

Summary

Chapter 1 described several components of the research study, including the background, problem statement, purpose, research questions, and corresponding hypotheses, the theoretical framework, and the nature of the study. The chapter also included an overview of the literature on the chosen topic, the gap in the literature regarding the relationship of parents' fear of addiction, parents' level of education, household income, and gender of the child as possible factors that could determine their

perception of stimulant medication in the treatment of their children who had been diagnosed with ADHD. The chapter outlined the TRA as the theoretical lens used to frame the comprehensive review of each variable examined throughout this study. Additionally, the chapter provided an in-depth look at the nature of the research and a discussion of why the study is needed to fulfill the evident gap in the literature. The chapter also included discussion of the implications for positive social change and also identified limitations and suggested means to address those limitations. It offered operational definitions for key terms used in this study, as well as the assumptions permeating the creation of the dataset.

Chapter 2 will include a literature review as it relates to the variables involved in this study. Fishbein's and Ajzen's (1975) TRA will be presented as the chosen theoretical lens that frames the review of each variable to be examined in this study. Additionally, Chapter 2 will provide an in-depth look at the nature of the research and the need to address this gap in the literature.

Chapter 2: Literature Review

Introduction

The purpose of this nonexperimental quantitative study was to further the literature in the fields of psychology and education, as well as to open the discussion regarding how parents' fear of children developing addictive behaviors later in adolescence, their own level of education, their household income, and the gender of their child may contribute to and impact their perception of stimulant medication to treat their child diagnosed with ADHD at an early age (Ahmed et al., 2017; Heins et al., 2016; Molina & Pelham, 2014). ADHD is a pervasive pediatric psychological condition (Barkley, 2015) that affects 6% of children aged 4-17 in the United States (Heins et al., 2016). Symptoms of ADHD may first appear when the child is attending grade school, a time when they are required to adapt to more structured norms (Davis et al., 2015). Usually, the first symptoms of the disorder noticed by teachers are a continuous lack of attention, increased distractibility (Ahmed et al., 2013), problems initiating a task, difficulty following directions, lack of organization, weak study skills, and difficulty completing and turning in assignments on time (Elhm et al., 2016. ADHD is treatable like many other psychophysiological disorders, but it cannot be cured as the individual ages (Barkley, 2015). With adequate interventions and adherence to treatment, the person with the diagnosis is capable of living a life of accomplishments (Schoenfelder & Sasser, 2016). Today, children and adults with ADHD can rely on advanced technology, as the number and types of available interventions to treat the symptoms of ADHD are significantly increasing. Both adults who received the diagnosis of ADHD, regardless of

the age of the perceived onset, and parents of children diagnosed with the disorder are likely to prefer and consequently adopt different types of treatment (Molina & Pelham, 2014).

Aside from the conventional forms of interventions available to treat the disorder, (i.e., behavior therapy and psychopharmacology), it is possible to adopt alternative forms of treatment such as neurofeedback, biofeedback, special diets, mindfulness training, herbal teas, and many others (Schoenfelder & Sasser, 2016). However, behavior therapy and the use of stimulant medications are the most common interventions available. Behavioral therapy is a technique that helps children who present impulsive behavior and weak social interactions to improve their organization, consistency, and structure by bringing attention to unhelpful behaviors and practicing helpful and/or appropriate behaviors (Schoenfelder & Sasser, 2016). Biofeedback and neurofeedback treatments work by teaching the person how to use the computer-generated psychophysiological feedback to control the body's function (Keith et al., 2015). Lastly, psychopharmacology is a form of treatment that relies on stimulants (e.g., Ritalin, Concerta, Focalin, etc.) to treat the deficits in neurotransmitters that are associated with attention problems, (Preston, O'Neal, & Talaga, 2013), and nonstimulants (e.g., guanfacine, clonidine) that modulate noradrenergic tone in the prefrontal cortex of the brain (Julien, Advokat, & Comaty, 2014).

Because ADHD is a disorder that is not easily understood, and is often overdiagnosed (Barkley, 2015), the parents of children who see themselves pressured to adopt a form of treatment to decrease the symptoms of ADHD may experience confusion

if they are aware of the problem with overdiagnosis, which in turn can contribute to a difficult decision when choosing the type of intervention to treat the disorder symptoms (Schatz et al., 2015). Additionally, the concerns related to accepting the idea of having a child diagnosed with a disorder that affects brain structure and function (Barkley, 2015) can be overwhelming, which may lead to parents' distress. Also, ADHD is unique in that for its diagnosis the healthcare professional must rely on rating scales completed by teachers and parents in addition to an examination of the child (Pottegard et al., 2014). This may reinforce the idea of ADHD as a controversial disorder (Lucidi et al., 2014) and not entirely accepted as a disorder at all. In a study conducted by Mikami, Ching, Saporito, and Na (2015), the findings suggested that parents may internalize their perceptions of what others will think of their child's behavior and their own treatment choices related to that behavior. Additionally, being diagnosed with mental problems is still a stigma in society (van den Ban et al., 2015). Parents' denial of the symptoms as a diagnosable problem and perceptions about negative attitudes of society toward that diagnosis may create a negative view of how that diagnosis might affect the child's functioning in society. The child could embrace the idea that his or her behaviors are perfectly normal, and intervention to treat those behaviors are not necessary, and this may explain why some young people are not comfortable with treatment to address ADHD symptoms (Bussing et al., 2012).

Those parents who try to learn a little more about the disorder may start questioning the entire situation as the available information regarding ADHD may elicit more doubts and fears than increases in information (Barkley, 2015). Presentations of

data can be misleading, and the ideas that parents may gain regarding stimulant is often inaccurate (DosReis & Myers, 2008), especially if they rely on noncredible sources of information such as Wikipedia or Google, which tend to link addictive behaviors to stimulant medication.

Therefore, the parents' beliefs, perceptions, and knowledge about the disorder will play a significant role in the type of treatment their child will receive. Among numerous factors to consider, choosing one type of treatment over another will depend on medication side effects such as sleep disturbance, zombie-like behaviors, and appetite disturbance (Brown & Sammons, 2002; Heins et al., 2016), or respondent demographics including gender and age (Van-Brent et al., 2011), and in certain cultures, how the chosen treatment is perceived among members of the child's community (Pescosolido et al., 2007). Therefore, parents' fear of addiction, parents' level of education, household income, and gender of the child may add to their negative perception of a treatment that will probably increase the risks of developing addictive behaviors. Although each form of treatment cited above deserves consideration, the emphasis of this study was to discuss parents' perception of the possible psychopharmacological treatment of children with ADHD and how their fears and socioeconomic status could influence their perceptions of stimulant medication as a treatment to address their children's ADHD symptoms.

This chapter will provide the literature search strategy used to find peer-reviewed material on the topic that covered the gap this study intended to address. The chapter will also discuss Fishbein and Ajzen's (1975) TRA, emphasizing parents' intentions, attitudes, and behaviors followed by a review of studies that addressed the use of

stimulant medication in the treatment of children diagnosed with ADHD. This literature review will include a discussion of the variables in the study, which are parents' fear of addiction, parents' level of education, household income, and gender of the child, and the parents' perception of stimulant medication.

Literature Search Strategy

The search strategy for the literature review involved using the Walden University Library databases. I created a list of keywords and key terms believed to be pertinent for this study. I then performed a search using the following EBSCO databases: (a) PsycINFO, (b) PsychArticles, (c) Thoreau multiple databases, (d) SAGE Premier, (e) ProQuest Central, (f) Psychology Databases Combined Search, (g) Education Source Databases, (h) Google Scholar, and (i) Medline. The date range used for the search was 2000–2017 because the discussion regarding stimulant medication and addiction started back in the 1990s; however, although some of these articles were used in the historical portion of this study, articles published prior to 2013 were not used to support the gap this study intended to address. For the independent variables, I used the following terms and keywords: *stimulant, stimulant medication, stimulant medication and addiction, stimulant medication side-effects, ADHD medication, ADHD treatment, parents and ADHD, children diagnosed with ADHD in the elementary schools, academic performance and ADHD, parents' fear of addiction, parents' perception of stimulant medication, ADHD and Addiction, ADHD and addiction, Substance Use, Substance abuse, Socioeconomic status and ADHD, level of education and ADHD, Education attainment, family income and ADHD, individual's income and ADHD; socioeconomic*

status in metropolitan areas. The search also involved the theoretical framework, *theory of reasoned action.* The terms and keywords used to search for articles approaching the TRA and the theory applied to the independent variables were: *TRA and socioeconomic status, TRA and level of education, TRA and ADHD, TRA and addiction, TRA and income, TRA and parents.* To find unpublished testing, inventories, or questionnaires to be used in this study, I conducted searches in the following databases: (a) PsychTests, (b) HaPI, and (c) the Mental Measurements Yearbook with Tests in Print. The unpublished test I used to collect data, the TEI, required written authorization from its developer (see Appendix A). The original search related to this literature review was done in June 2016. In December 2016, a new search for new references was conducted. Other searches took place in May 2017, September 2017, December 2017, March 2018, June 2018, and December 2018.

Theory of Reasoned Action (TRA)

The theoretical framework this study was based on was the TRA (Fishbein & Ajzen, 1975), which helped to examine the possible relationship between variables that could influence a person's perception and attitudes (Kumar & Kumar, 2013) and determine the person's behavior.

Major Theoretical Propositions

TRA attempts to explain and clarify the relationship between attitudes and behavior within the human action (Fishbein & Ajzen, 1980). The TRA originated from social psychology to describe people's attitudes in diverse areas (Fishbein & Ajzen, 1980; Fu et al., 2010), and it holds that intent determines behaviors, but attitudes would

represent intervening factors such as subjective evaluation of the problem that may interfere or change these behaviors (Fishbein & Ajzen, 1980). As applied to this study, TRA holds that the propositions, attitudes, and beliefs influencing behaviors could allow participants to efficiently explore fear of addiction, and their perceptions of stimulant medication in the treatment of their child diagnosed with ADHD.

