

THE EFFECTS SOCIAL MEDIA HAS ON DEPRESSIVE AND NEURO DEVELOPMENTAL
DISORDERS

Daniel James Goble

A Dissertation on Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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2023

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ABSTRACT

Social media has played a huge role in society today and is one of the most common activities in everyday life for people of all ages. Due to the long amount of time that most users spend on social media daily, some trends seem to grow and become very visible over time that have a negative impact on mental health but also on neuro developmental disorders.

Neurodevelopmental disorders are identified through a list of symptoms and characteristics that show a problem in how the brain is developing. Due to social media still being very new in this generation and with its huge advancements and changes in fast periods of time few studies focus on comparing the symptoms of obsessive social media use to neuro developmental disorders.

This study aims to link the common characteristics and symptoms of obsessive social media use to ADHD and ADD to see if it is possible to show that they are common enough to have a hard time differentiating. Part of the goal will also be to show the maladaptive behavior that develops from social media use and how over time it can change the brain's neuroplasticity in a way where memory retention is affected, and focus is negatively impacted. In this dissertation there will be a quantitative method of research that will build a base of research to help show these statements to be accurate and allow for future research to build upon this method for further understanding.

Keywords: neuro developmental disorder, obsessive, social media, quantitative, research, symptoms, characteristics

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CHAPTER ONE: INTRODUCTION

Overview

In this chapter, the goal is to build an understanding of the study on social media and the effects it has on neurodevelopmental disorders. The background of the topic will be discussed to help see why this study has been an area of conversation for many years and how over the past few years it has escalated in a way where the results are clear and crucial to understanding neurodevelopmental disorders about social media. A problem statement will also be covered to help understand why information on this topic has not proved to give clear direction but more suggested. The current time of this study will play a huge factor in giving a more precise understanding that was historically less clear. The purpose statement will also be covered to show the process of building information for this study and the intent on how to answer questions through formulation. The significance of the study will be crucial in this chapter because it will relate the information to other previous studies and how it correlates with other forms of research. In this chapter the research questions will be presented that direct the focus of the study in the overall project. Definitions will be given to add clarity to the terms used throughout the study. This chapter will conclude with a summary that covers what has been covered through this chapter.

Background of the Problem

Neurodevelopmental disorders have been a heated topic over the last ten years and have been a constant study of rapid development. The number of disorders has grown, and a wide spectrum range has only widened within each neurodevelopmental disorder. The DSM-5 refers to these different neurodevelopmental disorders as well as their symptoms and their forms of treatment. One of the growing problems that exist is that symptoms and causes overlap, where it

can be difficult to target a true diagnosis as well as targeting the overall cause. Whether it is genetic, trauma-related, or environmental there are many ways to attempt to reason with cause and effect but a missing link that should factor in is the method of social interaction within social media and the platforms that are most used. A reason for this thought was based on a study that showed higher reports of symptoms of mental health when paired with higher use of social media use (Beeres, 2021). With social media being relatively new there is less research on the side effects of its use. It was not until the 1990's that studies by clinicians and scholars began claiming that an excessive amount of internet activity was showing signs of addiction (Griffiths, 1998). Once the term addiction is placed within the symptoms of social media there becomes a connection with mental health and to go one step further neurodevelopmental disorders.

Addiction is a strong word that implies a change in neuro pathways that have maladaptive results within the brain. Within neurodevelopmental disorders, three specific disorders have a great connection with social media, Griffith's study would clarify that those connections are symptoms and their commonality (Griffiths, 1998). The three neurodevelopmental disorders are ADHD, Autism (ASD), and Depression. A problem that comes from the study previously mentioned is that through social media use there could be a process where social media brings about symptoms of ADHD, ASD, and Depressive Disorder to the place where the wrong diagnosis and treatment were given due to a lack of research on the symptom's obsessive social media use.

Statement of the Problem

Social media is a consuming activity that takes an individual to a place where they can feel accepted and with that there is a desire by all people to be accepted and so the appeal goes out to all people and with it being considered an addiction, which was mentioned earlier in a study there are negative side effects to the use of social media (Griffiths, 1998). Obsessive social

media use has been shown to disturb physical development and negatively impact the immune system (Levenson, 2017). According to Levenson (2017), social media has been shown to cause sleep disturbance with disruption to circadian rhythm. A study also has shown that social media affects the brain through cognitive overloads that increase levels of anxiety and emotional intensity (Crone, 2018). These are just some of the problems that exist with the use of addictive social media use. With trouble sleeping, depression, and high levels of anxiety symptoms are mirroring those of neurodevelopmental disorders. When an individual visits a clinician with the symptoms listed previously than most clinicians will take them to diagnosis by using the DSM handbook. The problem with using this method is that it does not account for social media use. Therefore, when a patient is diagnosed with a neurodevelopmental disorder, they assume it will need some form of therapy or medication, which will not accurately target the problem that brought about these symptoms. One of the problems that exist is that researchers looking into this study have reported findings that say that concrete research indicating a correlation between social-media use and neurodevelopmental disorders does not have enough evidence to be considered valid. According to Boyd (2007), there is no indicators that show validity with assuming social-media influence on neurodevelopmental adaptation. Over time as social media accrues a larger population of obsessive users there will then be a larger number of diagnosed neurodevelopmental disorders. The problem is misdiagnosis and treatment that truly do not fix the overall origin of the issue.

Purpose of the Study

The purpose of the study is to determine if Autism, Attention Deficit Hyperactivity Disorder, or Depressive Disorder predict Social Media Addiction scores in the United States, and if so, to what extent. Within neurodevelopmental disorders there will be a focus on Autism,

ADHD, and Depressive disorder. The desire would be that the research built into this study would contribute to better diagnosis and build better resources for treatment. This information would be greatly useful for clinicians and would be a great place for further research on social media continues to grow in popularity. This study will hopefully also help with an awareness of the dangers that can come with high-level use of social media and will be helpful for parental awareness. Therefore, the outcomes of this study may add to the literature on depressive disorders, neurodevelopmental disorders, and social media addictions.

Significance of the Study

The purpose of the study is to determine if Autism, Attention Deficit Hyperactivity Disorder, or Depressive Disorder predict Social Media Addiction scores in the United States, and if so, to what extent. Within neurodevelopmental disorders there will be a focus on Autism, ADHD, and Depression. Cataldo (2021) reported that association between social media usage and neurodevelopmental disorders had minimal evidence for linking them as contributing factors and would have a need for further research to prove otherwise, researchers may be able to gain better understanding of what influences social media behaviors. The desire would be that the research built into this study would contribute to better diagnosis and build better resources for treatment. This information would be greatly useful for clinicians and would be a great place for further research as social media continues to grow in its popularity. This study will hopefully also help with an awareness of the dangers that can come with high level use of social media and will be helpful for parental awareness. Therefore, the outcomes of this study may add to the literature on the depressive disorder, neurodevelopmental disorder, and social media addictions.

Research Question(s)

The three-research questions for the current study are as follows:

RQ1: To what extent do social media addiction scores predict Depressive Disorder scores in adults in the United States?

RQ2: To what extent do social media addiction scores predict Attention Deficit Hyperactivity Disorder(ADHD) rating scores in adults in the United States?

RQ3: To what extent do social media addiction scores predict Autism Spectrum scores in adults in the United States?

Definition of Terms

Attention deficit hyperactivity disorder (ADHD): According to the Centers for Disease Control and Prevention (2022), ADHD is the most common neurodevelopmental disorder. Like ASD there are a lot of theories as to how somebody gets ADHD, there are no full answers to its origin or a common way it develops in an individual. Children that have ADHD will struggle to pay attention and have issues with impulse control and can commonly act without thinking about the consequences. Within ADHD, three types have different strengths of certain symptoms (Centers for Disease Control and Prevention, 2022). The DSM-5 lists signs and symptoms of ADHD, which are daydreaming a lot, being forgetful, squirming or fidgeting, talking too much, careless, high-risk choices, struggling with temptation, having trouble taking turns, and having difficulty getting along with others (American Psychiatric Association, 2013). With adults, some of these symptoms will adjust and lessen, while others will strengthen. This disorder can be treated with counseling, medication, and symptoms can decrease with time.

Autism spectrum disorder (ASD): According to the American Psychiatric Association (2021), ASD is a complex developmental condition involving persistent challenges with social communication, restricted interests, and repetitive behavior. Autism is considered lifelong and can cause degrees of impairment in cognitive and physical functioning (American Psychiatric

Association, 2021). ASD is considered a neurodevelopmental disorder and has a wide list of symptoms. The DSM-5 lists symptoms that are primarily social communication deficits that can include decreased sharing of interests with others, and difficulty appreciating their own and others' emotions (American Psychiatric Association, 2021). Other symptoms can be an aversion to maintaining eye contact and a lack of proficiency with non-verbal gestures. Since these symptoms make it difficult to communicate with others on a normal scale there are also difficulties with building friends or keeping them. Even though there are many ideas to the cause of ASD there is still no full understanding of its origin. This disorder can be treated with counseling, medication, and symptoms can decrease with time.

Depressive Disorder: When five or more symptoms are experienced with depression is a span of two weeks and a change of the previous function is observed then the diagnosis can fall into the depressive disorder category. Depressive disorder can bring feelings of sadness, emptiness, and hopelessness. A loss of interest seems to be common when encountering activities that use to be practiced. Physical attributes with Depressive disorder can be significant weight gain or weight loss. To be more precise the DSM-5 stated that significant can be 5% of weight gain or loss within a month. Other common physical problems are trouble sleeping at night and psychomotor agitation. Loss of energy or fatigue also is common with Depressive disorder. The depressive disorder causes a loss of concentration and brings about thoughts of suicide as well. Some of the adult symptoms are that an individual struggles to keep a job or to find one. Social isolations are also common where an individual would rather be alone than in social settings.

Maladaptive: Maladaptive is a term that expresses poor or inadequate adaptation and is considered a negative coping strategy (Merriam-Webster, 2005). Coping strategies that are

considered maladaptive are choices and actions that are more harmful to the individual. These behaviors work like a bacterium that decays positive development and usually leads to further damage. This term is often used within mental health when referring to negative coping strategies like drinking alcohol and drug use.

Neurodevelopmental disorders: According to the American Psychiatric Association (2013). Neurodevelopmental disorders are a group of conditions that are mainly manifested early in development and can be seen in children before grade school. These disorders are intellectual developmental disorders that can impair social and communication skills as well as learning difficulties. Disorders that are most common and fall in this category can be Autism (ASD) and attention deficit hyperactivity disorder (ADHD). There can be intellectual disorders as well as communication disorders that also fall within the scope of neurodevelopmental disorders. Treatment ranges from therapy, counseling, and medication. No cure has been discovered but symptoms can be reduced through the treatment methods mentioned earlier. There is a lack of information on how these disorders come into existence, but there are many theories and ideas. A common belief that is mentioned in the DSM-5 is the idea of genetics but no concrete evidence that this is valid (American Psychiatric Association, 2013).

Social Media: Social network sites (SNSs) such as Myspace, Facebook, Cyworld, and Bebo have brought millions of people together and attracted users from all walks of life. There are hundreds of media platforms that are like the one mentioned in the prior statement, and they serve a wide range of interests. The most use that is most widespread is to help strangers connect based on shared interests, for example political views, activities, religion, racial, and nationality commonalities (Boyd, 2007). These sites draw a sense of community and allow for many to feel accepted, which is a draw that is the most popular. These networks have many ways of

transferring information to the user, these communication methods can be mobile devices and any form of technology that can receive an internet connection. Many are also drawn to social media through business advertising boosting and connecting with associates as well as compiling research analysis.

Validity: According to Merriam-Webster (2005), validity has two definitions. First, is the state of being acceptable according to the law and the second is the quality of being well-grounded, sound, or correct (Merriam-Webster, 2005). Validity is a term used in research to further prove accuracy. Clinicians use this term quite often in research when they use instruments to further validity in a process or results. Research is given recognition when validity is proven and without it there can be no recognition of being sound with its data.

Summary

In summary, the problem of high-level social media use has shown to be something that has grown year after year. One of the issues that combat that transmission of information from negative research on social media is the higher transmission of positive results of social media. Most users are drawn to social media due to its business application and quick community building. High-level social media use has consequences that keep people from proper neurodevelopment and have a negative impact on productivity. The areas that are affected are biological, sociological, psychological, and spiritual. Depression, anxiety, and low self-esteem are symptoms that lower the quality of life and link directly to the addiction to social media. The following chapters will review the literature on social media and neurodevelopmental disorders and show the connection of how they link together.