Research-Based Analysis of Theory in Similar Studies

The TRA has been used frequently in social science studies because it suggests that behavior will likely be performed when some propositions are fulfilled, and thus is applicable to many areas of human behavior. The literature in health behavior studies points to four empirically supported models that may be successfully used in predicting parents' attitudes and beliefs that are associated with adopting and adhering to medication in the treatment of their children (Charach, 2008), how the TRA may be used to predict substance abuse in early adulthood, mostly among college students (Roberto, Shafer, & Marmot, 2014), and medication adherence in the therapeutic regimen (Giannetti, & Kamal, 2016).

Use of Theory in Similar Studies

TRA has been used in studies that addressed the prevalence of addictive behaviors in individuals diagnosed with ADHD (Jensen, Yuki, et al., 2018; NIDA, 2015). These studies' findings discussed how TRA could be used to help identify the risk factors that predict individuals' decisions to initiate, persist, or abstain from substance use/dependence (Jensen, Yuki, et al., 2018). These studies also helped to identify perceptions of turning points and factors affecting decision-making (Jensen, Weisner, &

Hinshaw, 2018). Other studies addressed the use of this theory in the social psychology field, and these studies examined whether or not substance abuse among young adults could be predicted by providing open communication between providers, parents, and teenagers (Roberto et al., 2014). Additionally, in a study conducted by Giannetti and Kamal (2016), results suggested that this theory was successful in predicting medication adherence in the treatment of those children who start undergoing a medication intervention. In a study conducted by Gargano et al. (2013), the authors used the TRA to determine parents' willingness to accept vaccination of their teenagers during a routine annual medical visit. In a similar study, findings suggested that parents' perceived benefits and risks, costs, and healthcare were determining factors in their decision to accept vaccination for their adolescent sons (Radisic, Chapman, Flight, & Wilson, 2017).

The Rationale for the Use of the TRA

The rationale to use the TRA is that it focuses on the idea of analyzing intentions, attitudes, and behaviors, which was directly related to the variables in this study. This theory helped to understand the relationship between parents' fear of addiction, parents' level of education, household income, and gender of the child as contributing factors to their perception of stimulant medication in the treatment of their child who received the diagnosis of ADHD involving three significant predictors related to this study: (a) parents' intention to use stimulant medication, (b) parents' fear of addiction if stimulant medications are chosen as a form of treatment, and (c) socioeconomic status (Fishbein, 2008; Fishbein & Ajzen, 1980). TRA was applied to the three identified stages of the decision-making process by analyzing the four main defined variables in this study

(parents' fear of addiction, parents' level of education, household income, the gender of the child, and the perception of stimulant medication). In the bigger picture, it is possible to assume that people's intentions may be altered by their attitudes (perceptions) that will determine their behavior. Hence, according to TRA, the behavior of interest is the parents' perception of stimulant medication as a form of intervention to treat ADHD symptoms. However, parents' attitudes towards this intervention strategy will contribute to whether they think that stimulant medication: (a) will lead to the development of addictive behaviors later in the child's life, (b) is effective and beneficial for managing ADHD symptoms, and (c) how the level of information they have and their socioeconomic status (social norms) may be assessed because some parents might consider their environment and other community members' perceptions of the type of intervention when they make choices about how to control ADHD symptoms.

Relationship of TRA to this Study

The objective of this study was to analyze the relationship between parents' fear of addiction, parents' level of education, household income, and gender of the child on their perception of stimulant medication in the treatment of their child diagnosed with ADHD. This theory related to this study because it has been used in studies that approach decision-making and its determinants that are often the individual's own attitudes, intentions, and adherence to social norms imposed by their socioeconomic status (Reynolds & O'Connell, 2012).

Literature Review Related to Key Variables

The variables of interest in this study were used to explore how parents' fears, beliefs, and socioeconomic status play a role in their perception of stimulant medication in the treatment of their child.

Parents' Fear of Addiction

It is a fact that the use of stimulant medication prescription in the treatment of ADHD has significantly increased in the last 30 years (Lacy, Schrorsch, & Austin, 2018). Recent studies on this topic suggested that the United States is in the lead in increasing the frequency of stimulant medication prescribed to children 0-4 years old (Ahmed et al., 2017; Bachmann et al., 2017). In a study conducted in schools in Baltimore County, Maryland, the prevalence of medication used for ADHD had doubled every 4-7 years, with the highest incidence during the elementary school years (Brown and Sammons, 2002; De Zeeuw et al., 2015). The rate of stimulant medication use did not decrease; recent studies show an increase in the prescription of stimulants. However, studies suggest that the decision to adopt this form of treatment relies on (a) parents' experience and success taking ADHD medication to treat their own symptoms, and (b) whether the child diagnosed with ADHD is hyperactive type, and (c) parents' perceptions of the medication (Heins et al., 2016).

A review of the literature on this topic showed a considerable number of previous studies discussing the use of stimulant medication in the treatment of ADHD symptoms and its possible implications and contribution to addictive behaviors in early adulthood (Davis et al., 2015; Leonard, 2011; McCabe, Veliz, & Boyd, 2016; Obermeit et al., 2013;

Virtulano et al., 2014; Weyandt et al., 2013; Winters et al., 2011). In a study conducted by Lacy, Schorsch, and Austin (2018), findings suggested that the increase of ADHD diagnoses was related to the incidence of prescribed medication. However, the authors emphasized that although the rise in stimulant medication prescription could be a valid concern, there is no clear evidence that children who are correctly diagnosed with ADHD and are receiving stimulant medication treatment will be more likely to develop later addiction. Additionally, although psychopharmacology is one of the best-recognized forms of treatment to decrease the symptoms of ADHD, there have been controversies regarding its adverse outcomes portrayed by the media suggesting that stimulant medication is a risk factor for developing addictive behaviors after long-term use (Ahmed et al., 2017). Therefore, negative propaganda may magnify parents' fear of addiction and may contribute to a negative perception of stimulants as a line of treatment (Ahmed et al., Madsen & Dalsgaard, 2013).

A considerable number of study findings identified parents who decided to adopt stimulant medication in the treatment of their child but chose to discontinue it temporarily (Bernard-Brak, Schmidt, & Sulak, 2012) because of psychological and non-psychological side effects (Madsen & Dalsgaard, 2013; Tomey et al., 2012). It is not uncommon to find parents who decide to put their child in a type of "medication vacation" and stop administering the medicine on weekends and during school recess (Bernard-Brak, Schmidt, & Sulak, 2012). These parents believe that their child does not need to be medicated at home and that they would benefit from some "time off" from their medicines (Tomey et al., 2012), with the expectation that this regimen would

decrease the probability of developing addictive behaviors. The review of the literature on this topic also provided insights regarding parents' intention to use stimulant medication to treat their child ADHD symptoms and the lack of available information that would concretely help in the decision-making process about whether or not to adhere to the medication regimen consistently (Pham, Carlson, & Kosciulek, 2010). While a number of researchers emphasize the parents' perceptions and doubts regarding stimulant medication, just a few studies addressed the effects of specific drugs that could potentially contribute to dependence or the differences in drugs that would provide different side effects. In a study conducted in 2014, Dalsgaard, Nielsen, and Simonsen noted that although some stimulants had improved the quality of life of students who had ADHD and were predominantly inattentive, drugs such as Ritalin presented different side-effects. The study's findings suggested that Ritalin, even when taken in a recommended dosage, could worsen the emotional functions for girls, and significantly decreased academic outcomes for boys.

It is a fact that the misuse of stimulant medication among teenagers is a prominent issue in our society as they tend to try to find alternative means to boost their academic performance (Weyandt et al., 2013). Because it is known that stimulants are used to enhance memory and attention in individuals diagnosed with ADHD, the association between increased academic performance and medication is often made by students, automatic, which in turn, contributes to parents' perception of stimulant medication as a risk for substance abuse (Davis et al., 2015). Therefore, the discussion of stimulant medication contributing to addictive behaviors in early adulthood appears to be related to

parents' decision to use Ritalin as a safe line of treatment for their children, even though they might believe that the drug could have some therapeutic action when treating the comorbid symptoms such as depression or anxiety (Abid et al., 2018).

In a study conducted by Vitulano and colleagues (2014), the authors argued that the relationship between early stimulant medication use and addiction was not clear. In a similar study conducted with college students who claimed to be using Adderall XR to improve cognitive functioning, findings suggested that stimulants do enhance the cognitive performance of individuals who have the diagnosis of ADHD, but the results did not support the same outcome in subjects without the ADHD diagnosis. Thus, the results also indicated that the misuse of stimulant medication among college students (Weyandt et al., 2013) has increased, and this may be one of the reasons parents believe that if they start stimulant medication in the treatment of their child during early ages, they will be somehow contributing to early adulthood addiction. Additionally, because of the increased number of deaths due to overdose for drugs in the country in 2017 (NIDA, 2018), parents' perception of stimulant medication to treat ADHD symptoms at an early age became more negative. Recent study findings suggested that parents are often concerned with the risk of stimulant dependence and the possibility of misuse of medication in early adulthood (Madsen & Dalsgaard, 2013; Pham et al., 2017).

Several studies in the field discussed that the diagnosis of ADHD alone would contribute to the development of dependence on illicit drugs, alcohol, and the use of tobacco in teenagers (Davis et al., 2015; Madsen & Dalsgaard, 2013; Vitulano et al., 2014; Weyandt et al., 2013; Winters et al., 2011). Also, a number of findings suggested

that contrary to what is believed regarding stimulant medication, the use of psychopharmacology actually decreased the risk of developing substance abuse (Madsen & Dalsgaard, 2013; van den Ban et al., 2015). The authors suggested that more studies should be conducted on the developmental pathways explaining the link between medication and substance use. Additionally, current research in the field examined the role of co-occurring disorders as the primary variable in the risk and development of substance abuse in children who are receiving psychopharmacological treatment for ADHD symptoms. Still, according to that study, individuals diagnosed with ADHD but did not receive intervention to treat their symptoms were at risk of developing early initiation of substances. It is believed that non-treated ADHD may trigger substance abuse in the same way that teens tend to rely on tobacco or alcohol with the intent to decrease negative emotions (Weyandt et al., 2013; Winters et al., 2011). In a longitudinal study, Winters et al. (2011) did not find any evidence that children who received stimulant medication at an early age developed later substance use disorders, but the results suggested that externalizing disorders play a significant role in drug use when ADHD is comorbid. Additionally, some of the stimulant medications usually prescribed do not interact well in individuals who have certain comorbid disorders (Obermeit et al., 2013), which may worsen the symptoms of ADHD and impact treatment adherence (Fatseas et al., 2016). It is not uncommon that adolescents and young adults who are trying to decrease the unwanted feelings turn to the practice of self-medication (Dalsgaard, Nielsen, & Simonsen, 2014; Visser et al., 2014). By internalizing their problems, they are creating a cycle that can put them at risk for the development of

addictive behaviors because these problems may turn into triggers for substance use, and at times, the drugs could become a trigger for other issues (Vitulano et al., 2014).

Parents' Level of Education

ADHD is a neurodevelopmental disorder (DSM-5, 2013) that was recognized in the 1980s. Like any other disorder, ADHD has received a significant amount of attention, in part because its symptoms appear early in life when children enter school (Elhm et al., 2013), and because it affects several domains of that child's life (Mohammadi et al., 2016), including school performance (Davis et al., 2015). Studies find that one of its most efficient forms of treatment involves the use of psychopharmacology. However, the lack of information regarding the effectiveness of this form of treatment and available information regarding this disorder, are thought to contribute to a number of uncertainties when children are diagnosed and need to make the decision on a type of intervention they will adopt to treat the symptoms of the disorder.

Although acquiring information regarding a specific topic does not necessarily rely on the level of a person's education, it is believed that parents' level of education could impact their ability to use and seek sources of information that will help to learn about the disorder, its implications, and appropriate forms of treatment. In a study conducted by Hinojosa and colleagues (2015), findings suggested that a lower level of education shows a direct connection with the parents' inability to understand and even use healthcare resources to treat their child. Additionally, the issue of not being able to clearly understand and follow directions in administering medication may be a cause of

significant distress to those parents who followed medical recommendations and adopted stimulants to treat their child's ADHD symptoms.

Understanding the advantages and disadvantages of stimulant medication in the treatment of ADHD symptoms involves parents' understanding of the disorder itself (Abid et al., 2018; Johnston et al., 2005). In a study conducted by Dodangi, Vameghi, and Habibi (2017), findings suggested that the treatment for ADHD depends mostly on parents' level of education, perceptions of stimulant medication, and beliefs regarding the disorder. The authors argue that parents whose level of education is considered low might not perceive ADHD as a disorder, and therefore it does not need treatment. They might believe that, like any other behavior problems children might show at an early age, these behaviors tend to decrease in intensity and severity when those children get older. Additionally, the authors argue that another issue regarding parents' level of education is related to the type and source of information. According to the authors, those parents with lower educational attainment relied mostly on information they saw and learned on TV. It is common for parents who lack knowledge regarding ADHD to accept their child's doctor's recommendations (Pham et al., 2010), as they do not have a deep understanding of the disorder themselves. However, they would be open to adopting an intervention if they believe that the most appropriate type of intervention would not contradict their beliefs (Johnston et al., 2005). In a study conducted by Kao and colleagues (2018), results suggested that parents' level of education would in some way influence their perceptions regarding a specific treatment and treatment outcome (Mohammadi et al., 2016). Also, most commonly, parents who decided to adopt

stimulant medication as a form of intervention were primarily concerned with their child's academic achievement and behavioral outcomes (Kallitsoglou, 2014; Kao et al., 2018). Although there is an accumulation of studies suggesting that parents who have at least one child diagnosed with ADHD still prefer behavior therapy (Heins et al., 2016), parents' knowledge of the disorder and its symptoms has been a significant determinant in their children's treatment choice (Stroh, Frankenberger, et al., 2008).

Household Income

Stimulant medication has shown to be an efficient tool in the treatment of inattention in children who had received the diagnosis of ADHD (Barkley, 2015; Meppelink, deBruin, & Bogels, 2016). However, research findings suggest that cultural elements such as household income (Rowland, Skipper, et al., 2018), gender, and age of the child play a significant role in parents' perception of medication use for ADHD treatment (Tomey et al., 2012). While some study results suggested that parents who are at a lower socioeconomic status (SES) tend to adopt medication early in treatment because the costs of medicine are somewhat more accessible, other studies do not confirm that finding. Some reports indicate that although many believe that medication would be a more cost-effective form of treatment, there are actually other alternatives that would provide similar results at a lower cost (Page et al., 2016). McCarty and colleagues (2015) conducted a study with parents of children who were classified as low-income parents, and the findings suggested that a significant number of families on the study engaged in a therapeutic medication-free treatment because it did not require a substantial time commitment (only six brief therapeutic sessions), it showed relatively faster results,

and offered information to parents that could be later used to help their child to manage ADHD symptoms. These results are consistent with later study findings that suggested that parents from a lower-income family would first adopt a low-cost behavior modification approach as a line of intervention (Page et al., 2016).

In a similar study, findings suggested that the parents' geographical location could be important in the choice of the treatment of ADHD symptoms (Trombello et al., 2017). Within Western cultures, those who live in the rural areas of the country tend to rely on natural sources of treatment. For example, the use of herbal Valerian to treat hyperactivity (Gosh, Holman, & Preen, 2014) is common in remote rural areas, while parents who reside in suburban or metropolitan regions and had a more positive view of stimulant medication would adopt it as a form of intervention (Gosh et al., 2014). In a recent study conducted outside of urban areas, parents who lived in poverty believed that although medication would provide positive therapeutic action and decrease most of the symptoms of depression, anxiety, and other disorders, also thought that the medication would damage the brain after being used for long periods, resulting in addiction (Abid et al., 2018). However, in other samples, parents' perception of stimulant medication at early ages has changed as indicated by recent study findings that suggested that stimulant medication is the last source of treatment chosen by parents to address ADHD symptoms in children at early ages; doctors would use the drug only after other types of intervention proved to be inefficient (Arat, Osteberg, Burstrom, & Hjem, 2018). In a broader aspect, it is understood that parents of children who are at a higher household income level might be more able, financially, to try diverse types of intervention that might not be available

to low-income parents (Pham, Carlson, & Kosciulek, 2010). Also, low-income families who are going through a period of financial hardship may see other factors as more urgent than an expensive treatment that might improve their children's ADHD symptoms (Lampard, Jurkowski, & Davison, 2012). Additionally, although children from low-income families may have a significant number of visits to healthcare services, symptoms of ADHD are not efficiently addressed because these children live in communities in which their own health system is under-resourced (Lawson et al., 2017).

Gender of the Child

Several studies addressing symptoms and diagnosis of ADHD in children at an early age suggested that ADHD is prevalent in males (Barkley, 2015; Hanc et al., 2015; Keshavarzi et al., 2014; Waschbusch et al., 2011) and it is more common for boys to be prescribed stimulant medication; girls are less frequently diagnosed with ADHD, in part because they are more likely to meet criteria for mood disorders (Hanc et al., 2015; Hinojosa, Knapp, & Woodworth, 2015). One study conducted by Moldavsky et al., (2013), suggested that it may be possible that ADHD is predominantly diagnosed in boys because girls may be underdiagnosed, and there may not actually be a gender difference in the existence of the disorder. Additionally, the authors suggested that because girls may show emotions differently (i.e., girls can become a bit mean, start rumors and gossip), and boys tend to show more externalized behavior expressions (i.e., be more verbally and physically aggressive and defiant), it may be the case that parents' perceptions and decision to adopt stimulant medication may be based on the need to decrease aggressive symptoms in order to comply with school behavior rules (Mano et

al., 2017). Additionally, because social interaction tends to be challenging for boys diagnosed with ADHD, and this may last from early childhood to late adolescence, parents may feel desperate to find a form of treatment that will decrease their children's problematic behavior (Ragnarsdottir et al., 2018).

In contrast, a study conducted by Lapalme and colleagues (2018) to find out if ADHD, although being predominantly diagnosed in boys, would follow a different symptomatic process throughout develop than for girls. The results suggested that both boys and girls, present similar development of symptoms; however, the results also indicated that, although boys would show more aggressive behaviors during the early onset phase, girls would develop more characteristics of oppositional and conduct disorders, which could be alone a contributing factor to developing addictive behaviors. These findings corroborate the results of other studies that analyzed ADHD and co-occurring disorders as primary factors that would contribute to addiction, regardless of the child's gender. However, a research finding suggested that because boys tend to be more hyperactive than girls, they present with sleep problems. The results of the mentioned study indicated that it is not atypical for children who present with neurodevelopment disorder to have sleeping problems, which may be a characteristic of hyperactivity; however, parents tend to believe that sleeping problems are side-effects of stimulants (Furster & Hallerback, 2015). Figure 1 summarizes the literature used to support the independent variables.