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

In looking at the literature there is a great deal of new research that focuses on the effects of social media and most of what was gathered appears to focus a great deal on anxiety and depression since indications are clear that it does harm self-image and causes a great deal of mental stress. The goal in looking for research was to focus on research that would best answer the research questions that focus on memory retention and producing symptoms of ADHD, ASD, and Depressive disorder. Fields of research that are focused on these areas of study are less available and so this study would be useful in the field of research that is available today. As research was gathered some studies attempted to gather information on memory retention and ADHD, ASD, and Depressive disorder but they are limited and so information was gathered from a few sources that were well credited during the duration of the study. Out of all the research gathered here are some articles that were chosen to highlight information that would best suit the research questions selected.

In looking at the organization of the literature review it can be seen that the search methods used to find research related to the research questions that play a role in the future proposal. A summary is given for the articles selected from all the research that best simulates the study. Research methods and instruments are some of the crucial elements that are shared in the articles. The next section covers contrasting and related viewpoints that give both sides of thought on the effects of social media on neurodevelopmental disorders. In the next segment, there is a summary of common methods of research. The segment that follows covers research gaps and further understanding of counseling methods that allow for how the research can further a counseling strategy. In the conclusion summary section, there is a brief synopsis that further

communicates the necessity of the study and how my research will help fill gaps and build new information for study in this field.

Neurodevelopmental Disorders

Neurodevelopmental disorders are defined as disabilities that are associated with the neurological functioning of the brain (America's Children and the Environment, 2015). Some of the common examples today include attention-deficit/hyperactivity disorder (ADHD), autism, learning disabilities, intellectual disability, conduct disorders, depression, cerebral palsy, and impairments in vision and hearing (America's Children and the Environment, 2015). Depressive disorder is also in the realm of neurodevelopmental disorders. Individuals that have these disorders may experience challenges with language, speech, motor skills, behavior, memory, learning and many other neurological functions. In most cases these symptoms can change over time and evolve into greater challenges or sometimes even where it can lessen over time.

When attempting to diagnose neurodevelopmental disorders it can be difficult to target exactly what disorder is prominent due to the symptoms being shared amongst many other disorders. Treatment is also difficult because most treatments are experimental and have not been around for a great deal of time. Other challenges of treatment and diagnosis are due to the constant changing of symptoms as a patient develops neurologically over time. A parental survey was done in the United States with children ages 3 to 17 and 15% of the participants surveyed were affected by neurodevelopmental disorders (America's Children and the Environment, 2015). Within the realm of neurodevelopmental disorders, ADHD and learning disabilities were the most prevalent. Over the last four decades, autism and ADHD have been the most prevalent in rising numbers (America's Children and the Environment, 2015). Due to the constant change of diagnostic symptoms inserted in the DSMN-5, there are challenges, and many believe that the

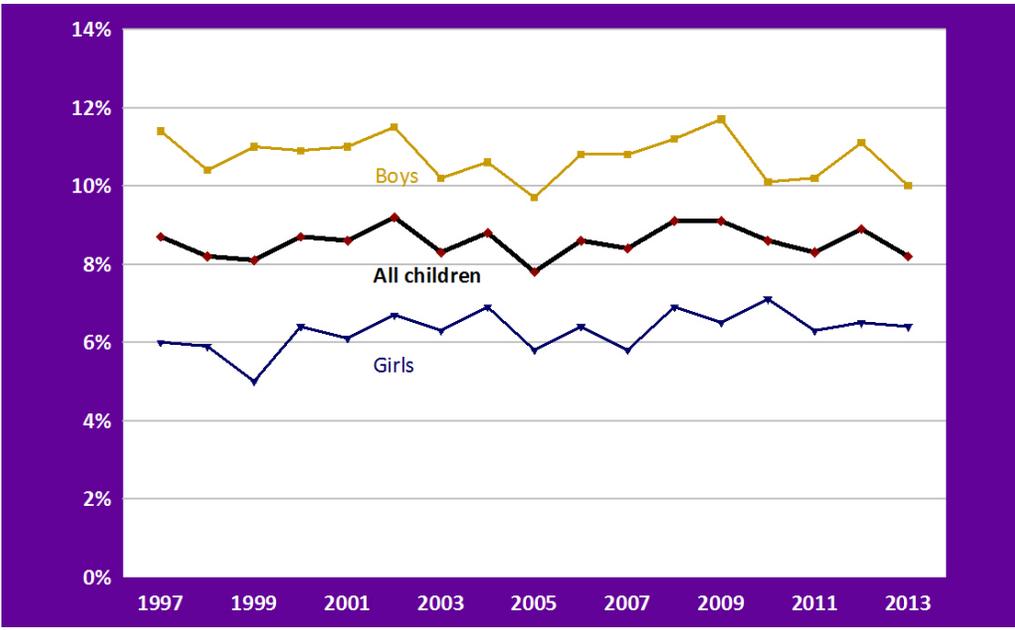
constant change is the reason for the more prevalence of autism and ADHD. Both educators and pediatricians have reported a rise in learning behavior disorders in the classroom setting (America's Children and the Environment, 2015). Genetics plays an important role in neurodevelopmental disorders where in some cases certain intellectual disabilities are connected to certain genes. However, in looking at most neurodevelopmental disorders some complex contributors make it unclear on having genetics is the primary contributor (America's Children and the Environment, 2015).

Neurodevelopmental disorders result from a combination of factors that come from genetic, psychosocial, biological, and environmental risk factors. Some of the environmental factors that play a role in producing neurodevelopmental disorders can be maternal use of tobacco, illicit drugs, and alcohol. Lower socioeconomic status can play a factor due to limited nutrition and unhealthy habits that can come with a lack of resources and healthcare. Childhood exposure to certain traumatic scenarios and physical harm can also play a factor. Parental conflict during childhood also plays a factor due to the challenges faced by the child in the early stages of neurodevelopment. When the child is born with a low birth weight it can also contribute to neurodevelopmental issues. Environmental quality plays a factor in neurodevelopmental disorders whether it is through consuming certain products that have mercury in them or breathing in air that has certain levels of lead in it. These are just a couple of examples of toxins that with high levels of consumption can lead to brain damage that can result in neurodevelopmental disorders. Neurodevelopmental disorders can be classified as learning disabilities and when looking at research on the rise of learning disabilities produced by the Centers for Disease Control and Prevention there is a consistent rise in those diagnosed amongst children. The figure below shows that when adults look at their learning disability as children,

they saw a rise in the time period 1997-2013. Figure 1 shows this rise amongst children ages 5 to 17 (see Figure 1).

Figure 1

Percentage of children ages 5 to 17 years reported having a learning disability, by sex, 1997-2013



Note: Data – Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey (America’s Childhood and the Environment, 2015).

Attention-deficit hyperactivity disorder (ADHD)

Attention-deficit hyperactivity disorder (ADHD) has been a psychiatric disorder that has been constantly evolving over the past 30 years. It has been treated with many different methods ranging from therapeutic methods to multiple medications. For an individual under the age of 17 to be clinically diagnosed with ADHD they must meet at least six symptoms from the DSM-5 that relate to either inattentive, hyperactive, or impulse behavior (Posner, 2020). The Centers for Disease and Prevention has stated that ADHD is the most common neurodevelopmental disorder

among children (Faraone, 2021). Many individuals are diagnosed as children and treated for this disorder through their adult years. One of the common symptoms that leads to diagnosis is trouble paying attention and controlling impulse behaviors where the individual decides before thinking about what they are doing. ADHD can often produce challenges in school, home, and social environments (Faraone, 2021). Other signs and symptoms are constant daydreaming, forgetfulness, fidgety, talking too much, being careless, and struggling with temptation and addiction. Other behaviors have been social struggles where an individual will find it difficult to get along with others.

In looking at ADHD there are three different categories that one can fall under. The first type is Predominantly Inattentive Presentation, which is an individual that finds it hard to organize and finish tasks. These individual struggles to listen to the details and struggle following instruction while tending to be forgetful in their daily routine. The second category is Predominantly Hyperactive-Impulse Presentation (Faraone, 2021). These individuals tend to fidget and talk a lot while struggling to stay still. A certain task like eating a meal or just doing homework can be a struggle because they tend to desire movement like physical activity. In small children there is a constant desire to run, climb, and jump. The individual feels restless while also struggling on impulse where they can constantly interrupt and grab things that keep their hands moving. A teacher might see this with a student that fails to raise their hand and just blurts out what they are thinking. This impulsive behavior makes the individual more prone to injuries and reckless behavior while also leading to addictive behaviors. The third category is an individual that produces symptoms that include both inattentive and hyperactive behaviors, which makes them a hybrid of category one and category two (Faraone, 2021).

For adults, ADHD can make it difficult to stay employed and cause isolation as well as depression. The inability to finish a task and major projects often is a trait of an individual with ADHD. ADHD produces susceptibility to addiction as well where the reward system is triggered which can include drugs, alcohol, and other addictive behaviors. As an adult, it is harder to detect and diagnose whereas for a child it would be easier to diagnose. Often obsessive-compulsive disorder (OCD) is paired with ADHD (Faraone, 2021). A person with this pairing will have a hard time with focus when things seem out of place in their environment.

According to the American Psychiatric Association (2021), no research can explain the cause of ADHD while some believe it is hereditary and while they have shown that it is plausible it still is not concrete. Contemporary research is observing digital media and the possibility of it causing ADHD and the segments below will help explain that possibility (Settanni et al., 2018). According to Settanni (2018), they have considered brain injury is a risk factor for ADHD, and this is very possible and any alteration to the brain's natural chemistry can lead to this behavior (Faraone, 2021). Exposure to environmental risks and prenatal environmental risks can also be a factor leading to ADHD. Though opinions vary on this topic, whether it is more prevalent in areas of poverty or with bad nutrition, it is still nonconclusive in its findings and leads to more reason for study and research. Evidence has not given a final understanding of this area of study as it relates to the common cause.

Autism (ASD)

Autism spectrum disorder (ASD) is a term that is used to define social communication deficits in early childhood development that shows sensory-motor behaviors that have strong genetic components but can be brought on by other causes (Lord, 2018). The DSM first inserts autism into the neuro disorder category in 1980 and was expanded upon in 1987. According to

Lord (2018), the current awareness and development over the past fifty years have been instrumental in helping those with autism where in history there use to be a more institutionalized method and now there are ways to build skills to allow those that face this disorder to live more normal lives and when reaching adulthood there are many cases where symptoms cease. Currently, those with ASD are now living more normal lives and working full-time families of their own. Those with lifelong ASD are constantly in need of support throughout their life and symptoms have a wide spectrum of severity. Due to the extreme needs in the local schools and the specialized training needed for staff this has become a large burden financially for schools. Many schools do not have the appropriate staffing for this area of need (Lord, 2018). Within ASD some subtypes exist which are Asperger's Syndrome and pervasive developmental disorder.

The DSM-5 reports that ASD is accompanied by other disorders like genetic disorders (fragile X syndrome) as well as psychiatric conditions like ADHD (Lord, 2018). When it comes to diagnosis, three main criteria must be met. These criteria are in forms of communication that can be in the past and present. These criteria are direct correlation to repetitive sensory-motor behaviors. In looking at symptoms that are prevalent with ASD there are delayed language skills, delayed movement skills, and delayed cognitive or learning skills. Other symptoms are hyperactivity with impulse control or inattentive behavior. At times, there can be epilepsy or seizures and unusual mood or emotional reactions. Unusual eating and sleeping habits can occur with gastrointestinal issues. With gastrointestinal issues, there can be constipation and a lack of nutrient absorption within the intestinal lining. Symptoms that mirror ADHD are anxiety, stress, hyperactivity, impulsive behavior, and struggles with changes.

Depressive Disorders

Depression Disorders is a topic that is not questionable and has been one of the most common neurodevelopmental disorders in mental health circles. Depression is a serious disorder that is a medical illness that negatively affects how somebody feels and how somebody views the world around them. Feelings that surround depression are sadness and a loss of interest in activities that beforehand were once enjoyed. Physical problems usually occur when somebody experiences depression due to the central nervous system's response to it. Symptoms start with feeling sad or having a depressed mood and as mentioned earlier there is a lack of desire to participate in activities that were enjoyed previously. The physical symptoms can be a loss of appetite, trouble sleeping, and increased fatigue. While fatigue stops most active behaviors, depression increases in purposeless activity which can be the inability to stay still, pacing, and handwringing. Self-worth while in depression is low a worthless feeling is commonly paired with guilt. One of the most common symptoms of severe depression is thoughts of suicide.