Parents' Fear of Addiction	
• Ahmed, Boest, Wei, & Astani, 2017 • Bachmann et al. 2017 • Bernard-Brak, Schmidt, & Sulak, 2012 • Brown and Sammons, 2002 • Dalsgaard, Nielsen, and Simonsen, 2014 • Davis et al., 2015 • De Zeeuw et al, 2015 • Heins, Bruggers, Dijk, & Korevaar, 2016 • Lacy, Schrorsch, & Austin, 2018 • Leonard, 2011	• Madsen & Dalsgaard, 2013 • McCabe, Veliz, & Boyd, 2016 • NIDA 2018 • Obermeit et al., 2013 • Pham, Carlson, & Kosciulek, 2010 • Pham, Milanaik et al. 2017 • Tomey et al., 2012 • Virtulano et al., 2014 • Visser et al., 2014 • Weyandt et al., 2013 • Winters et al., 2011
Parents' Level of Education	
• Abid et al., 2018 • Davis et al., 2015 • Dodangi et al., 2017 • DSM-5, 2013 • Elhm et al., 2013 • Heins et al., 2016 • Hinojosa et al., 2015	• Johnston et al., 2005 • Kao et al., 2018 • Kallitsoglou, 2014 • Mohammadi, Soleimani, Ahmadi, & Davoodi, 2016 • Pham et al., 2010 • Stroh et al., 2008
Household Income	
• Abid et al., 2018 • Arat et al., 2018 • Barkley, 2015 • Gosh, Holman, & Preen, 2014 • Lampard et al., 2012 • Lawson et al., 2017 • McCarty et al., 2015	• Meppelink, deBruin, & Bogels, 2016 • Page et al., 2016 • Pham, Carlson, et al., 2010 • Rowland, Skipper et al., 2018 • Tomey et al., 2012 • Trombello et al., 2017
Gender of the Child	
• Barkley, 2015 • Furster & Hallerback, 2015 • Hanc et al., 2015 • Hinojosa et al., 2015 • Keshavarzi et al., 2014 • Lapalme et al., 2018 • Mano et al., 2017 • Moldavsky et al., 2013	• Ragnarsdottir et al., 2018 • Waschbusch et al., 2011

Figure 1. Literature review matrix

Summary and Conclusions

An exploration of parents' fears and parents' socioeconomic factors has been featured in the literature review of this study. The literature review included several critical components in the exploration, including the use of stimulant medication in the treatment of ADHD symptoms and parents' fears of its contribution to the risk of developing substance abuse behaviors in adulthood. The literature includes results indicating that many factors might interfere with parents' perception of stimulant medication in the treatment of their child's ADHD symptoms and diagnostic criteria (Lucidi et al., 2014; Pottegard et al., 2014). Other factors influencing the parents' perception of stimulants could be related to acceptance of their child's condition (Ahmed et al., 2013, Pescosolido et al., 2010), internalizing stigma (Mikami et al., 2015) and cultural background (Pham et al., 2010). Lastly, the main concern among parents still resides in the risk of developing substance abuse behaviors when treatment with stimulant medication starts at an early age (McCabe, Veliz, & Boyd, 2016). This chapter also discussed the relationship between the parents' level of education and access to correct information and their perception of stimulant medication as a form of treatment (Hinojosa et al., 2015). Household income was also discussed as it may play a significant role in parents' perceptions due to financial hardship and medication costs (Kao et al., 2018). Also, the gender of the child may play a role in the perception of stimulant medication to treat the symptoms of ADHD, as side-effects may differ from male and female.

Chapter 3 will present a discussion of the methodology for this study, and it will describe, in detail, the procedure that will follow in the present study to make a contribution that is necessary research in the field of Psychology.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study with a nonexperimental design was to examine how parents' fear of addiction, parents' level of education, household income, and gender of the child impact their perception of stimulant medication in the treatment of their child diagnosed with ADHD. This study used a binomial logistic regression to explore the relationships between the independent variables (a) parents' fear of addiction, (b) parents' level of education, (c) household income, and (d) gender of the child, and the dependent variable, parents' perception of stimulant medication as a form of treatment to address the symptoms of ADHD.

Chapter 3 provides a detailed description of the methodology used for this study to facilitate future replication. This chapter includes detailed information regarding sampling, sampling recruitment and procedures, participation, and data collection. I also describe the instruments used to collect data (i.e., TEI and a demographics survey), operationalization, reliability, and validity of these instruments. Additionally, this chapter includes discussion of the appropriateness of this study, threats to internal and external validity as well as construct validity. Lastly, I describe ethical procedures and concerns related to this research.

Research Design and Rationale

This quantitative design was chosen for this study as it allowed me to observe whether there was a significant relationship between multiple independent variables (a) household income, (b) parents' level of education, (c) parents' fear of addiction, (d) and

(e) gender of the child, and a single binary dependent variable: parents' perception of stimulant medication (i.e., negative or positive). The assumption of linearity was not tested because the independent variables were categorical. The assumption of multicollinearity was tested, and the four independent variables were tested using the variation inflation factor (VIF). The tolerance was greater than 0.1, and the VIF lower than 4.00 (Ramsey & Schaefer, 2012). Lastly, to test for outliers, it is necessary to use the casewise diagnostics. If one or more cases show values greater than 2.5 (Menard, 2010), it is advised to inspect that case and decide if the case should be removed or transformed. However, outliers were not tested as the variables had values of 0 and 1 or 1 and 2. I examined the data gathered from the parents who reported having a child diagnosed with ADHD using SPSS version 25 software. This type of analysis was selected because the purpose of this study was to investigate whether parents' fear of addiction, parents' level of education, household income, and gender of the child impact parents' perception of stimulant medication in the treatment of their child who had received the diagnosis of ADHD. Therefore, the findings of this study likely yield an understanding of which of the independent variables will significantly contribute to the variance of the dependent variable.

Restatement of the Research Questions and Hypotheses

The following research questions and hypotheses will be addressed in this study:

RQ1: What is the relationship between parents' fear of addiction and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$1: There is no statistically significant relationship between parents' fear of addiction, as measured by the demographics survey, and parents' perception of stimulant medication in the treatment, as measured by the TEI, of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area. A Binary Logistic Regression Test will be used to test the null hypothesis.

H_a1: There is a statistically significant relationship between parents' fear of addiction, as measured by the demographics survey, and parents' perception of stimulant medication, as measured by the TEI, in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ2: To what extent does a child's gender affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$2: There is no statistically significant relationship between the child's gender and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a2: There is a statistically significant relationship between the child's gender and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ3: To what extent does parents' level of education affect their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$3: There is no statistically significant relationship between parents' level of education, and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a3: There is a statistically significant relationship between parents' level of education, and their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ4: To what extent does household income affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$4: There is no statistically significant relationship between household income and the parents' perceptions of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

*H*a4: There is a statistically significant relationship between household income and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

Methodology

This section provides information regarding population, sampling procedures for the recruitment of parents who reported having a young child diagnosed with ADHD and demonstrated a willingness to participate in this study. Additionally, this section provides detailed information regarding participation criteria and data collection.

Population

For this study, the target population was the parents of children between the ages of 6 and 8 who have a diagnosis of ADHD and who were residing in the metropolitan area. The research method used the data collected from parents as it was believed that it met this quantitative study requirement, and it allowed to determine whether the independent variables (a) parents' fear of addiction, (b) parents' level of education, and (c) household income, and (d) gender of the child predicted the dependent variable, parents' perception of stimulant medication in the treatment of ADHD.

Sampling and Sampling Procedures

The nonprobability sample design was appropriate for selecting participants for this study. Specifically, the inclusion criteria were that participating parents must be able to speak and read English and report having at least one child between ages 6 and 8 with the diagnosis of ADHD. Excluded from the study were the parents who were not able to read and speak English and whose children did not have the diagnosis of ADHD or were outside the age span selected for this study.

The statistical software G*Power 3.1 helped to estimate the statistically appropriate sample size (Gravetter & Wallnau, 2016). According to Gravetter and Wallnau (2016), in order to determine a sample size statistically representative, it was necessary to set the parameters to (a) alpha level of 0.05, and (b) power of 80%. The G*Power calculation is presented in Appendix D and the results suggest a needed sample size of 379 participants.

Procedures for Recruitment, Participation, and Data Collection

This study obtained a sample from a population who reside in the metropolitan area and who have children between ages 6-8 diagnosed with ADHD. After receiving approval from the University Research Reviewer (URR) and from the University Institutional Review Board (IRB), approval number 08-08-19-0603467, the process of recruiting the sampling involved the following steps: Survey Monkey was used to recruit participants. The participants received a customized link containing (a) the TEI, which measured the dependent variable (parents 'perception of stimulant medication) and (b) a demographics survey, which measured the independent variables, parents' fear of addiction, parents' education level, household income, and gender of the child, that was submitted to their email address by the hosting website. I collected the electronic responses on a weekly basis until the number of participants had been reached.

Informed consent. All participants for this study were screened for inclusion qualification. In this first step in the process, I presented participants with the following inclusion criteria: (a) having a child aged between 6 and 8 years old who had received the diagnosis of ADHD, (b) being able to read and speak English, and (c) being 18-years old or older. Participants then acknowledged that they met the criteria and were willing to participate in this study by selecting "Agree" or "Disagree." Those who qualified and electronically signed the consent by clicking the "Agree" option received information regarding the nature of the study, the purpose of this study, and all the procedures involved in this study. I also informed them of the benefits and risks of this study. The participants received information regarding voluntary participation, and as such, they

were assured that they were allowed to withdraw participation at any time during the data collection process without any consequences.

The collected demographic data did not provide participants' or children's identification (e.g., name, date of birth, or address) but it provided information regarding gender, parents' level of education, household income, diagnosis of ADHD, and if the respondent had any concerns regarding using stimulant medication due to fear of addiction as the data were one of the tools used to measure independent variables in the study. Survey-Monkey is a HIPAA compliant website. Therefore, the information regarding participants and data are safe. Additionally, after the allocated time to retrieve data has elapsed, the Survey-Monkey link was automatically deactivated by the hosting website.

To code the data, I used the following procedures. The demographics survey was the instrument measuring all independent variables, and the TEI was used to measure the dependent variable. The first independent variable household income was measured by the respondent's responses to an income range that followed the following characteristics and code pattern 1. Below $60,000 and 2. Above $60,001. The independent variable parents' level of education was measured by the Demographics Survey and coded as 1. Below Associates Degree and 2. Above Undergraduate/Bachelor's Degree. The categorical independent variable for this study (gender of the child) was coded using the numerical symbols 1 = male, 2 = female. The independent variable fear of addiction was measured by the Demographics survey, and it was coded by using the numerical symbols 1 = Yes, 2 = No. The dependent variable parents' perception of stimulant medication

was measured by the TEI, and it was coded as 0= Negative, 1 = Positive. The coded data were entered into the IBM SPSS-v25 software for statistical analysis.

Instrumentation and Operationalization of Constructs

This study used the TEI test and a demographics survey to collect the data from parents of children who received the diagnosis of ADHD, aged 6-8 years old, and who were living in a metropolitan area.

The Treatment Evaluation Inventory (TEI)

The TEI was developed by Kazdin (1980). The inventory is a 15-item, seven-point Likert type measure designed to evaluate treatment acceptability and how parents perceive the extent to which a particular treatment is appropriate and reasonable (Kazdin, Marciano, & Whitley, 2005). This study used the TEI-Parent Form as it intended to gather parents' perceptions and acceptability of stimulant medication in the treatment of their child diagnosed with ADHD. Dr. Kazdin, the developer of the inventory, was contacted, and he gave written permission for using and reprinting his inventory in this study (see Appendix A). The participants were able to complete the TEI in less than 2 minutes.

Reliability and Validity of the Instrument

Regarding the TEI psychometrics, a study conducted by Newton, Nabeyama, and Sturmey (2007) argued that the TEI was assessed using a sample of 218 individuals. The results suggested that the subscales had a significant internal consistency as it showed an alpha for a total scale of .96 and .94 when compared to another smaller group of 131 members. In a study addressing patient progress and treatment acceptability, patient

progress showed an alpha of .95 and .92, and acceptability showed an alpha of .90 and .86. The TEI psychometrics for this study was conducted to derive the subscales and check the Cronbach's alpha for each of the subscales, as well as for the entire TEI. This study had a sample of 394 individuals, and results suggested that the subscales had significant internal consistency as it resulted in alpha for a total scale of .94.

Demographics Survey

This study also used a demographics survey as it helped to capture the characteristics of the participants included in this study. The demographics survey (see Appendix C) was necessary for this study because it helped to analyze other covariates. Although the demographics information retrieved from the participants included the age of the child, parent's level of education, household income, the gender of the child, and parents' fear of addiction as they were elements of interest functioning as independent variables, personal information was not disclosed at any area of this study. The literature in the field suggested that the use of demographics survey is essential to studies conducted in the social science field as it will help the research to profile the participants' characteristics (Dijkstra-Kersten et al., 2015).

Data Analysis Plan

This study worked with data collected from parents who reported having a child diagnosed with ADHD and whose ages range between 6-8 years old in a metropolitan area, who voluntarily signed up for participation in research databases, such as the Survey-Monkey website. The analysis plan for this study intended to use the Statistical Package for Social Science (SPSS) to analyze data. This study used the Binomial

Logistic Regression to examine to which extent parents' fear of addiction, parents' level of education, household income, and gender of the child impacted their perception of stimulant medication for the treatment of their child diagnosed with ADHD between ages 6-8 in a metropolitan area. See Table 1 below for a snapshot of the proposed data collection and analysis plan.

Table 1

Summary of Data Collection Analysis

Research Questions	Dependent Variable	Independent Variable	Statistical Test	Sample Size
RSQ.1	Perception of Stimulant Medication (PoSM)	Fear of Addiction	Binomial Logistic Regression	394
RSQ.2:	PoSM	Gender of the Child	Binomial Logistic Regression	394
RSQ.3:	PoSM	Level of Education	Binomial Logistic Regression	394
RSQ.4	PoSM	Household Income	Binomial Logistic Regression	394

Statistical Testing

This study used a binomial regression to test the hypotheses that had the function to answer the research question. This type of analysis predicts the probability that an observation falls into one of two categories of a dichotomous (Negative/Positive) dependent variable, perception of stimulant medication (Warner, 2012). The data used in this study was provided by parents of children diagnosed with ADHD between ages 6 and 8 residing in a metropolitan area. The variables of interest examined were (a) parents' fear of addiction, (b) parents' level of education, (c) household income, and (d) gender of the child. The participants for this study answered the TEI and the demographics survey. The data gathered from participants were coded and entered into IBM SPSS v25 software. After running the analysis, I was able to observe how some of the independent variables significantly impacted the dichotomous dependent variable.

Threats to Validity

This section discusses the importance that every study needs to follow and the procedures that will allow other researchers to replicate the findings and assure reliability and validity. Therefore, when conducting a study in the social sciences field, it is critical that researchers pay close attention to sampling selection, sample representativeness, an appropriate methodology that will help to answer the research questions, and the selection of the instruments that will be used to measure the variables.

External Validity

External validity can be compromised if its results cannot be generalized to reflect the characteristics of participants, setting, or time-bound (Creswell, 2009). To address

the issues regarding generalization due to sampling, I took appropriate measures to work with a random sample. The probability of collecting data from a representative sample was higher when compared to data collected in a specific or closed setting. Additionally, because this is a nonexperimental study, many threats to external validity were eliminated.

Internal Validity

Internal validity in research is related to the methodology, sample selections, and procedures adopted to conduct the study and how well the selected independent variables will impact the dependent variable (parents' perception of stimulant medication; Creswell, 2009). For this study, I have chosen the Binomial Logistic Regression as it was my assumption that by analyzing the impact of the independent variables, I would be able to predict the dependent variable. Therefore, it was believed that the study's findings would positively contribute to the field while acknowledging a reasonable degree of error. Threats to internal validity could happen if any of these circumstances are present (a) experiment procedure, and (b) diverse participants' experiences (e.g., maturation, mortality, selection). Because this study had a non-experimental characteristic, threats to internal validity may be addressed by making sure that participants in the study were randomly selected (Gravetter & Wallnau, 2016) and that the sampling size was significant enough to account for possible invalid or incomplete data.

Construct Validity

Threats to construct validity might happen when a researcher uses tools that are not suited to measure the content it is intended to measure (Creswell, 2009). This study

used the TEI-Parent Form that was developed to assess parents' perception of stimulant medication when they need to think of a treatment for their child diagnosed with ADHD (Kazdin, 1980). The Demographics Survey was believed to be suitable to measure the independent variables (a) parents' level of education, (b) household income, (c) the gender of the child, and (d) parents' fear of addiction. Therefore, the cited instruments were believed to be appropriate tools to measure the variables, and they helped the research to make sure construct validity was assured and that they tested the proposed hypotheses.

Ethical Procedures

This is an original study that will contribute to researchers in a positive manner. This research involves human subjects; therefore, all ethical aspects should be taken into consideration. This study followed all ethical considerations and the guidelines of the American Psychological Association standards (APA, 2010).

Institutional Permission

Per APA and Walden University protocol, this study required permission from the Institutional Review Board (IRB). Walden University policy states that students will not receive credit for any research conducted without IRB approval as the institution adheres to the APA Ethical Standards. Additionally, I collected and analyzed data following the Walden IRB specifications and approval process. I did not recruit participants or collected data until receiving full approval from Walden's IRB. The IRB approval authorization number 08-08-19-0603467 was used on the Email flyer to prospect participants.

Ethical Issues in Recruitment Materials

This study focused on collecting data related to parents' fear of addiction, parents' level of education, household income, and gender of the child. I informed all participants that the primary focus of this study was to analyze how their feelings, their level of education, household income, and gender of their child would impact their perception of stimulant medication as a form of intervention to treat their child's ADHD symptoms.

The participants were asked to sign an informed consent before I started collecting data. The informed consent also provided information regarding the allocated time to complete the survey and inventory. The participants were informed on the estimated time this study will be completed. The informed consent also offered information regarding how participants may contact me if they had any questions related to the research, their participation, and results findings. In order to follow Standard 3.10 of the APA Code of Ethics, the informed consent also highlighted the purpose, benefits and possible risks of the study as well as the contributions of the findings to social change. They were assured that there was no secondary interest in this study aside from fulfilling Walden University requirements for graduation; therefore, they were informed that their participation was voluntary and that they were allowed to withdraw from participation at their convenience without any consequences. The participants were notified that they would not receive any type of compensation for their participation, aside from contributing to the study.

Ethical Issues in Data Collection

The ethical issue in data collection is regarding how data were acquired. The participants received a link in their email, and they answered the inventory and survey from their home, without any assistance from me, which may be the reason why some of the participants did not complete the entire package. However, the research did not experience issues with a number of participants. Additionally, because this study involved socioeconomic factors, it may be the case that participants felt uncomfortable when completing the surveys as they may believe that by answering questions regarding their feelings, their level of education, household income, and gender of the child could somehow define them as a group belonging to specific socioeconomic status and intelligence. In this case, the specific e-mail address that served as a mean of communication between researcher and participants aided in discussing, clarifying, and, if the case, referring the participant to a therapeutic provider for any stress they may experience by participating in this study. However, I did not receive any emails from any participants in this study.

Treatment of Data

Data were collected through the Survey Monkey website that is HIPAA compliant. Although there was a concern regarding signing the informed consent without identifying oneself (Santos & Hespanhol, 2017), the prospect participants for this study were able to acknowledge their participation by selecting from the Survey Monkey drop-down menu if they had read, understood, and agreed to voluntarily participate in the study. If the participants agreed with and signed the informed consent, they were

redirected to the inventories. If the prospect participants did not accept and did not endorse the consent, they were automatically redirected to a debriefing page where they were thanked for their time. Another possible concern in breach of confidentiality was regarding the demographics survey; however, the demographics survey did not provide questions that could be used as identification, as these types of questions were purposely left out of the survey.

Writing and Disseminating Research

Psychologists must follow the APA Standard 8.10, APA (2010) that states that psychologists must take appropriate steps to correct or remedy errors found in their data. This researcher used IBM SPSS v25 software to compute and analyze data. Data were analyzed following a thorough evaluation to avoid mistakes. However, if any type of error is found after the publication of this study, all the necessary steps will be taken in order to correct the errors, including submitting retractions or erratum (APA, 2010).

In order to keep data protected and free of manipulation from others, I was the only person manipulating and coding raw data that was entered into the IBM SPSS v25 software for analysis. I used a personal home-based computer that uses face recognition to unlock its screen. The computer system has Norton antivirus software, Windows 10 spyware protection, and BitLocker, an encryption software tool used for Windows 10 that encrypts the whole system and requires multiple authentication steps. Lastly, the raw data, as well as the electronic data, will be destroyed in the five years required time limit.