For every fifteen adults at least one person is diagnosed with depression on average worldwide, which is 6.7% in any given year (Kessler, 2005). One in seven individuals will experience depression at one point in their life which equates to 16.6%. Depression can happen at any time whether the individual is experiencing a negative scenario or not (Kessler, 2005). Studies show that depression is most common in the teen to mid-20s and is commonly for likely to experience it as opposed to men. One-third of all women will experience major depression at least one time in their life. One common denominator with depression is that it has a degree of heritability with 40% when an individual has a parent or sibling who has depression.

According to the DSM-5, there are depression criteria and different types within those categories. Within the DSM-5, information can be found that covers the symptoms, exclusions,

and time periods for all the subtypes. The ones that will be covered below are the most common ones and many of these subtypes fall under basic depression diagnosis. Though it is helpful to find the subtype to properly diagnose and treat. The DSM-5 reports that several depression tests are available online but there are rarely any clinical tests and so the reports state that online tests should not be fully relied upon. The method that would greatly build a proper diagnosis of Depressive disorders is to find a therapist that is trained in this area. In building a proper understanding of Depressive disorders it is important to go over the five different types of depression. These are the types listed below with the symptoms criteria listed according to the DSM-5.

Disruptive mood dysregulation disorder (DMDD)

With (DMDD) symptoms are severe recurrent temper outbursts, which can be verbal or physical to themselves, other people, or property. They will be inconsistent in severity, but they can occur, on average, three or more times a week. This behavior is usually spotted clearly by teachers, coaches, and parents. Some of the criteria that are needed for diagnosis is that this pattern of behavior consists of 12 months or more. These symptoms must be observed by at least two of the type groups, whether they are teachers, parents, or counselors.

Major depressive disorder (including major depressive episodes (MDD))

When five or more symptoms are experienced with depression over a span of two weeks and a change of the previous function is observed then diagnosis can fall into the (MDD) category. Major depressive disorder can bring feelings of sadness, emptiness, and hopelessness. A loss of interest seems to be common when encountering activities that use to be practiced. Physical attributes with (MDD) can be significant weight gain or weight loss. To be more precise the DSM-5 states that the percentage can be 5% of weight gain or loss within a month. Other

common physical problems are trouble sleeping at night and psychomotor agitation. Loss of energy or fatigue also is common with (MDD). The major depressive disorder causes loss of concentration and brings about thoughts of suicide as well. Some of the adult symptoms are that an individual struggles to keep a job or to find one. Social isolations are also common where an individual would rather be alone than in social settings. For somebody to be diagnosed with depression (major depressive disorder), they must have symptoms that last at least two weeks and show a change in the previous level of functioning. The DSM-5 states that five symptoms must be active within that two-week period to have a firm diagnosis. An important detail that cannot be left out is the possibility of medical conditions that could be the catalyst for depression like thyroid problems, a brain tumor or vitamin deficiency. Ruling out medical conditions is a crucial part of moving toward diagnosis and treatment.

Persistent depressive disorder (dysthymia)

When depression lasts two years or more then it classifies as persistent depressive disorder. This must be observed by others to be diagnosed and follows the same symptoms as major depressive disorder. Persistent depressive disorder cannot be attributed to drug abuse, medication, or other physical ailments.

Premenstrual dysphoric disorder

Premenstrual dysphoric disorder falls into a category that is entirely woman due to the menstrual cycle being a crucial element of diagnosis. When five or more symptoms of depression are present in the final week before the onset of menses and then start to improve within a few days after the onset of menses. Symptoms would then be minimal or absent a week post menses. Mood swings are very common, and irritability and sensitivity also follow. Usually,

this is common when girls are first experiencing their menstrual cycle. Physical symptoms can be breast tenderness, swelling joints, muscle pain, and bloating or weight gain.

Substance medication-induced depressive disorder:

Substance medication-induced depressive disorder is related to medication or substance abuse and symptoms occur most often with detox or in the beginning phases of medical treatment. Withdrawal from substance abuse or medication can bring about the symptoms that are common with depression. This explains why mental health medications include information that talks about experiencing depressive symptoms while on the medication. For this diagnosis the clinician must be able to link the symptoms with substance abuse or medication. Symptoms must be evident for a time of at least a month to fully diagnose.

Rise of Depressive disorder and Neurodevelopmental Disorders

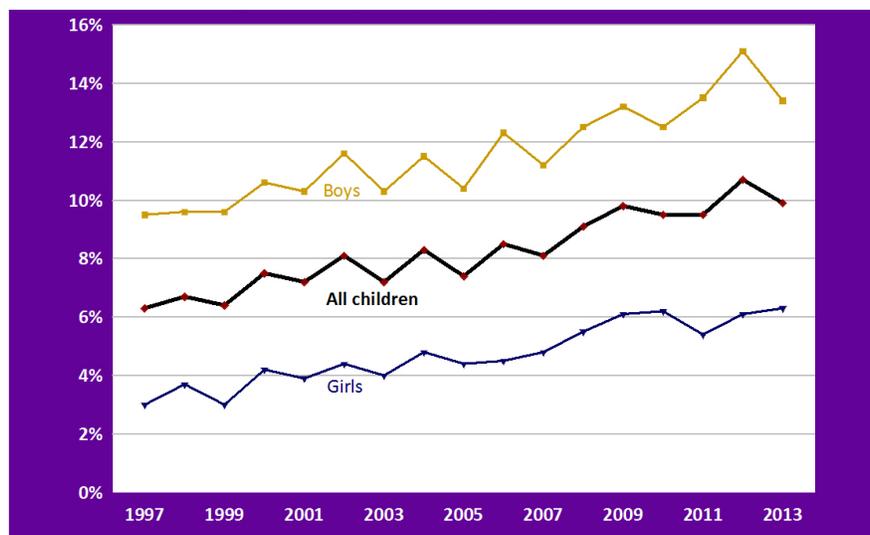
ADHD

The CDC produced research that reports American adolescents ADHD diagnosis has grown 6.1% from 1997-1998 and 10.2% from 2015-2016. These results are dramatic and show that this neuro-developmental disorder is becoming common place. Studies show that one out of ten kids are affected by this disorder. In looking at the CDC report it showed that in 2016 6.1 million children between the ages of 2 and 17 were diagnosed with ADHD. The National Health agency reported a 42% jump in ADHD diagnosis from 2003 to 2011 and so this continues to show that something is growing in this diagnosis and could be due to social media influence. Though most researchers claim they do not know the cause and yet they feel that genetics have something to do with it. Genetics has been a probable thought since studies have found that 75% of those diagnosed with ADHD have a close relative with the same disorder. Other factors that have been considered range from a chemical imbalance and head injuries as well as habits during

pregnancy that affect a child's development, which could be smoking, alcohol, and drug use. The CDC has looked at the environment and felt that the environment could be a very conducive factor. The availability and excessive time use of digital media has been a very recent prevailing thought to contribute to ADHD and this seems to have a great deal of data in support of it. Adam Levanthal, who is a Ph.D. at the University of Southern California and heads the Preventive Medicine and Psychology department points to the age of adolescents being a time when the brains circuitry is building impulse control as well as building a focus that can be maintained while also sustaining attention (Levanthal, 2017). Levanthal (2017) stated that research continues to support that excessive exposure to highly stimulating digital media could alter brain development. The chart below helps to show adults that record certain behaviors in their early development years as children. Since symptoms can be more apparent in children it is useful to see the chart numbers in earlier stages of life. In looking at Figure 2 produced by the Centers for Disease and Control and Prevention there is a difference between boys and girls in the percentage of kids with ADHD (see Figure 2).

Figure 2

Percentage of children ages 5 to 17 years reported to have attention-deficit/hyperactivity disorder, by sex, 1997-2013



Note: Data – Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey (America’s Childhood and the Environment, 2015).

Autism

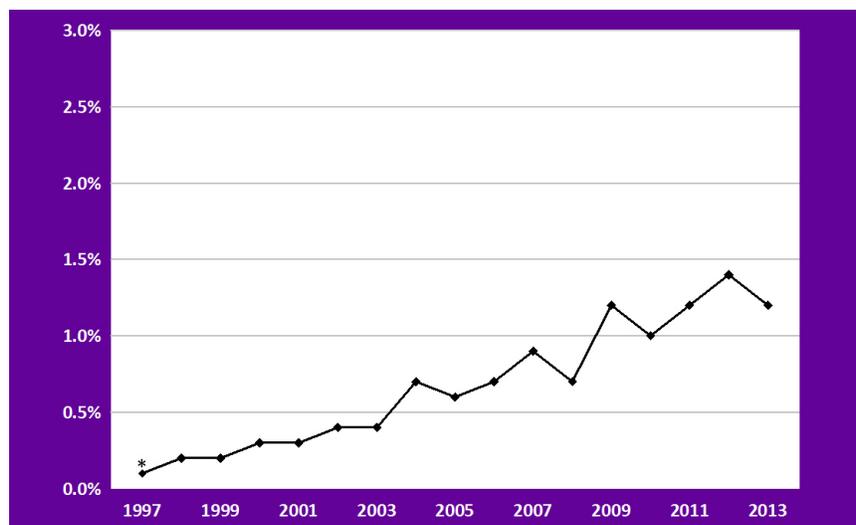
Jessica Wright wrote an article in the Spectrum forum about the rise of autism in America and she came up with findings that showed an increase from 2000 to 2017 (Wright, 2017). At first, this sparked fear of an autism epidemic with numbers showing that 1 in 68 children in America has autism, which was a large increase from her beginning numbers. This broke down with 1 out of 42 boys having autism and 1 in 189 girls. These numbers were produced by the Centers for Disease and Prevention (CDC). The CDC also reported that the highest grouping of students with an autism diagnosis were white children although the African American and Hispanic populace have had less access to health services that give proper screening. The CDC arrived at these numbers by collecting school records of 8-year-old children.

Every two years there are trained clinicians that give records of autism findings amongst children and so the information is constantly being recorded to better research findings and predictions in the future (Wright, 2017). The research is concrete because this data ranges from 11 different states. Diagnosis for autism can be determined by children at the age of 2 but most research gathers their numbers from children that have been diagnosed and show symptoms for at least five years. The CDC records an overall rise of 30 percent in 2008, which was double the rate from the year 2000. Maureen Durkin who heads the network site in Wisconsin states that there has been a steep incline since the 1990s (Wright, 2017).

The accuracy of these studies is decent, but the missing information is the students that are homeschooled or live outside of the region of study. Durkin states that changes in criteria and changes in diagnosis contribute to a large part of the rise of autism but she speculates that biological factors could also be a reason with findings that have shown a rise of autism in children with older parents. Durkin's also saw that children born prematurely have an increase in symptoms as well (Wright, 2017). The chart below is helpful with adults viewing their own symptoms in earlier stages of life as children when the symptoms are much easier to diagnose, and it is the most common time of diagnoses with autism. In looking at figure 3 produced by the Centers for Disease Control and Prevention there is a significant rise in autism from 1997 to 2013 amongst kids ages 5 to 17 (see Figure 3).

Figure 3

Percentage of children ages 5 to 17 years reported to have autism, by sex, 1997-2013



Note: Data – Centers for Disease Control and Prevention, National Center for Health Statistics, National Health Interview Survey (America’s Childhood and the Environment, 2015).

Depressive Disorder

Dr. Wilson M. Compton and associates from the National Institute of Health showed that Depressive disorder without substance use rose from 3.33% in 1991-1992 to 7.06% in 2001-2002. These results findings were published from a survey in December 2006 in The American Journal of Psychiatry (Kessler, 2005). Within the study the statistics of Depressive disorder with current substance abuse had also increased from 9.97% in 1991-1992 to 15.06% in 2001-2002. Dr. Wilson M. Compton reported that the rise of Depressive disorders could be strongly attributed to environmental differences and the shifting of cultural issues. His concern was that if the numbers continue to rise at this kind of speed, then profound economic and healthcare issues will arise due to the lack of resources. The Hope for Depression Research Foundation reported in a study that depression in the United States is so common that one out of ten adults are diagnosed

with depression and consists of 18 million adults in 2022. This study also reported that depression is the highest cause of disability for ages 15-44. Depressive disorder is also the primary reason why somebody dies of suicide about every 12 minutes. These national statistics show that suicide from Depression disorder kills 41,000 people a year while homicide claims less than 16,000 lives a year, according to the 2013 CDC statistics (CDC, 2013).

Social Media

According to Boyd (2007), social media through channels of sharing information amongst social groups and would be considered print magazines, newspapers, television, and radio broadcast. The design of social media is to bring people together and to have common sharing and mass communication outlets (Boyd, 2007). In its most current edition, it can be seen now as an online communication forum where people can communicate with other people through certain online channels like Facebook, YouTube, Instagram, and Twitter. These are just a few samples. Most of these forums allow for public and private messaging. This has also integrated itself into the gaming world where people can play video games and communicate with people from all areas of the world. This industry has been used to build relationships and promote business. Some of the business forums have been through blogs and podcasts where people can promote certain targeted groups of individuals that might be more difficult to pull in through brick-and-mortar storefronts. Boyd (2007) reported positive remarks in this industry but with the positive, they report negative effects.

Social Media and ADHD

Settanni et al. (2018) conducted a study on the interplay between ADHD symptoms and time perspective in addictive social media use. This study would focus on adolescent Facebook users. Some of the main highlights of this research study would focus its attention on symptoms

linked between ADHD and Facebook addiction. The article talked about the addictive behavior of Facebook and how constant use brings about symptoms of obsessive use and intense focus while losing motivation in other areas, which was a mirrored symptom of ADHD (Settanni,2018). The methods used in this research focused on links or similarities using regression analysis controlling for participants and self-reported time that would be spent on Facebook as a focal social media outlet. This study was done in Northern Italy and was done by consent from the student and the parent through questionnaires. Information was gathered to show hours spent on Facebook, which was done through a 5-point Likert scale. The Strength and Difficulties Questionnaires (SDQ) were used. The overall conclusion of the research indicates that extended Facebook use produces a high level of addiction and finds a strong link to ADHD symptoms (Settanni,2018).

Social Media and ASD

Social media has its place in contributing to positive areas in research for ASD, but it also has areas of concern. Symptoms that would be considered when diagnosing somebody for ASD also can be symptoms of high levels of social media use. For example, those with ASD might have struggled to make eye contact and avoiding people whereas those that have an addiction to social media also have similar issues with eye contact and avoidance. Those with ASD are very vulnerable to the overuse of social media because of their lack of connection in the physical world and their inner desire for relationships and understanding.

Social Media and Depressive Disorder

Depressive disorder can be a feeling of inadequacy, and this can be built upon a negative viewpoint of self, due to poor self-image. Social media aims to keep its users on as long as possible and there are two categories of comparison that a user finds themselves in while

scrolling through. These two categories can have negative effects that lead to Depressive disorder. The first category is upward focused, where the user finds that the people, he or she observes are better than him or her. The upward focus would tend to cause hopelessness and poor self-image. The second category is more lateral where somebody believes in themselves as an equal (Gerber, Wheeler, & Suls, 2018). When understanding comparisons on social media, there seems to be a higher population of those that have an upward focus and tend to be drawn to comparison to those that are ideal for who the user wants to be. This draws an understanding that social media users are mostly in the belief that others are happier than they are and living a better life (Chou & Edge, 2012). Upward focus on social media is linked to negative psychological outcomes such as low self-esteem and depression (Andreasson et al., 2017; Feinstein et al., 2013; Yoon et al., 2019).

Behavior Related to Social-Media

It was in the 1990s that clinicians and scholars began claiming that an excessive amount of internet activity was showing signs of addiction (Griffiths, 1998). Over the years it can easily be said that social media has grown into a huge part of everyday life. Every year the number of users skyrockets in a way that shows a high trend of users that range from small children to all ages above. From the outside looking in it would not take many scholarly resources to conclude that it has an addictive following. Whether you are on the subway or you are walking across the public school or just strolling through the park you will see people on their phones and you might think they are just texting or just checking the daily news, but research shows that social media is the common most used application to the cell phone while YouTube is close behind. This addiction is acceptable behavior since it is public behavior and is encouraged by business applications and social behavior studies and trends (Hill, 2019; 2020). So, with social media

being labeled an addiction the question is does it truly operate in our brain with the same neurosensory communication that addiction to drugs or other harmful products? The short answer is yes, and research continue to back this up. So, if this is true then what are the harmful side effects of social media as it relates to the brain? What are the harmful ways that it effects mood and self-image? What are the ways it damages relationships? And lastly, what does it do to our physical bodies as well? These are all great questions and through research that can discover the answers to this problem. In looking at this section it will be broader because it covers a more comprehensive body of research on a holistic effect on a person.

Effects of Social Media

Mental Health

A study was done on early adolescent students in Sweden that spanned two years of research and it was designed to analyze mental health issues among students that spent a great deal of time on social media. This study aimed to assess the longitudinal associations between the frequencies of social media activity as it related to symptoms of mental ill-health (Beeres, 2021). Based on research findings there were higher reports of symptoms of mental health when paired with higher use of social media use (Beeres, 2021). The symptoms that seem to be most common amongst those with high social media use are anxiety, addiction, depression, and low self-esteem as well as feelings of loneliness. Another survey was done within the U.S. that involved young adults and it compared users that used 0-2 social media platforms to those that used 7-11 social media platforms and they found that those that were in the 7-11 category had higher levels of Depressive disorder and anxiety symptoms. They also found that increased levels of loneliness were attributed to those users due to the common fear of missing out. Parents of the individuals that were surveyed mentioned an increase in hyperactivity/impulsivity,

anxiety, and depression (Hill, 2019; 2020). When looking at this research it would also conclude the following that high-level media use could also contribute higher success rate of self-harm and suicide. How social media plays a role in self-harm is that the content normalizes the behavior.

Physical Health

Physical health is truly altered negatively way with social media and the effects are shown with larger numbers of obesity and poor immunity that can cause sickness and prolonged physical bodily harm. Over the past two years, social media use has grown exponentially in a way where users are spending more time than ever before trafficking the internet. This trend shows a reduction in physical activity and exercise while also producing poor eating habits. Since the reward system is activated during social media use there is more desire for other habits that trigger this same area and unhealthy foods are also in this category. Nutritionists have been attributing poor eating behavior and patterns to long screen time activity and they commented on this being one of the areas of physical health that must be dealt with to build a healthier eating regimen.

When looking at basic immune system requirements there are ways people build immunity to sickness and disease and this requires exercise and proper nutrition while also achieving proper rest. In the section below there will be research talking about sleep and how its effected by social media, but sleep is compromised by high levels of social media and with the body needing certain amounts of hours to have proper immunity there are disruptions there that are causing weakened immunity. While exercise is reported less by those that spend obsessive amounts of time on social media there can be a certainty that this is also weakening the immune system. As mentioned earlier the lack of nutrition that is prevalent amongst obsessive users also contributes to poor immunity. According to Beeres (2021), depression is a proven symptom that

is brought on and increased by high levels of social media use and depression is a trigger of poor immunity and is a large producer of unhealthy physical behavior and is damaging to the physical body.

Sleep Disturbance

According to Levenson (2017), social media use has negative effects on sleep disturbance. Levenson talked about how the emission of bright screen lightning there is a disruption to circadian rhythm, and this changes sleep cycles because it gives a false assumption that it is daytime. Throughout the article, Levenson talks about how the brain also must be highly engaged to process the digital media that is being seen and so instead of the brain slowing down, which is an essential part of sleep there is an increase in activity that slows the brain from moving to REM sleep. REM sleep is where true sleep exists. Levenson produced information saying that most individuals traffic social media within two hours of sleep time and so this shows that sleep disturbance is very active amongst social media users. Parallel research produced by Crone showed that social media produces side effects of anxiety there is an increased heart rate, which would also slow down the ability of an individual to reach REM sleep (Crone, 2018). In looking at how this research connects to ADHD, there are similar symptoms that parallel each other. Sleep disturbance brings about symptoms of depression and struggles with attention while these symptoms are also prevalent in individuals that are diagnosed with ADHD. Those that already have been diagnosed with ADHD will have symptoms increased by sleep disturbance and will find that their ability to manage symptoms will be more difficult (Hill, 2019;2020).

Brain

Adults and children showed enhanced pupil dilation while spending time on social media, which is a response that shows greater cognitive load and emotional intensity to rejection and

adverse correction (Crone, 2018). What this tells us is that high levels of screen time on social media bring such an overload of cognitive load that it leads to irritable behavior where a child will be more sensitive as well as frustrated with correction. This can lead to observable symptoms of anger and aggression due to a fatigued brain. In correlation to acceptance and rejection we see that when rejection happens, they feel a strong dissatisfaction due to low tolerance levels (Crone, 2018).

Neuropsychological research shows that acceptance through social media in the way of hashtags, likes, and friendship acceptance evokes and activates a similar part of the brain that correlates with rewards such as money or pleasant taste (Crone, 2018). This research is drawn from the pronounced activity in the ventral striatum combined with the ventromedial prefrontal cortex and the ventral tegmental area (Crone, 2018). These regions of the brain are considered the reward area of the brain as well as pleasure. The reward center of the brain can also be the same location for a social reward that is found through the connection on social media. Since the social reward is crucial for youth and children there is a correlation with parental relationships and so when a strong attachment of love and acceptance is not found between the child and parent then this leads to a stronger desire to find it via social media and enhances the addiction to social media (Crone, 2018).

Martini (2020) did a study that was done on social media use and focused its attention on youth and was done in Iceland. This study was one of the best forms of research that best illustrated the research questions that is intended to be used in this study. A study was done where they tested how wakeful they were after learning and this allowed them to the test retention of participants that they studied who were frequent in their use of social media (Martini, 2020). Martini would test how brains rested after social media as well as basic learning

exercises. In this study they saw that sensory and cognitive functioning was affected by social media in a way where it lowered the rest rate of the brain and caused mental fatigue earlier, which would play a factor in retention but also in showing symptomatic behavior like ADHD due to lack of retention and lack of focus. This content would deem useful in this study that surrounds the research questions that were selected.

Mood and Self-Image

When looking at self-esteem it has been defined as a positive or negative self-evaluation of self or a degree of somebody building self-worth (Leary & Baumeister, 2000). With research pointing to anxiety and depression being consistent symptoms of a high level of social media usage it is also relevant to see that low self-esteem is also a byproduct. Many things can bring about low self-esteem, but poor self-image is a huge contributor to low self-esteem, and this can be brought on through the constant observance of body types and levels of success achieved by others. Research has shown that individuals with low self-esteem have less interaction with others and find it more difficult to have developed in more intimate as well as supportive relationships (Fatima et al., 2017).

Those with lower self-esteem will tend to look for extrinsic social approval, which is what leads to social media usage and so social media becomes a huge obsession in attempts to find relationships and build self-image. Sadly, social media builds a self-image that focuses on what culturally is considered the right image to achieve and it is often unrealistic to reality and gives false expectations that can never be achieved and leads a user to always fail to reach total approval and total acceptance of self. Low self-esteem will often lead to social anxiety and cause isolation and prone to blaming others and obtaining a victim mentality where other people are the problem. This leads to failure in taking responsibility and avoidance of people which leads to

social detachment (Shaohai, 2020). A study that took place to evaluate different social media platforms and their effects on self-esteem showed that Instagram use increased social comparison and led to lower self-esteem and achieved a greater level of social anxiety (Shaohai, 2020).

Constant social comparison to a countless level of individuals that only post their successes and not their failures lead a person to reflect on failure and the inability to achieve what seems to be a success.

Positive Social Media Use

Social media is not all bad and even though most research listed is about overuse some benefits can be found through moderate use of social media. When it comes to ADHD, ASD, and Depressive disorder there are benefits because many who struggle with ADHD, ASD, and Depressive disorder also struggle to build relationships and have social challenges. Social media builds community and allows more social interaction and this can lead to more growth in building relationships (Mohd, 2015). Community amongst those with neuro-developmental disorders can lead to building resilience and finding strength as a group (Mohd, 2015). Though most that encounter social media struggle with moderate use there are still those that can keep it within boundaries. According to Mohd (2015), a study concluded that those with ASD have moderate use of Facebook, and the outcome showed that most of the message activity was emotional support and related problems that they were encountering. This study builds a relationship through group forums that allow for sharing challenges and ways to work through those challenges.

Social media also has a positive ability to be used in creating more research findings that can better build accurate statistics for medical and treatment help. Most research findings today have to do with polls done through social media due to the high traffic of people and a fast

turnaround time on large sample groups within a certain populace. Therapists have relied heavily on social media groups to observe current challenges among those with neurodevelopmental disorders (Mohd, 2015). Parents also benefit from social media in this same way because they can also play a role in helping connect their children to groups that show emotional support and allow for further learning of how to combat the symptoms that have separated them from much of the public. Ruth Marlow wrote in her research that Facebook is the fourth highest searched platform for health and treatment and medical information (Marlow, 2017). With social media being cost-effective and allowing for geographical social grouping there is a level of connectedness that can bring about positive reinforcement and build stronger lives (Marlow, 2017). Marlow (2017) stated that with Facebook there is a way to reach those that have been in isolation, and it can bring about a positive pull to get those in isolation out of it and into a world that makes more sense to those struggling with neurodevelopmental disorders.