Summary

Chapter 3 presented the research methods that were employed in this study. The study was a nonexperimental quantitative study that examined the relationship between the independent variables parents' fear of addiction, parents' level of education, household income, and gender of the child, and the dependent variable parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between ages 6 and 8 years old. The research design, setting, sample, and instrumentation were described in detail. The chapter included a detailed explanation of the sampling strategy, a non-probability sample targeting parents of children who have a diagnosis of ADHD between ages 6 and 8 years old. Instrumentation was discussed, including details from the TEI and the demographics survey that measured socioeconomic elements. The validity and reliability of the instruments were also discussed in this chapter. Ethical considerations were thoroughly evaluated to ensure the rights and protection of the participants. Chapter 4 will provide a presentation and the results of the data analysis.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to determine if parents' fear of addiction, parents' level of education, household income, and gender of the child had any impact on their perception of stimulant medication in the treatment of their child diagnosed with ADHD. This study was based on the following four research questions and their respective hypotheses.

RQ1: Is there a relationship between parents' fear of addiction and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$1: There is no statistically significant relationship between parents' fear of addiction and their perception of stimulant medication in the treatment, as measured by the TEI, of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a1: There is a statistically significant relationship between parents' fear of addiction and their perception of stimulant medication in the treatment, as measured by the TEI, of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ2: To what extent does a child's gender affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$2: There is no statistically significant relationship between a child's gender, as measured by the demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a2: There is a statistically significant relationship between the child's gender, as measured by a demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ3: To what extent does parents' level of education affect their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$3: There is no statistically significant relationship between parents' level of education, as measured by the demographics survey, and their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

H_a3: There is a statistically significant relationship between parents' level of education, as measured by the demographics survey, and their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

RQ4: To what extent does household income affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

$H_0$4: There is no statistically significant relationship between household income, as measured by the demographics survey, and the parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area

H_a4: There is a statistically significant relationship between household income, as measured by the demographics survey, and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area.

Data Collection

To collect the data for this study, I used the Survey Monkey website. The hosting website submitted a survey link to target participants in the United States. The participants received information regarding this study and informed consent, and they answered qualifying questions before proceeding to the survey. Qualified participants completed The TEI and a demographics survey. The survey was open for responses for 15 days, after the preset paid number of responses was achieved, Survey Monkey deactivated the link, and the process of data collection stopped.

Sample Demographics

The required sample size for this study was 379 participants. Of the 452 respondents, 58 people were removed as they did not complete all the questions in the survey. Of the remaining 394 participants, 98 were male (25.2%), 290 female (74.6%) and 6 participants (0.2%) did not disclose their gender. Participants' ages varied from 18

years old to above 60 years old, with the majority of participants falling into the age range of 31–40 years old. Demographic data are presented in Tables 2 and 3.

Table 2

Participants' Gender

	Frequency	Percentage
Male	98	24.9
Female	290	73.8
Did Not Disclose	6	1.3
Total	388	98.7

Table 3

Participants' Age Range

	Frequency	Percentage
18 – 30 years old	116	29.4
31 – 40 years old	177	44.9
41 – 50 years old	77	19.5
51 – 60 years old	17	4.3
61 years old or above	5	1.3
Total	392	99.5

Descriptive Statistics

The frequency and percentage were calculated for the following categorical independent variables: fear of addiction, level of education, household income, and gender of the child. Of the 394 participants, 280 (71.1%) assented to having a fear of addiction. Similarly, 250 (63.5%) of the participants selected "Below Associates Degree" as their highest level of education. A total of 225 (57.1%) participants selected "Below $60,000" as their household income. Lastly, 220 (55.8%) participants indicated

that their child diagnosed with ADHD was male. Table 4 presents the frequency and the percentage for each of the independent variables in this study.

Table 4

Frequency and Percentage of Independent Variables

	Highest observation frequency	*n*	Percentage
Fear of addiction	Yes	280	71.1
Level of education	Below Associates Degree	250	63.5
Household income	Below $60.000	225	57.1
Gender of the child	Male	220	55.8

Statistical Analysis

SPSS v25 was used to conduct a binomial logistic regression. The goal of this study was to analyze the relationship between parents' fear of addiction, level of education, household income, and gender of the child on their perception of stimulant medication in the treatment of ADHD symptoms in children between the ages of 6 and 8 in a metropolitan area. Before performing an analysis, I tested the assumption of multicollinearity. There was low or no presence of multicollinearity as the predictors in the regression model showed a VIF lower than the most two common cutoffs 5 or 10 (Field, 2018; Pallant, 2016), meaning that the assumption was not violated.

The assumption of linearity was not tested because this study had categorical independent variables instead of continuous variables. Outliers were not tested because the variables had values of 0 and 1 or 1 and 2.

As per the Hosmer-Lemeshow test, results indicated that the data fit the model well (Tabachnick & Fidell, 2014) as it did not show statistically significant results (p =

.857). The model explained 5.7% (Nagelkerke R^2) of the variance of parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD, meaning that the remaining 94.3% was explained by other factors, and correctly classified 58.1% of the cases. Of the 160 participants who disclosed a positive perception of stimulant medication, 106 were correctly predicted by the model, representing a sensitivity of 66.3%., Of the 143 participants who were predicted to have a negative perception of stimulant medication, 70 were correctly predicted as having a negative perception of stimulant medication, resulting in a specificity of 49.0%. See Table 5 for data model fit, Table 6 for the variance explained of the dependent variable, and Table 7 for classification of cases, sensitivity, and specificity.

Table 5

Hosmer-Lemeshow test

Step	Chi-Square	df	Sig
1	3.288	7	.857

Table 6

Model Summary

Step	-2 Log-Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	405.877a	.043	.057

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001

Table 7

Classification Table[a]

Observed			Predicted		
			New Overall Perception (DV)		Percentage
			Negative	Positive	Correct
Step 1	New Overall Perception (DV)	Negative	70	73	49.0
		Positive	54	106	66.3
	Overall Percentage				58.1

a. The cut value is .500

Research Question 1

RQ1: Is there a relationship between fear of addiction and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages 6-8 in a metropolitan area? Hypothesis 1 was tested using a binomial logistic regression to predict the relationship between the independent variable fear of addiction coded as (1 = Yes, 2 = No) and the dependent variable parents' perception of stimulant medication (0 = Negative, 1 = Positive). The odds ratio is a chance of being in a specific category of the outcome when the value of a predictor increases by one unit (Tabachnick & Fidell, 2014). If the odds ratio is greater than 1, the event is likely to occur. If the odds ratio is less than 1, it is unlikely that the event will occur (Warner, 2013). The regression coefficient for fear of addiction was statistically significant, $\beta = .70$, odds

ratio 2.03, 95% CI [1.219-3.365], p = .006, indicating that the odds of parents 'negative perception of stimulant medication was103% times more likely to occur when parents fear addictive behavior in later adulthood than those parents who don't fear addictive behaviors in later adulthood. See Table 8 for analysis of the independent variable fear of addiction.

Table 8
Logistic Regression – Output Analysis for Fear of Addiction

							95% C.I. for EXP (B)	
	B	S.E.	Wald	df	Sig.	Exp (B)	Lower	Upper
Step Fear of addiction (IV)	.706	.259	7.430	1	.006	2.026	1.219	3.365
Constant	-817	.350	5.438	1	.020	.442		

a. Variable (s) entered on step 1: Fear of addiction (IV)

Research Question 2

RQ2: To what extent does a child's gender affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages 6-8 in a metropolitan area? Hypothesis 2 was tested using a binomial logistic regression to predict the relationship between the independent variable gender of the child coded as (1 = Male, 2 = Female) and the dependent variable parents' perception of stimulant medication (0 = Negative, 1 = Positive). The regression coefficient for the gender of the child was not statistically significant, β = -.05, odds ratio .95, 95% CI [.600 – 1.502], p = .824. Based on these results, the null hypothesis was not rejected, as $p > 0.05$. The odds ratio indicates that parents 'negative perception of stimulant medication was only 9.5%

times more likely to occur because of the child's gender. See Table 9 below for an analysis of independent variable child's gender

Table 9

Logistic Regression – Output Analysis for Child's Gender

								95% C.I. for EXP (B)	
		B	S.E	Wald	df	Sig.	Exp (B)	Lower	Upper
Step 1[a]	Child's gender (IV)	-.052	.234	.050	1	.824	.949	.600	1.502
	Constant	.186	.349	.283	1	.595	1.204		

a. Variable(s) entered on step 1: Child's gender (IV)

Research Question 3

RQ3: To what extent does parents' level of education affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages 6 - 8 in a metropolitan area? Hypothesis 3 was tested using a binomial logistic regression to predict the relationship between the independent variable parents' level of education coded as (1 = Below Associates Degree, 2 = Above Undergraduate/Bachelor's degree) and the dependent variable parents' perception of stimulant medication (0 = Negative, 1 = Positive). The regression coefficient for the independent variable parents' level of education was not statistically significant, $\beta = .23$, odds ratio 1.26, 95% CI [.788 – 2.027], $p = .331$. The analysis performed resulted in a p-value higher than the standard 0.05 cutoff ($p > 0.05$). Based on these results, the null hypothesis was not rejected. The results suggest that the level of education is not a significant predictor of parents' perception of stimulant medication in the treatment of ADHD. Additionally, the results

show that the odds of parents' negative perception of stimulant medication is only 26.4% times more likely to occur if their level of education is Below Associates Degree than those parents who have Above Undergraduate/Bachelors' Degree. See Table 10 for the analysis of independent variable parents' level of education below.

Table 10

Logistic Regression – Output Analysis for Parents' Level of Education

								95% C.I. for EXP (B)	
		B	S.E.	Wald	df	Sig	Exp (B)	Lower	Upper
Step 1[a]	New Education Level (IV) Dichotomized	.234	.241	.945	1	.331	1.264	.788	2.027
	Constant	-.224	.344	.424	1	.515	.799		

a. Variable(s) entered on step 1: New Education Level (IV) dichotomized

Research Question 4

RQ4: To what extent does household income affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages 6-8 in a metropolitan area? Hypothesis 4 was tested using a binomial logistic regression to predict the relationship between the independent variable household income coded as (1 = Below $60,000, 2 = Above $60,000) and the dependent variable parents' perception of stimulant medication (0 = Negative, 1 = Positive). The regression coefficient for the independent variable household income was statistically significant, β = .51, odds ratio 1.67, 95% CI [1.056 – 2.639], p = .028. The analysis results suggest that the predictor household income is statistically significant and impacts parents' perception

of stimulant medication in the treatment of ADHD symptoms. The odds ratio indicates that parents' negative perception of stimulant medication is 67% more times likely to occur in families where the household income is lower than $60.000 than in families with a household income higher than $60.000. See Table 11 for the analysis of the independent variable household income below.