Social Media's Effect on Spiritual health

The Christian life is a constant development that requires spiritual formation to build and a constant daily inventory. Spiritual formation is building a stronger relationship with Christ through prayer and scriptural study. Jeremiah 17:9-10 states that the heart is deceitfully wicked and when the word is translated from Hebrew to Greek it translates to "mind" (King James Bible, 1769/2008, Jeremiah 17:9-10). The mind is referring to thoughts and what is stored in memory as well as the natural behavior of the flesh. In the Bible, the flesh is often referred to as sinful behavior. The Christian life is made up of five key tenants that build spiritual formation but are also areas that can be compromised and break down spiritual development. Social media influences these areas and listed below are the ways that social media can negatively affect these areas. Though there are many negative effects on spiritual formation it is also important to note

that social media can also be a positive reinforcement when properly channeled. Positive social media influence will also be mentioned below in the listed items.

Prayer Life

Prayer life is one of the main disciplines that play a factor in spiritual development. 1 Thessalonians 5:16-18 mentioned the importance of praying without ceasing and this is a command that God gives all believers due to the importance of communication in a relationship with Christ (King James Bible, 1769/2008, Thessalonians 5:16-18). Prayer is simply placing dependence on God and taking your request to him in dialogue. Prayer is communicating information that comes from the heart so it is safe to say that what is in the heart will determine the kind of prayer life that is developed. The biblical term for heart often refers to the mind and when the mind is compromised it is a direct result of the heart condition. The heart is determined by sinful desires and the spiritual discipline of imputing spiritual information from scripture and life choices that are a by-product of a heart-centered on Christ.

Social media is not considered a place where scripture is highly trafficked. Since social media is catered to a mainly lost audience and is used to promote cultural trends and thoughts it is often negative information that is being received. Scripture points out in 2 Corinthians 6:14, that the Christian life is a life that is to reflect the light of Christ and what fellowship does light have with darkness (King James Bible, 1769/2008, 2 Corinthians 6:14). Darkness is referred to as outside the presence of God or the acceptance of the evil practice. The word is consumed with evil practice because Satan is the prince of the world, and he has dominion and authority within the realm of society, and this is seen through the rise of sinful behavior is acceptable and even being accepted amongst those calling themselves Christians. When somebody spends time on

social media, they are constantly viewing information that is normalizing sinful behavior and a lifestyle that goes contrary to scripture.

When enough time is spent on social media there can be no question that sinful behavior will take root in the life of the viewer due to the increase of temptation that is available. This contributes to a heart that is jaded and fooled by the great deceiver. When sin takes root, it inhibits prayer and takes away the dependency on God and places dependency on the things of this world. When sin takes root in the heart it breaks the communication line with God. Isaiah 59:1-2 talked about how sin breaks unity with God and is a breach of trust (King James Bible, 1769/2008, Isaiah 59:1-2). In the Garden of Eden, it was sin that breached a separation from God and his communication with man and so this same problem plays out throughout history. Social media also robs a person of their time, and it is difficult to have time for prayer when social media addiction plays a role in somebody's life.

Scripture Reading

As mentioned with prayer the heart condition determines the quality of prayer but also affects the quality and understanding of scripture reading. When somebody questions scripture it is rarely due to a lack of evidence but mainly a lack of trust. When somebody doubts God's promises it is a heart condition that has been developed by fleshly and worldly thoughts. These thoughts are developed by what is imputed in by daily viewing and reading of information. Scripture reading is how God communicates to his people through the Holy Spirit's delivery system that can be halted when the Spirit is quenched or cutoff by sin that is left unaddressed. Matthew 6:24 stated that it is impossible to serve two masters and that devotion to one master will place the individual in contrast to the other (King James Bible, 1769/2008, Matthew 6:24).

When Satan is allowed mastery over one's life by sinful behavior there is an open line that the person has given to Satan to play the commentator to scriptural reading. What this means is that when scripture is read by a person that has given Satan a foothold it causes scripture to get jaded. In the book of Genesis this plays out when Satan uses his most common tactic and that is to cause people to doubt the words of God. Social media shows a platform where individuals are constantly fueled by sin being accepted and promoted. In the book of Isaiah, the prophet states, "woe to the person who calls sin good". This warning is given to those that were accepting of a cultural belief that sin was acceptable and the same warning could be given to those today. Social media is censored and controlled by those that appeal to the desires of man and not the desires of God. When reading scripture, it is important to have a clean heart and have known sinned dealt with to hear from the Lord. Social media is a platform where Satan can communicate his ideals and desires for man, and this leads to destruction and is a direct threat to understanding His word.

The Mind

The mind is controlled by the heart when mentioned in scripture. When understanding the heart, it is important to note that the heart of a man is what God desires most and if it is his most prized possession then it can be understood that Satan prizes it as well. God's desire is to possess and protect the heart of those that call upon his name and so Satan's goal is to do the same. The strategy of both God and Satan are similar in the way of building a line of communication where their voice reigns supreme in authority and directing. The choice is up to the man on what voice will be supreme, but the choice is made up by what they spend their time focusing on. Social media has already proven itself as an addictive platform that is designed to create a community that is constantly trafficked by the user. Social media is controlled by man and can be a gateway

for Satan to connect with people. Satan does this by changing the viewpoint of what is important and promoting fear and worry so there is a lack of trust in God, which creates doubt. If Satan can cause doubt in the mind, then he can turn somebody away from following the will of God. Social media promotes a fear that can build anxiety and as mentioned earlier this is a constant that only develops with higher amounts of screen time. Social media promotes a mindset of the constant disappointment in self, due to the image that pushes man to conform to (Lewis, 2018). Social media will break down self-image and build disappointment with God while promoting a mindset that is open to sinful thoughts that will create sinful actions.

Life Choices

When Satan controls the mind then it leads to sinful choices. As mentioned earlier social media builds a way of thinking that promotes sinful thoughts by creating doubts about the truths and promises of God. When doubt occurs then choices are made that place trust in worldly pleasures as a means of satisfaction. Proverbs chapter one talks about the ways of the world being vanity and vanity can be defined as an empty pursuit. Satan's goals with the life of any person are to pursue the things of man and not the ways of God and this is a life of wrong choices. Social media also creates a platform for a bullying mentality to all that have a Christian worldview (Lewis, 2018). When individuals post the truth of God's word on any social media platform they are then attacked and demonized in a way where it causes others that may share the same view to go silent. This plays out in a society where Christians fail to act out their faith due to the fear of attack that they might receive from their peers. This mindset has only grown from social media shaming that occurs amongst the Christian community.

Worldview

A worldview is defined as the lens through which somebody views the world. Somebodies' worldview affects all life choices and values that are pursued. Social media plays a role in promoting a worldview that must be accepted by all. Satan speaks the loudest on the platform of social media and when he demonizes the promises of God it is because he has a strategy that he hopes people will follow and that strategy is lawlessness. Satan attacks the laws of God and promotes freedom to do what is right in their own eyes and when played out this leads to destruction and bondage. Social media promotes a worldview of self-centered pursuits. People are drawn to pleasure and social media consists of pictures of pleasurable acts and a lifestyle that seems to be exciting and exhilarating and yet it is in direct opposition to Christ. According to Lewis (2018), when Christians get self-absorbed in social media, they trade the truth for a lie and run towards a false sense of security. When a person uses social media as a platform for truth then it affects how they see themselves, politics, God, morality, success, and pleasure.

Social Media's Positive Effect on Spiritual Development

The positive effects of social media on spiritual development are minimal in the fact that they are not driven out by the content received from social media but mainly by the community. Community amongst believers can be an encouragement in the Christian walk and the ability to mass communicate information can be positive when its Christ-centered information. The reason that the negatives outweigh the positives is that the information transmitted is majority worldly and the community that is mostly promoted is not amongst believers (Lewis, 2018). When social media is used with the direct goal of building spiritual community it can be a positive conductor

of spiritual development where it builds unity amongst believers. Sadly, this is also a place where people can get fooled and deceived among those claiming to be Christians.

Contrasting Viewpoints of Literature

Although these are just a couple of articles of research there is much more gathered and much of it is more centered on dealing with symptoms of depression, anxiety, and loneliness. According to Boyd, (2007), most research that centers on the effects of social media on neurodevelopment said that they found that social media might be an indicator of neurodevelopmental disorders but not so much a risk factor. Sadly, Beeres (2021) would disagree with this research but the selected articles that were the greatest places for resources were the ones that indicated social media as a trigger for addiction.

Summary

Part of the last segment helped in building a case as to why this study is crucial and needed for further research and it best explains the need for further development. The study that is being proposed will help build a link between symptoms of social media addiction and neurodevelopmental disorders. The common links will show where confusion can be found and where mistakes have been found. The idea would be that through all this research there would be enough data to show the need for updating certain criteria for these disorders and even to build a new disorder altogether that might be a better focus point on an issue of overuse in social media. Social media leads to addiction and deals with the same neuro connections that lead to obsessive behaviors as well as achieving dopamine spikes that result in repetitive behaviors. With the spikes that come there are always the dips and with the dips come low self-esteem and depression, which most of the current research points to. This study also covers the way social media affects spiritual formation and the process by which spiritual decay takes place. What

makes this proposal more pioneered in this field is that it relates to the areas that are not so clear and hopefully with further research this can be more understood to help those that fall into this category of addiction.

CHAPTER THREE: METHODS

Overview

This chapter will focus on the methods used in obtaining valid data that will play a role in producing accurate research in answering the research questions. Chapter three will comprise of presenting the design of the study and present the research questions as well as the hypothesis. Participants and setting will be presented for the research gathering and how selection will take place and what platform will be used. The use of instruments and the validity of those instruments will be discussed as the main predictor variable. Procedures and data analysis will be covered in this chapter as well, which will direct the process for gathering results from the information collected.

Design

This is a quantitative study, which uses multiple regression analysis. In looking at the variables within this method the criterion variables are Depressive Disorder, ADHD, and Autism Spectrum. The predictor variable is: (Social Media Addiction) and so the research design will be to find out how those with high levels of the criterion variable affect the predictor variable. This shows the criterion variable as the dependent variable and the predictor variable as the independent variable. The use of multiple regression best fits the design for this kind of research because it will focus on how social media as the predictor criterion is affected by different criterion variables, such as the example of ADHD. This method will examine the strength of the relationship between variables and show how addictive social media use connects with neurodevelopmental disorders.

Research Question(s)

RQ1: To what extent do social media addiction scores predict Depressive Disorder scores in adults in the United States?

RQ2: To what extent do social media addiction scores predict attention deficit hyperactivity disorder (ADHD) rating scores in adults in the United States?

RQ3: To what extent do social media addiction scores predict Autism Spectrum scores in adults in the United States?

Hypotheses

The alternate hypotheses for this study are:

H10: Social media addiction will not significantly predict Depressive Disorder scores in adults in the United States.

H1a: Social media addiction will significantly Depressive Disorder scores in adults in the United States.

H20: Social media addiction will not significantly predict attention deficit hyperactivity disorder (ADHD) scores in adults in the United States.

H2a: Social media addiction will significantly predict attention deficit hyperactivity disorder (ADHD) scores in adults in the United States.

H30: Social media addiction will not significantly predict Autism Spectrum scores in adults in the United States.

H3a: Social media addiction will significantly predict Autism Spectrum scores in adults in the United States.

Participants and Setting

The participants were recruited using email and text that included a link to participate in the study. Once the link is opened, an introductory letter is provided before participating in the survey that included an explanation of procedures and the voluntary nature of the study. Only one sample was obtained, consisting of (#) participants. The inclusion and exclusion criteria

were (a) males or females, (b) who are residents of the United States, and (c) 18 years or older. The study will be cross-gender in population and so it will not be specific on the ratio of men to women. Purposeful Sampling will be the preferred method of sampling because the research will best be shown through participants that have characteristics helpful to the study. In using this form of sampling, the goal will be to pursue participants through social media networks that share the characteristics of the disorders in this study. Participants will be pulled from local counseling centers. Snowball Sampling will also be used by selecting people that can help recruit others for the study. Once the research is gathered it will then be placed in SPSS and converted over to an excel spreadsheet with results. This information will then be updated to reflect research results.

Instrumentation

Demographic Questionnaire. The Demographic Questionnaire questions that are used in this study include age, gender, resident location, and what neurodevelopmental disorder they identify with as well as the amount of social media use, they participate in daily.