Table 11

Logistic Regression – Output Analysis for Household Income

							95% C.I.for EXP (B)	
		B	S.E.	Wald	df	Sig.	Exp (B)	Lower	Upper
Step	New Household Income (IV) Dichotomized	.512	.234	4.804	1	.028	1.669	1.056	2.639
	Constant	-.638	.351	3.298	1	.069	.528		

a. Variable(s) entered on step 1: New Household Income (IV) dichotomized

Summary

Binomial logistic regression was performed to ascertain the effect of parents' fear of addiction, parents' level of education, household income, and gender of the child on the likelihood of parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages 6-8 in a metropolitan area. The first null hypothesis stated that parents' fear of addiction would have no significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The results were statistically significant, suggesting that parents' fear of addiction does have a statistically significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The results suggest that parents may hesitate to

commence stimulant medication treatment when their child is still in the elementary school as they believe that the continuous use of medication could contribute to the development of addictive behaviors in early adulthood. The second null hypothesis stated that the child's gender would have no significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The results were not statistically significant, suggesting that the gender of the child has no statistically significant effect on parents' perception of stimulant medication in the treatment of ADHD. The third null hypothesis stated that parents' level of education would have no significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The results were not statistically significant, suggesting that the parents' level of education will have no statistically significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The fourth null hypothesis stated that household income would have no significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. The results were statistically significant, suggesting that household income does have a statistically significant effect on parents' perception of stimulant medication in the treatment of ADHD symptoms. This implies that parents' choice of treatment to address the symptoms of ADHD is directly related to its cost.

In Chapter 5, I will discuss the results of this study within the context of the literature review and the theoretical framework. Chapter 5 also includes the limitations, recommendations for future research, and social change implications. The chapter will end with a conclusion of the study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to examine whether parents' fear of addiction, parents' level of education, household income, and the gender of the child impact their perception of stimulant medication in the treatment of ADHD symptoms. The idea of conducting this study was to entice the discussion around parents' perception of stimulant medication. The literature used in this study approached a variety of factors that may influence parents' beliefs that by adopting stimulant medication as a form of treatment to address the symptoms of ADHD may contribute to addictive behaviors in early adulthood. However, whereas previous studies focused mostly in the co-occurring disorders such as oppositional defiant disorder and conduct disorder (van den Ban et al., 2015) as important factors contributing to addiction, this study focused on socioeconomic status, such as parents' level of education and household income, the gender of the child, and parents' fear of addiction. Therefore, this study adds some missing pieces of knowledge to the existing gap in the literature by creating data for future researchers in the field who want to explore how the perception of stimulant medication may impact ADHD treatment. By exploring such an important topic, this study and future research findings may help to increase parents' awareness and knowledge of stimulants as a form of treatment to address ADHD symptoms.

I used a quantitative approach for this study because the intent of the research questions was to examine the relationship between the independent variables and the dependent variable. In considering the categorical dichotomous dependent variable for

this study, I determined that the statistical analysis that fit this study was the binomial logistic regression because it would allow me to observe how the predictor variables would impact the dichotomous variable.

Interpretation of the Findings

This study used as primary data parents' responses to the TEI and a demographics survey they received via the Survey Monkey website as a link to their email address. A total of 452 participants answered the Survey Monkey link; however, 58 participants did not complete the entire survey, and they were removed from the analysis. A total of 394 participants met the criteria for participation and were included in the analysis. In order to analyze the data, I used SPSS v25. Binomial logistic regression was used to analyze the relationship between the four categorical independent variables fear of addiction, parents' level of education, household income, and gender of the child and their impact on the dichotomous dependent variable parents' perception of stimulant medication in the treatment of ADHD symptoms. This study addressed four research questions:

1. Is there a relationship between fear of addiction and parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?
2. To what extent does a child's gender affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

3. To what extent does parents' level of education affect their perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?
4. To what extent does household income affect parents' perception of stimulant medication in the treatment of their child diagnosed with ADHD between the ages of 6 and 8 in a metropolitan area?

To determine whether any or all of the independent variables had any influence on parents' perception of stimulant medication in the treatment of ADHD symptoms, I tested four hypotheses. The results showed that two of the four predictors were statistically significant and would impact the dependent variable, indicating that two of the null hypotheses were rejected. The interpretation of each research question is offered below.

Interpretation of RQ1

The null hypothesis for RQ1 was not supported as the statistical analysis results suggested that fear of addiction was statistically significantly associated with parents' perception of stimulant medication in the treatment of ADHD symptoms. Of the 394 participants, 280 responded "yes" to the question regarding fear of addiction, indicating that they were afraid of their child developing addictive behaviors in early adulthood if they adopted stimulant medication as a form of treatment to address ADHD symptoms. A number of studies conducted between 2011 and 2016 suggested possible implications on the development of addictive behaviors in early adulthood when children at a young age receive stimulant medication as a form of treatment, which may have influenced

parents' negative perception of stimulant medication. However, a recent study conducted by Lacy, Schorsch, and Austin (2018) suggested that it is unlikely that stimulant medication would cause addictive behaviors at any stage of a persons' life. Although the literature on the topic points to ADHD alone being the underlying factor of teenagers developing addictive behavior, the parents may be concerned with the use of stimulants at an early age (Madsen & Dalsgaard, 2013; Pham et al., 2017), mainly because the young children are more sensitive to side-effects when compared to older children (Mulqueen et al., 2013). Thus, the findings of this study show that the idea of stimulant medication being linked to addictive behaviors is still strong in the metropolitan area this research took place.

Interpretation of RQ2

The null hypothesis for RQ2 was supported as the statistical analysis results suggested that a child's gender was not statistically significantly associated with parents' perception of stimulant medication in the treatment of ADHD symptoms. Of the 394 participants, the majority reported having a male child diagnosed with ADHD (220 male, 174 female), only a small percentage disclosed being concerned with their child's gender impacting their perception of stimulant medication. The past literature in this topic has suggested that the number of boys diagnosed with ADHD is significantly higher than the number of girls with this diagnosis (Barkley, 2015; Hanc et al., 2015; Keshavarzi et al., 2014; Waschbusch et al., 2011), and boys tend to show more aggressive behaviors than girls. Although I expected that the child's gender would somehow affect parents' perception of stimulant medication, the results did not suggest evidence that parents

would have an overall negative perception of stimulants as a form of treatment based on their child's gender. Thus, because boys tend to be a bit more hyperactive and impulsive than girls, the parents may perceive stimulant medication not only as a form of treatment to improve attention but also a form of intervention that would help their children to improve their behavior (Hanc et al., 2015), decrease problems with school rules, and increase school peer interaction (Mano et al., 2017).

Interpretation of RQ3

The null hypothesis for RQ3 was supported as the statistical analysis results suggested that parents' level of education was not statistically significantly associated with parents' perception of stimulant medication in the treatment of ADHD symptoms. Of the 394 participants, 250 reported being in the "Below Associates Degree" educational level. The literature used in this study suggested that parents' perception of stimulant medication may be impacted by the lack of parents' understanding of ADHD symptoms and ADHD treatment (Abid et al., 2018; Johnston et al., 2005). It is not uncommon to find parents who do not perceive ADHD as an existing disorder, as they believe that ADHD could be explained as poor parenting (Dodangi et al., 2017). However, there are no other studies supporting this claim, and the fact that parents do not perceive ADHD as a disorder does not necessarily correlate to the level of education, but with their perceptions and beliefs. The findings of this study differ from what has been discussed in the literature review as the results of this research did not suggest evidence that parents who have a lower level of education would have an overall negative perception of stimulant medication as it is possible to learn and understand about a

specific topic, by seeking out and finding meaningful information regardless of one's level of education.

Interpretation of RQ4

The null hypothesis for RQ4 was not supported as the statistical analysis results suggested that the household income was statistically significantly associated with parents' perception of stimulant medication in the treatment of ADHD symptoms. Some of the available literature has suggested that cultural elements such as gender, age, and socioeconomic status may influence how parents perceive stimulants medication in the treatment of ADHD symptoms (Rowland et al., 2018), which correlates with the results of the analysis as they suggested that families who have a household income below $60,000 would have a more negative perception of stimulant medication in the treatment of ADHD symptoms. However, the findings in the literature are divergent. Page et al. (2016) argued that parents who have a child diagnosed with ADHD would adopt pharmacology as a type of treatment because of its relatively low cost when compared to other forms of treatment or a type of behavior modification that would bring fast results. However, other study findings are not in line with those of Page et al. as results suggested that although stimulant medication could be more cost-effective than other forms of treatments (i.e., therapy and behavior intervention services) parents of children with ADHD would try to find an alternative form of interventions that would be less invasive (McCarty et al., 2015).

Theoretical Implications

Fishbein's and Ajzen's (1975) TRA was the theoretical framework for this study. This theory is used to explain how an individual's behavior will be determined by his intentions, attitudes, and societal norms. This study had as its main objective to analyze the relationship between parents' fear of addiction, parents' level of education, parents' household income, and the gender of the child as variables impacting the parents' perception of stimulant medication . As mentioned in Chapter 2, the parents of children who have a diagnosis of ADHD may be aware that stimulant medication could be a form of treatment that brings results as it improves attention (Berkley, 2015). These parents may entertain the possibility of using this form of treatment to decrease the attention deficit, or they have the intention to adopt this form of treatment. However, their attitudes, social norms that may be represented by the level of education and household income, and the gender of the child may determine if they will have a negative or a positive view of that specific treatment. This framework was suitable for this study because it served as a baseline to determine which factors, attitudes, or societal norms, would impact their behaviors.

Each research question used in this study followed Fishbein's and Ajzen's theoretical propositions. This study assumed that parents' intention would be determined by their attitude (beliefs) and the influence of other societal norms such as level of education and household income (Martinez-Garcia et al., 2013; Radisir et al., 2017). This study first looked at parents' fear of addiction impacting their perception of stimulant medication. The results showed that the parents' beliefs that stimulant medication

contributes to addictive behaviors would alter their attitudes and perception. This study is in line with Weyandt et al.(2013) research that shows the misuse of stimulant medication among teenagers. The findings for this study are in line with past research in this topic that demonstrated the increase in stimulant prescription (Lacy, Schorsch, & Austin, 2018), and the increase of deaths for overdose (NIDA, 2018) will affect parents' perception of stimulants in the treatment of ADHD (Davis et al., 2015). As applied to this study, the TRA holds that the proposition societal norms, here represented by parents' level of education and household income, could allow participants to efficiently explore their behavior as it relates mostly to their perceptions. This study looked at how parents' level of education and household income impact their attitudes. Regarding parents' level of education, the findings did not correlate with past researches on this topic. In this study, it was found that parents' level of education did not significantly impact their perception of stimulant medication. However, Hanojosa and colleagues (2015) argued that parents who have low educational levels would have difficulty to seek out and find credible information regarding stimulant medication and how it may, or may not, contribute to addictive behaviors in early adulthood. Societal norms represented by parents' household income followed different trends as the results were in line with Rowland, Skipper et al. (2018) who argued that income is a significant component on parents' perception of stimulant medication as low-income family would have a more negative perception of stimulants and they would try a form of treatment that would be less invasive, and that could bring results faster and at a lower cost (Tomey et al., 2012).

Limitations of the Study

Several limitations may have impacted this study. The first limitation is regarding the sampling population. This study relied on parents who disclosed they had a child diagnosed with ADHD; however, it may be the case that some parents perceive ADHD as behavior problems and would not consider it as a disorder. Of the 452 participants who voluntarily completed the TEI and the Demographics Survey, this study counted with 394 participants. It is hypothesized that the 58 participants who abandoned the survey before answering all the questions believed they did not further meet the criteria to participate in this study because they either did not perceive ADHD as a disorder or because they did not have a child diagnosed with ADHD.

Another limitation may be related to how the participants approached and answered those surveys. Because the participants received the surveys on their emails, and the environment was not controlled, there is no guarantee that they answered all the questions honestly. Additionally, the question regarding the level of education from the demographics survey asked the participants to place themselves within a specific range. Because the question was divided into two categories (1 = Below Associates Degree, and 2 = Above Undergraduate/Bachelor's Degree), there was no discrimination between those participants who had a high school diploma, some college, or even those who did not complete middle school. Another limitation that may have impacted this study is regarding participation criteria.

This study focused on participants who disclosed that they had a child diagnosed with ADHD, and the child's age fell within the 6-8-year-old range. This study did not

focus on parents of children who carry the diagnosis of ADHD who are outside the predetermined age range, nor it focused on parents who do not have a child diagnosed with ADHD but could contribute to the understanding of the overall perception of stimulant medication in the treatment of ADHD symptoms.

Recommendations

This study did not reject two of the null hypotheses, although it was believed that parents' level of education and gender of the child would significantly impact parents' perception of stimulant medication. To best determine parents' perception of stimulant medication in the treatment of ADHD, more research needs to be conducted. However, the elements that could be looked into are parents who report having children who do not carry the ADHD diagnosis. Because some parents do not perceive ADHD as an existing disorder, future studies using a mixed-method or a qualitative analysis may provide a better understanding of parents' perceptions. The participants should first answer questions regarding their perceptions of ADHD as a disorder or as maladaptive behavior. They would also answer questions regarding perceived differences in ADHD symptoms between male and female children. Then, the participants would be given surveys and /or inventories that would quantitatively measure how their beliefs impact their perceptions.

Another recommendation is regarding children's age range. This study focused on children between the ages of 6-8; however, it cannot be assumed that parents who have a child diagnosed with ADHD outside this study target age range would not provide invaluable input to future studies. Additionally, future research may approach the level

of education using specific education levels in order to effectively learn if lower levels of education would significantly impact parents' perception of stimulant medication.

Positive Social Change Implications

Several research findings suggest that stimulant medication is an efficient form of treatment to address attention problems (Barkley, 2015; Meppelink et al., 2016); however, a good percentage of parents do not perceive stimulant medication as a safe or viable intervention. This study has provided important information to the field of psychology, and its findings may guide future research to examine and determine more ways to help parents who do not have access to credible information to understand the benefits and contra-indications of different types of treatment available to address ADHD symptoms. This study will help parents to see that stimulant medication can be a reasonable form of treatment for ADHD symptoms. ADHD is a mental illness in which one does not have control over it, and without adequate treatment, it may impair one's ability to learn and self-control. If left untreated or misdiagnosed, it can lead to more serious mental illnesses, and it may robber a child of a good, healthy, and meaningful life. The results of this study and the recommendations for future research may contribute to positive social change by discussing how parents' perception of stimulant medication and how their beliefs may contribute to raising who will have a lifetime of mental illness, which eventually will affect society in general.

Conclusion

A negative perception of stimulant medication in the treatment of ADHD symptoms has been identified as a gap in the literature. Although a number of

professionals have studied the use of stimulants and the development of addictive behaviors in early adulthood, limited research has been conducted on the potential relationship between parents' fear of addiction, parents' level of education, gender of the child, and household income impacting their perceptions of stimulant medication in the treatment of ADHD symptoms. The literature review showed that parents, teachers, and all other members of a community have different perceptions of stimulant medications and ADHD as a disorder (Dodangi et al., 2017). Additionally, although the reviewed literature findings suggest that socioeconomic status (Rowland, Skipper, et al., 2018), co-occurring disorders, and ADHD alone (Davis et al., 2015; Madsen & Dalsgaard, 2013; Virtulano et al., 2014; Weyandt et al., 2013, Winters et al., 2011) are strong predictors of parents' negative perception of stimulant medication, it is important to conduct more research on this topic that will address the relationship between these predictors impacting treatment choice. Fishbein's and Ajzen's (1975) TRA served as the foundation for this study as it helps to demonstrate individuals' own attitudes, intentions, and adherence to social norms imposed by socioeconomic status (Reynolds & O'Connell, 2012) may impact their behavior, by identifying the risk factors that predict individuals' attitudes and perceptions (Jensen, Yuki, et al., 2018). With this theory in mind, this study used a quantitative approach, and two instruments were used to collect data through the Survey Monkey website. The inventory and the demographic survey had multiple questions regarding the perception and acceptability of stimulant medication, the gender of the child, household income, level of education, and fear of addiction. Binomial

logistic regression was used to analyze data and to determine the impact of the predictors on the dichotomous outcome.

The analysis results for parents' level of education and gender of the child were not statistically significant, meaning that these predictors do not contribute negatively to parents' perception of stimulant medication in the treatment of ADHD symptoms. However, fear of addiction and household income were statistically significant, suggesting that low-income families have a negative perception of stimulant medication. Additionally, the results also suggested that fear of addiction will also negatively impact parents' perception of stimulants. The results of this study are significant because they will help to fill the gap in the current literature by providing invaluable information to the field of psychology. Additionally, this study's findings may be used as baseline data for future research aiming to improve parents' knowledge regarding ADHD as a disorder and stimulant medication in the treatment of its symptoms.

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Appendix A: TEI – Test Developer Permission

Rosi Albuquerque-Shain
Mon 7/2/2018 9:56 AM
To:
Cc:
Treatment Evaluation Inventory - Use Permission

Good morning Dr. Kazdin,

I hope your day is going well.

I am a doctoral student from Walden University writing my dissertation titled "The relationship between parents' fear of addiction and their decision to use stimulant medication in the treatment of their child diagnosed with ADHD enrolled in 1st through 5th grades," under the direction of my dissertation committee chaired by Dr. Magy Martin, who can be reached at

I would like your permission to use the "The Treatment Evaluation Inventory – Parent Form" survey/questionnaire instrument in my research study. I would like to use and print your survey under the following conditions:

- I will use the surveys only for my research study and will not sell or use it with any compensated or curriculum development activities.
- I will include the copyright statement on all copies of the instrument.
- I will send a copy of my completed research study to your attention upon completion of the study.

If these are acceptable terms and conditions, please indicate so by replying to me through e-mail:

Sincerely,

Rosi Albuquerque-Shain, Doctoral Candidate

Kazdin, Alan
Mon 7/2/2018 10:22 AM
To: Rosi Albuquerque-Shain
Cc:
Subject: RE: Treatment Evaluation Inventory - Use Permission

TEI all.doc
64 KB

Dear Soon to be Dr. Albuquerque-Shain,
Thank you for your email. I was delighted to learn what you are doing. Please merely ensure that you give proper citation to your use of this. As for your excellent conditions, there is no need to send me a copy of your study. I am assuming, hoping one day I will see it published and can see it then.
Good luck with your work.
Best wishes,
Alan Kazdin

Appendix B: Demographics Survey

Demographic Survey

Please answer the following questions. **All responses will be kept strictly confidential.**

These questionnaires are anonymous and provide only the information needed for the completion of the study.

Do you have a child diagnosed with ADHD?

1. Yes
2. No

What is the gender of your child who has received the diagnosis of ADHD?

1. Male
2. Female

What is your child age? _____

What is your age range?

1. 18-30 years old
2. 31-40 years old
3. 41-50 years old
4. 51-60 years old
5. 61 years old – above

What is your household income? (Check only one)

1. $10,000 – $40,000
2. $40,001 – $60,000
3. $60,001 – $80,000
4. $80,001 – $100,000
5. $100,001 – Plus

What is your completed highest level of education? (Check only one)

1. 1st – 8th grade
2. High School
3. Associates Degree
4. Undergraduate /Bachelor's
5. Master – Other Graduate Degree

Considering stimulant medications such as Adderall, Ritalin, and Vyvanse in the treatment of ADHD symptoms. Would you be afraid of your child developing addictive behaviors in early adulthood if you adopt this type of medication in their intervention when they are still between the ages of 6-8 years old?

1. Yes
2. No

Appendix C: G* Power Calculation