The Bergen Social Media Addiction Scale (BSMAS)

The BSMAS is adapted from the Bergen Facebook Addiction Scale (Andreassen et al., 2012) and is made up of six items that are rated on a 5-point Likert scale ranging from 1 (very rarely) to 5 (very often). In looking at the six different items that are the core focus that play a role in addiction verification they are salience, mood modification, tolerance, withdrawal, conflict, and relapse. When an individual score is higher on the test it shows a higher level of addiction to social media. As scores exceed a rise above 19 then there is a risk of developing problematic behavior. The creation of the (BSMAS) was done by Andreassen and colleagues. This scale is considered a questionnaire and as mentioned earlier it follows the 5-point Likert

scale. In Psychometric testing this instrument received internal consistency that is reliable and valid with a Cronbach's alpha at 0.86. This instrument is designed to show the levels of addiction that an individual has to social media.

Depression Anxiety Stress Scale (DASS-21)

The DASS-21 is made up of 21 items and plays a role in assessing psychiatric symptoms (depression, anxiety, and stress). With all three symptoms this instrument has seven items for each and the scale for each item is rated with a 4-point Likert scale ranging from 0 = (did not apply to me at all) to 3 = (applied to me very much or most of the time). The DASS-21 was developed by P.F. Lovibond and S.H. Lovibond in 1995 (Asghari & Saed, 2008). As mentioned earlier this is a scale that consists of a questionnaire and works with a 4-point Likert scale. In Psychometric testing this instrument has an acceptable internal consistency with a Cronbach's alpha: Depression, 0.84; Anxiety, 0.86; and Stress, 0.86. These numbers given with this instrument give it strong validity in conducting research for strong diagnosis of depression, stress, and anxiety (Asghari & Saed, 2008).

Adult ADHD Self-Report Scale Symptom Checklist Version 1.1 (Adult ASRS)

The (Adult ASRS) is a tool that is used for screening ADHD in adult patients and is consistent with the DSM-IV criteria for addressing symptoms of ADHD. The value and design that comes with the (Adult ASRS) instrument are that it builds correct diagnosis with great validity. This instrument is brief, with a five-minute completion time, and provides information that supplements the diagnostic process. The aim of this instrument is an adult age of (18+) and it uses 18 items. This instrument is broken into two categories with the first category being Part A, which consists of 6 items. Part A focuses its attention on the predictive symptoms of ADHD. Part B contains 12 items and focuses its attention on additional cues that can probe additional

symptoms of ADHD. When a client is considered consistent for ADHD, they must obtain 4 or more of the severity levels with Part A of the ASRS. The scoring process for Part A consists of items 1-6 and the range of score within each of the six questions is 0-6. Part B continues the questionnaire with items 7-18 and each question has a scoring range from 0-12. For final scores there is a percentile that is made up of the totals to show the diagnosis of ADHD. The Adult ASRS was developed by two organizations consisting of the World Health Organization (WHO), and the Workgroup on Adult ADHD which consist of physicians Lenard Adler, Ronald C. Kessler, and Thomas Spencer (Adler et., 2006). These physicians all hold doctorate-level degrees within the healthcare industry. This type of scale falls into the questionnaire category and the psychometric properties are high internal consistency with a Cronbach's alpha= 0.88 and concurrent validity $r=.084$ (Adler et., 2006).

Autism Spectrum Quotient (AQ)

The Autism Spectrum Quotient (AQ) was designed to be a short method that would be easy to use and easy to score to be more available to a broad spectrum of users. This instrument is made up of ten questions that assess five different areas, consisting of social skills, attention switching, attention to detail, communication, and imagination (Baron-Cohen, 2001). Each item listed above has a score of 1 point and these points show that if they achieve a higher number score of these items then the results can show abnormal or autistic behavior, whether it is mild or strong. This instrument was designed for adults and in its beginning, it was piloted with patients having to physically come into a lab for interviewing. In looking at all the questions asked, four answers can be given. Those answers are agreed, slightly agree, slightly disagree, and disagree. This instrument was created by Simon Baren-Cohen, Sally Wheelwright, Richard Skinner, Joanne Martin, and Emma Clubley. In looking at the design of this scale it was provided to

provide information on what degree by which an adult with normal intelligence has the traits associated with the autistic spectrum. The initial study done with this design was used at Cambridge University to test the validity of the (AQ). The internal consistency found within the five different areas of the instrument produced Cronbach alpha coefficients that were all moderate to high with (Communication= .65; Social= .77; Imagination= .65; Local Details= .63; Attention Switching= .67). With the overall numbers that were given through the (AQ) there is a reasonable construct of validity, and this instrument shows excellent test-retest reliability (Baren-Cohen, 2001).

Procedures

This section covers the processing of the analysis of collected data. Moving forward would entail The Institutional Review Board for Liberty to approve the procedure for this research study. IRB approval is needed in the first step before gathering research from a population sample. Once approval has been granted then the questionnaire is submitted through an online database that will allow the researcher to narrow the target grouping for sampling to match the age requirements of all participants and keep the study within the demographic parameters. Once the questionnaire is sent then research is gathered from completed surveys and placed into SPSS once the desired sample group is achieved for valid computation.

Data Analysis

The researcher gathers data into SPSS Statistics and once the results are produced, they will be added to an excel spreadsheet. The model used will be the Process model and will work by providing data for each research question. The first research question is calculated by using Multiple Regression between the total (Adult ASRS) score and the total score of (BSMAS). The same method will be used to find a correlation between (BSMAS) and the (DASS). The same method will be used to find the correlation between (AQ) and the (BSMAS). In the next chapter the results will be displayed in a table that will show

if it is positive or negative in correlation and has statistical significance. The second research question will provide data using mediation analysis in multiple regression. By using the multiple regression model there will be information that shows if symptoms in (AQ) have a mediated relationship between symptoms of addictive social media use (BSMAS). The same method of mediation analysis with multiple regression will be used to see the mediated relationship between (DASS) total scores and (BSMAS) total scores. The same method of mediation analysis with multiple regression will be used between (Adult ASRS) and (BSMAS). The next chapter will cover a table that reports the coefficients, standard error, and the p values. Once these values are given there the researcher will also need to find the R^2 . Once the analysis is shown by finding these values then there will be proper results for the following chapter.

Chapter 3 Summary

In summary this chapter covered the research methods and the research design for this current study. This chapter covered the sampling of participants and the measurements used for research in the survey. The method of screening as well as data analysis was covered in how the research would contribute to research question answers and research that could be further studied. The next chapter gives the presentation of results that is clear and precise and will include tables of the results.

CHAPTER FOUR: RESULTS

Overview

In this chapter there will be sections that cover descriptive statistics, results from the analysis and hypothesis(es). Descriptive statistics cover sample means, certain charts, and the methods that show how the research produces an outcome that gives validity. The results will be revealed will be revealed in this chapter and how it works for or against the hypothesis(es). Charts will be inserted, and other information pulled from SPSS. A preliminary analysis will be given to show the stages of research needed to build the multiple regression analysis as well as data cleaning. The multiple regression analysis will be broken down into tables and figures to help describe each step of findings and methods.

Descriptive Statistics

There are 106 participants that have scores recorded in each category (Table 1). The category of Depressive Disorder shows a mean of 1.1566 and a standard deviation of .28178 with a minimum of .30 and a maximum of 1.78 in score value. ADHD had a mean of 7.2830 and a standard deviation of 5.15984 with a minimum of .00 and a maximum of 18. The Autism Spectrum score showed an average mean of 13.96 and a standard deviation of 5.243 with a minimum being 6 and a maximum being 38. When observing the Social Media Addiction score there is a mean of 13.96 and a standard deviation of 5.243 with a minimum of 6 and a maximum of 28.

Table 1

Descriptive Statistics for Depressive Disorder, ADHD, Autism Spectrum, and Social Media Addiction

	<i>n</i>	Mean	SD	Minimum	Maximum
Depressive Disorder	106	1.1566	.28178	.30	1.78
ADHD	106	7.2830	5.15984	.00	18
Autism Spectrum	106	19.15	6.907	3	38
Social Media Addiction	106	13.96	5.243	6	28

Note. *N* = sample size out of 106 participants. % = percentage of sample size out of 106 participants.

Results

The purpose of this study was to determine if or to what extent social media scores predicted ADHD, autism, and depression scores in the United States. This chapter presents the results of the data analysis. The following subsections include demographic data, preliminary analysis of the data, descriptive statistics, data cleaning and evaluation of the assumptions, and the results of the statistical analyses to answer the following research questions:

RQ1: To what extent do social media addiction scores predict Depressive Disorder scores in adults in the United States?

RQ2: To what extent do social media addiction scores predict Attention Deficit Hyperactivity Disorder (ADHD) rating scores in adults in the United States?

RQ3: To what extent do social media addiction scores predict Autism Spectrum scores in adults in the United States?

Preliminary Analysis

Before analysis could take place there were surveys sent for participants to fill out and complete them. These surveys had four instruments that would encompass ADHD, Social Media addiction, Autism Spectrum, and Depressive Disorder scores. Each instrument is designed to show a score that can scale the level of diagnosis as well as severity due to symptomatic behaviors and tendencies. All instruments use different scoring techniques. For data screening each participant was required to be ages eighteen and older and had some symptomatic behaviors of at least one of these neurodevelopmental disorders. Each participant had to have an active social media account. Once surveys were collected there was scoring that was then placed into a spreadsheet that would allow for the transfer into SPSS for data analysis. There were 106 participants that completed the survey and contributed to the statistics that are listed below. No information was recorded to differentiate gender or ethnicity. The demographic was within the United States and mostly in rural communities. The sample was all Caucasian in ethnicity due to the location of the study being a primarily Caucasian demographic. From a religious standpoint, there was random selection allowing for many different religious and worldview beliefs.

Data Cleaning and Evaluation of Statistical Assumptions

Before conducting the multiple regression analyses, the data needed to be reviewed for statistical assumptions and data cleaning. All outliers were removed before being entered into SPSS. After outliers were removed and data was entered into SPSS, there was an organization of variables and then charts were built to get a better idea of how the information looked in normality. Once the information was properly inserted in SPSS there was a need to check skewness and kurtosis. The design of skewed distribution is to measure the level of asymmetry in the data and allows for insight into data that deviates from the norm. When asserting the all the

variables in the skewness chart there was three out of the four variable that showed equal distribution and required transformation. The Depressive Disorder variable was positively skewed and so the need for transformation was needed and so the Log10 method in SPSS was used to place it in equal distribution. How this was caught on the graph was through visually viewing that all the information was leaning far to the left and the left tail is longer. In looking at Kurtosis it is understood that this method measures the shape of the frequency curve and looks for outliers in the data. Kurtosis scores and Skewness scores of all variables fit within the range of -1 and 1, which allows for the process of multiple regression to continue to the next step. The chart below shows the individual scores for each variable.

Table 2

Descriptive reflecting skewness and kurtosis.

		Statistic	Std. Error
Depressive Disorder	Skewness	-.311	.235
	Kurtosis	.049	.465
ADHD	Skewness	.486	.235
	Kurtosis	-.883	.465
Autism Spectrum	Skewness	.312	.235
	Kurtosis	-.185	.465
Social Media Addiction	Skewness	.538	.235
	Kurtosis	-.254	.465

Note. Skewness and kurtosis acceptable range of -1 and 1.

Linearity is a method that helps determine the relationship between the independent and dependent variables. For this information to be accurate there must be normal distribution and no multicollinearity and no heteroskedasticity. What this means is that the regression coefficients are stable, and that the variance of the residuals must be constant across predicted values. The

charts below with (Figure 4), (Figure 5), and (Figure 6) there is data placed on scatterplots and a regression line inserted. The closeness of the data points to the regression line shows a more linear regression while scattered points that show no relationship to the regression line would show a non-linear relationship. All figures below have the same independent predictor, which is Social Media Addiction Scores and is located on the y-axis. The x-axis shows the dependent variable. In (Figure 4), (Figure 5), and (Figure 6) the scatterplot shows a strong linear relationship. From the scatterplots listed in the figures there is a stronger linear relationship with Depressive Disorder as opposed to ADHD and Autism Spectrum where there is more space between the regression line and the data points. Already there is a difference among variables in relationship strength and ADHD scores seem to have the weakest relationship among the three dependent variables. These figures visually give a good understanding of strength in relationship and are crucial elements in preparing for multiple regression.

Figure 4

Scatterplot for Depressive Disorder Scores and Social Media Addiction Scores

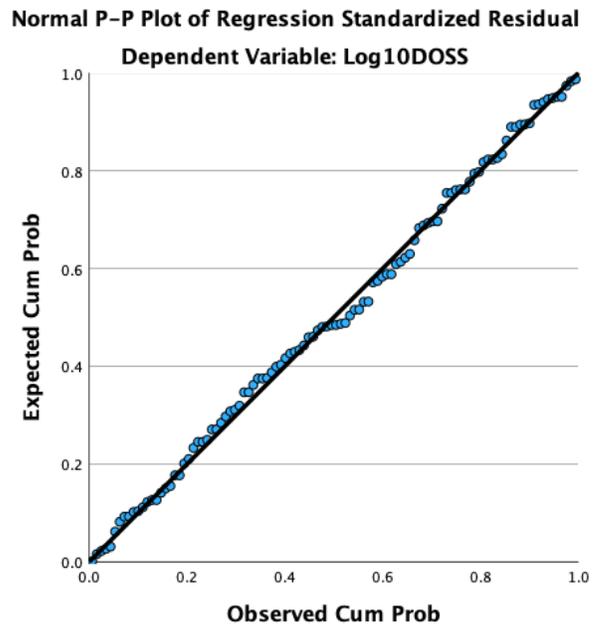


Figure 5

Scatterplot for ADHD Scores and Social Media Addiction Scores

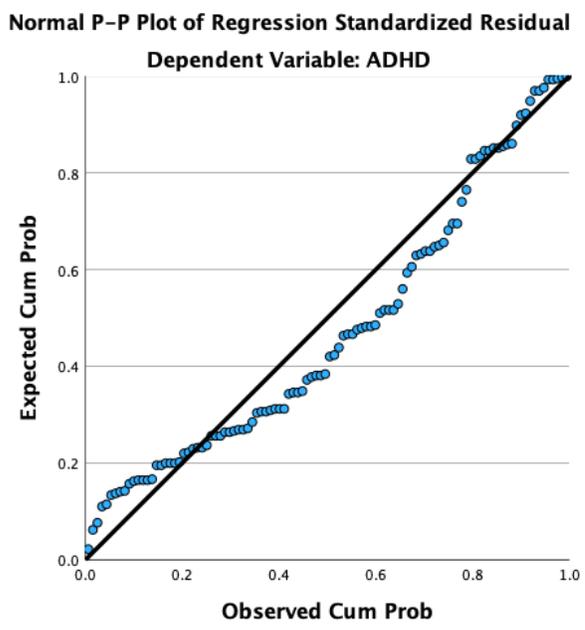
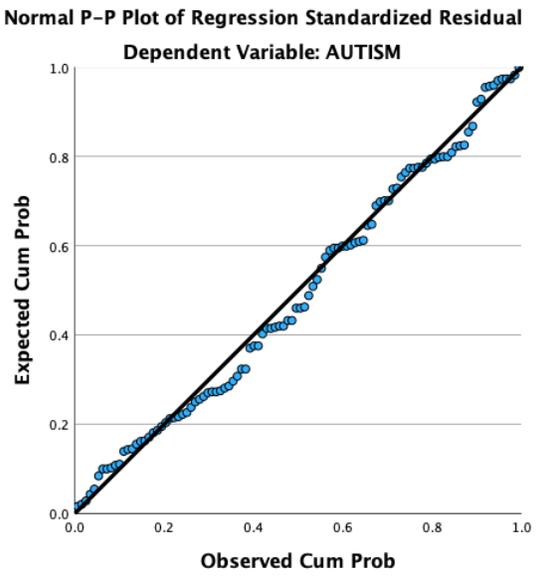


Figure 6

Scatterplot for Autism Spectrum Scores and Social Media Addiction Scores



Here is a Pearson correlation chart to help show the correlation between variables. For collinearity to be valid there must be an r scores greater than 0.8 (Table 3). The scores are shown

to represent a correlation between the independent variable and the dependent variable.

Depressive Disorder had a score of .496, which is less than 0.8 and so it passes the test of being a valid relationship for analysis. ADHD shows a score of .526 and also falls below 0.8 and is considered a safe correlation for analysis. The Autism Spectrum variable has a .198 correlation and so this also falls below 0.8 and is considered valid in moving forward. So based on the result findings there is a safe score to rule out collinearity issues in the data. These results are listed below (Table 3)

Table 3

Correlation analysis for Depressive Disorder, ADHD, Autism Spectrum, and Social Media Addiction

		Depressive Disorder	ADHD	Autism Spectrum	Social Media Addiction
Pearson Correlation	Depressive Disorder	1.000			.496
	ADHD		1.000		.526
	Autism Spectrum			1.000	.198
	Social Media Addiction	.496	.526	.198	1.000

Note. Correlation analysis checking for collinearity above $r = 0.8$.

Another analysis of coefficients was used to check if predictors were not highly correlated. The (VIF), which is Tolerance and Variance Inflation Factors is a statistical analysis that also is used in assessing collinearity. For scores to be within the correct parameters they must not exceed 10 in tolerance and not be below 0.1. If the scores are outside the range parameters, then it is considered evidence of multicollinearity. Based on the analysis listed below, all assumptions have been met and scores fall below 10 and are higher than 0.1 (Table 4).

Table 4

Check coefficients (VIF and Tolerance), include content and table.

Model	Collinearity Statistics	
	Tolerance	VIF
Depressive Disorder Scores		
Social Media Addiction Scores	1.000	1.000
ADHD Scores		
Social Media Addiction Scores	1.000	1.000
Autism Spectrum Scores		
Social Media Addiction Scores	1.000	1.000

Note. Coefficient analysis checking for collinearity of VIF above 10 and tolerance below 0.1.

The next analysis was done to check for residual values. Acceptable ranges that are acceptable can vary between 0 and 4, with a value close to 2 would be the most desirable. In looking at the Durbin-Watson statistic (Table 5), there is an ADHD score of 2.052, an Autism Score of 1.957, and a Depressive Disorder score of 2.161. In looking at all three scores there is an acceptable score that fits within the boundaries of the Durbin-Watson analysis.

Table 5

Durbin-Watson analysis for ADHD, Autism Spectrum, and Social Media Addiction

Model	Durbin-Watson
ADHD Scores	2.052
Autism Scores	1.957
Depressive Disorder	2.161

Note: Analyzed residual values between 0 and 4, with values being close to 2 being ideal.

In addition, analysis of the variance residuals tests the assumption of homoscedasticity. The results desired on a scatterplot should be a random array of dots and scatter patterns that resemble a shotgun blast. One thing to look for that will violate the analysis is if the scatterplot resembles more of a funnel shape. Based on the information in the scatterplots below, the

residuals of the standardized residuals versus standardized predicted values show no signs of funneling and therefore give an indication that the homoscedasticity is okay. The information assumes homoscedasticity in Figures 7-9 residual scatterplots.

Figure 7

Residuals scatterplot for homoscedasticity for Depressive Disorder Scores and Social Media Addiction Scores

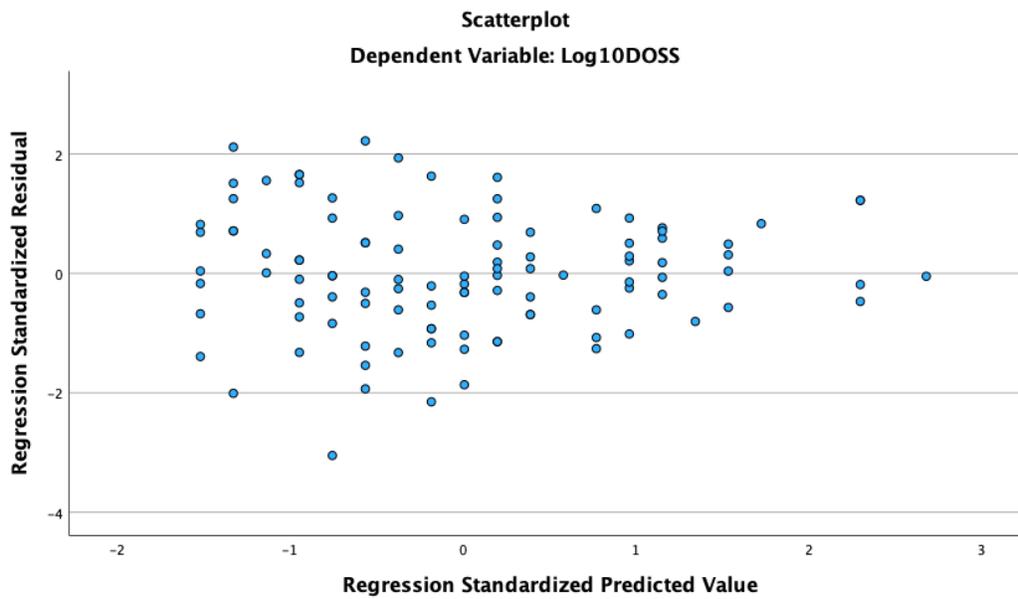
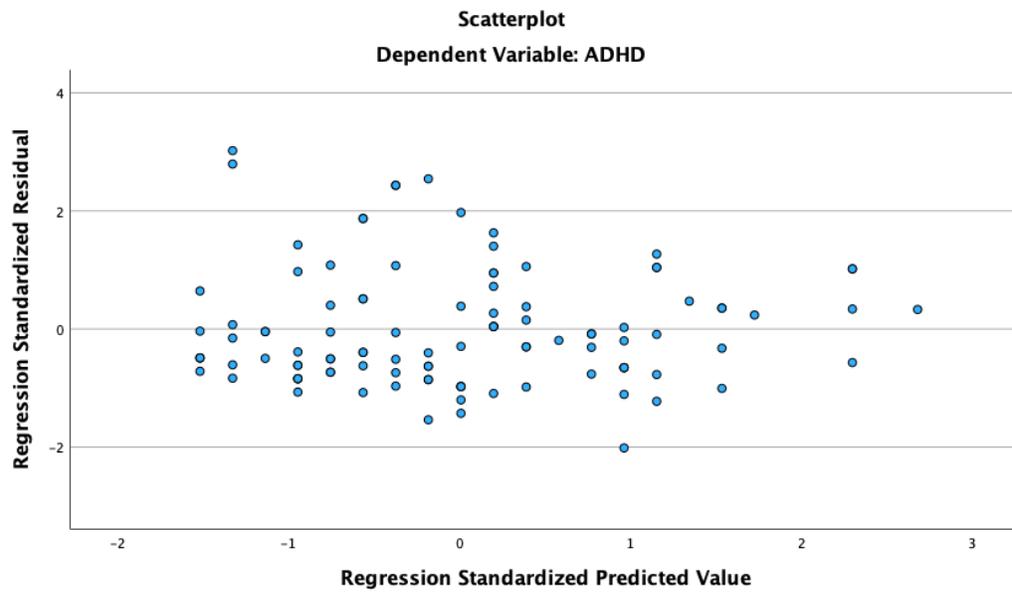
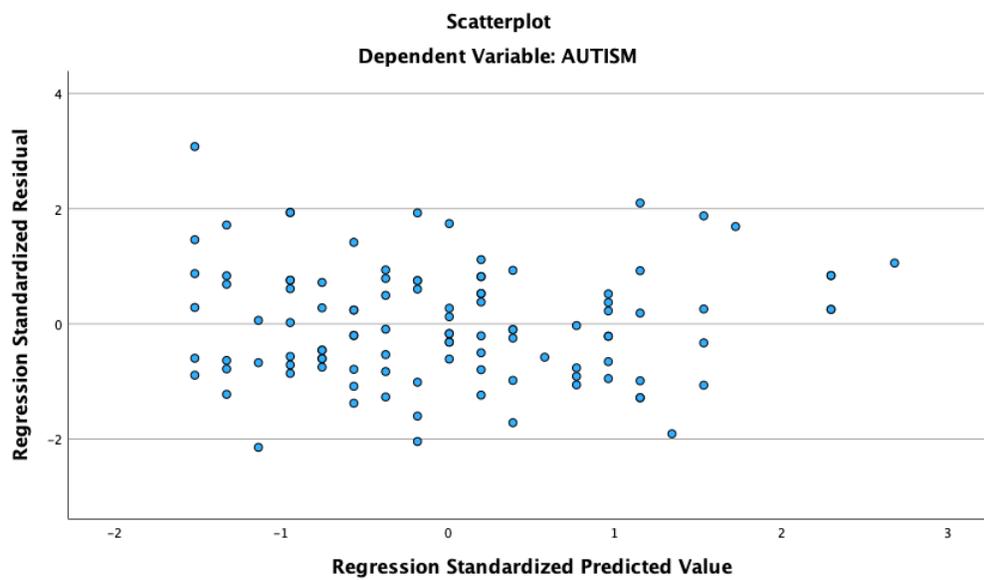


Figure 8

Residuals scatterplot for homoscedasticity for ADHD Scores and Social Media Addiction Scores

**Figure 9**

Residuals scatterplot for homoscedasticity for Autism Spectrum Scores and Social Media Addiction Scores



In looking back at chapter 3 and comparing the Cronbach's alpha from previous studies to this current study's outcome it is helpful to see if similar results were found. The Bergen Social Media Addiction Scale (BSMAS) was used to measure Social Media Addiction. Andreassen and colleagues (2012) found validity in its use with a Cronbach's alpha of 0.86. For this study, the Cronbach's alpha for the BSMAS was 0.859 which scores very close to the score found in previous research. The Depression Anxiety Stress Scale (DASS-21) was the instrument used in measuring Depressive Stress Disorder and Psychometric testing in previous studies has shown Cronbach's alpha: Depression, 0.84; Anxiety, 0.86; and Stress, 0.86 (Asghari & Saed, 2008). For this study, there was a Cronbach's alpha score of 0.936 with the DASS-21, which gives a great score of validity and compares to the scores in previous research. The Adult ADHD Self-Report Scale Symptom Checklist Version 1.1 (Adult ASRS) is a study where Lenard Adler found psychometric properties with a Cronbach's alpha being 0.88 and concurrent validity $r=.084$ (Adler et., 2006). For this study, Cronbach's alpha score for the Adult ASRS is 0.935, which is a good score for instrument validity and scores better than previous research that was found. With the Autism Spectrum Quotient (AQ) instrument there was a study by Cambridge University that found five different Cronbach's alpha scores that consist of (Communication=0.65; Social=0.77; Imagination=0.65; Local Details= 0.63; Attention Switching=0.67) (Baren-Cohen, 2001). In this study, Cronbach's alpha came out to be 0.680, which is comparable to the numbers in the Cambridge study.

Multiple Regression Analysis

To address the research questions guiding this study, multiple regression analyses using the standard entry method was used. The predictor variable from the research questions was Social Media addiction scores, whereas the criterion variables were ADHD, Autism, and

Depressive Disorder scores. Three separate multiple regression analyses were conducted for all three of the criterion variables in their relationship with Social Media Addiction.

Hypotheses Testing

Hypotheses 1

H10: Social media addiction will not significantly predict Depressive Disorder scores in adults in the United States.

H1a: Social media addiction will significantly predict Depressive Disorder scores in adults in the United States.

Multiple linear regression was calculated to predict social media addiction scores based on their level of depressive disorder scores. A significant regression equation was found, $F(1, 104) = 33.865, p < .001, R^2 = .246$. This finding indicated that the model provided a statistically significant contribution to the variance in depressive disorder scores. Specifically, the model contributed to 24.6% of the variation in depressive disorder scores. Social media scores were a statistically significant predictor of depressive disorder scores, $B = .027, p < .001$. The results indicated that as social media scores increased, depressive disorder scores increased. On average, for every 1-unit increase in social media score, there was a .027-unit increase in depressive disorder scores. Social media scores were significant predictors of depressive disorder scores. Thus, the null hypothesis was rejected.

Hypotheses 2

H10: Social media addiction will not significantly predict Attention Deficit Hyperactivity Disorder (ADHD) scores in adults in the United States.

H1a: Social media addiction will significantly predict Attention Deficit Hyperactivity Disorder (ADHD) scores in adults in the United States.

Multiple linear regression was calculated to predict social media addiction scores based on their level of Attention Deficit Hyperactivity Disorder (ADHD) scores. A significant regression equation was found, $F(1, 104) = 39.716, p < .001, R^2 = .276$. This finding indicated that the model provided a statistically significant contribution to the variance in ADHD scores. Specifically, the model contributed to 27.6% of the variation in ADHD scores. Social media scores were a statistically significant predictor of ADHD scores, $B = .517, p = .962$. The results indicated that as social media scores increased, ADHD scores increased. On average, for every 1-unit increase in social media score, there was a .517-unit increase in ADHD scores. Social media scores were significant predictors of ADHD scores. Thus, the null hypothesis was rejected.

Hypotheses 3

H10: Social media addiction will not significantly predict Autism Spectrum scores in adults in the United States.

H1a: Social media addiction will significantly predict Autism Spectrum scores in adults in the United States.

Multiple linear regression was calculated to predict social media addiction scores based on their level of Autism Spectrum scores. A significant regression equation was found, $F(1, 104) = 4.264, p = .041, R^2 = .039$. This finding indicated that the model provided a statistically significant contribution to the variance in Autism Spectrum scores. Specifically, the model contributed to 3.9% of the variation in Autism Spectrum scores. Social media scores were a statistically significant predictor of Autism Spectrum scores, $B = .261, p < .001$. The results indicated that as social media scores increased, Autism Spectrum scores increased. On average, for every 1-unit increase in social media score, there was a .261-unit increase in Autism

Spectrum scores. Social media scores were significant predictors of Autism Spectrum scores. Thus, the null hypothesis was rejected.

Chapter Four Summary

What was discovered in chapter four was that all three hypotheses showed that the null hypothesis was rejected and so all three hypotheses were accepted. The process of data cleaning was explained, and the multiple regression output was explained. All three regressions showed that as social media scores increased there was an increase in the dependent variables. The increase of scores in the dependent variables was presented and the level of significance was explained. The Durbin-Watson test scores were presented and showed that all three multiple regressions show valid test scores. Residual scatter plots were presented, and correlation charts were presented to show that the data fit the targeted ranges. The descriptive statistics were also presented and explanations of VIF and tolerances were presented in the coefficient chart. Skewness and kurtosis were also shown through linear regression charts and the scores were within a valid range. This information helps explain the results of the data analysis.

CHAPTER FIVE: CONCLUSION

Overview

Chapter Five covers sections in the discussion, implications, limitations, and recommendations for future research. The discussion section will cover the purpose of the study and how the results have a positive or negative affect on the research questions and the theories that were purposed. This segment helps compare the results to current studies and previous studies. The implications section covers the practicality of this research about counseling and ministry. The segment of limitations also is described in this chapter, and it covers gaps in research and areas that could have been better to further this research. The last segment in this covers the recommendations for further research and what areas could be further discovered and what research would build upon the current research findings in this study.

This chapter contains a discussion of the results and future research possibilities based on the following research questions:

RQ1: To what extent do social media addiction scores predict Depressive Disorder scores in adults in the United States?

RQ2: To what extent do social media addiction scores predict Attention Deficit Hyperactivity Disorder (ADHD) rating scores in adults in the United States?

RQ3: To what extent do social media addiction scores predict Autism Spectrum scores in adults in the United States?

Discussion

The purpose of this study was to show if addictive social media use influenced neurodevelopmental disorders in a way where it produced symptoms that mirrored ADHD, Autism, and Depressive Disorder. The research questions are listed below with results from this study and comparisons to the literature that was gathered in the literature review.

Social Media Addiction and Depression Disorder

The results of this study show that Social Media Addiction scores predict Depressive Disorder scores in adults in the United States by showing that on average for every 1-unit score increase, there was a .027-unit increase in Depressive Disorder score. This information shows that an increase in social media use on average causes higher levels of depression. In comparing these results from the literature gathered in earlier stages of this study there is a positive relationship with the statements by Andreasson's study that states that social media has negative psychological outcomes such as low self-esteem and depression (Andreasson et al., 2017; Feinstein et al., 2013; Yoon et al., 2019). In this study, social media is statistically significant in predicting a higher level of depression. Therefore, the null hypothesis was rejected, and the hypotheses below was accepted:

H1a: Social media addiction will significantly predict Depression Disorder scores in adults in the United States.

In looking at the research gathered in the literature review there was a great deal of research that pointed to depression as a side effect of social media use, but these current research findings give adequate proof that there is a link to depression. This link to depression is not surprising due to all the studies that show the isolation that usually follows high-level social media use but what is surprising is that there is little action on how to put up boundaries on this and that fewer parents are aware of the impact it has on their children. This information is designed to help inform the population that needed parameters must be in place to better protect families from these dangers. One piece of information that helped look at this study was that older adults that were in their 50s and 60s showed scores that reflected a happier individual. The common link trend was that older people had less use of social media and had less of their life devoted to it. This information gives a good prediction of what the future will be for the mood and temperament of the next generation and future studies.

Social Media Addiction and Attention Deficit Hyperactivity Disorder

The results of this study show that Social Media Addiction scores predict ADHD scores in adults in the United States by showing that on average for every 1-unit score increase in social media scores, there is a .517-unit increase in ADHD scores. What these results claim is that higher levels of social media use show more symptomatic behaviors and tendencies to ADHD. This information relates well to research gathered by Settani et al. (2018), where conducted research was done that showed ADHD symptoms having an interplay with addictive social media use. This shows that the research gathered is supportive of the analysis results in this study. Therefore, the null hypotheses was rejected, and the hypothesis below was accepted:

H1a: Social media addiction will significantly predict Attention Deficit Hyperactivity Disorder (ADHD) scores in adults in the United States.

ADHD is one of the most common neurodevelopmental disorders among Americans ranging from all age groups. More research was available for collection on ADHD than any other neurodevelopmental disorder and with this high increase, there would be more need for treatment strategies and awareness. Most individuals that are diagnosed with ADHD will be prescribed medication and this medication is strong in its ability to increase focus. These research findings show that there is another possibility for ADHD and that possibility is that lowering social media use could possibly remove the symptomatic behavior traits associated with this disorder. It would only make sense that a step could be placed before diagnosing and prescribing medication. A less medicated America could lead to a healthier America. This specific research is meant to help deal with that problem.

Social Media Addiction and Autism Spectrum

The results of the study show that Social Media Addiction scores predict Autism Spectrum scores in adults in the United States by showing that on average for every 1-unit score increase in social media scores, there is a .261-unit increase in Autism Spectrum scores. This means that social media use is a strong and significant predictor of Autistic behaviors and tendencies. In looking at the research gathered in the literature review, there is a good relationship between the study's findings and previous research where a correlation is found. The research gathered agrees with the results that were found, which means the null hypothesis was rejected, and the hypothesis was accepted:

H1a: Social media addiction will significantly predict Autism Spectrum scores in adults in the United States.

Autism was one of the neurodevelopmental disorders that had the least amount of research and sadly this also meant that the selection of instruments for this study was more difficult. Not only was it hard to find an instrument but the validity of the instrument was not nearly as valid as the other instruments used for other neurodevelopmental disorders. A possible reason for this is that there is little awareness of this disorder and fewer diagnosis across the country. One theory is that Autism is a neurodevelopmental disorder that one rarely wants to be associated with because its connotation is that the individual is troubled and lacks what is needed to be successful in the working world and yet this is not entirely true. Many successful people hold autistic traits and, in some cases, have an advantage due to their disorder. Better instruments are needed and increased awareness is needed. One of the common symptoms of Autism is that they struggle with relationships and fitting in, but wouldn't this also be a common trait for those that spend a great deal of time on social media instead of being social in public? Would it not be probable that isolation hurts that ability to be social and to truly connect in social circles? These

questions are not bad questions to ask, and they do propose a problem in the current crisis that surrounds Autism.

Implications

This study was designed to help increase awareness of the issues of social media concerning mental health, but it was also designed to help counselors to seek other methods of testing before moving an individual to medication. Medication is a helpful tool when used correctly but it is not the solution to the problem in most cases. Medication is designed to manage the problem and a good counselor should be more interested in finding the solution. A client that struggles with a neurodevelopmental disorder or depression is looking for a solution and is healthier if achieving remission. This study could contribute to further research that gives the client an alternative that could treat the real problem. This study gives great evidence that social media is a contributor to symptomatic behaviors of depression and neurodevelopmental disorders and so with an adjustment to social media use there could be lessening symptoms or quite possibly zero symptoms. This information is helpful for counselors that want to truly help the client and from a ministry standpoint this information helps in Christian counseling as well because many Christian counselors would not seek a route with medication if they had another method that could truly help deal with the true problem. Rarely does a Christian counselor can prescribe medication and in many cases, they avoid it and so this study gives them another tool in their tool chest for combatting depression and neurodevelopmental disorders while also giving them correct research that helps them better understand what can contribute to these behaviors. The desire for the study was to have information that would be helpful to a person with a Christian worldview but also a person that has a secular worldview. It is helpful to be able to have information that is used through all forms of practice and education.

Limitations

The limitations of this study were that it was done in a demographic environment-focused. What is meant by this is that the location for most of the survey participants was within a rural population. This study would give more accurate information if it was more of a mix of urban and suburban environments. Social media use in urban versus suburban environments might have a difference in overall use. Another limitation was that this survey was time sensitive and so it was done in an overall window of one to two weeks and if more time was taken then there would be more participants and longer time periods would allow a better understanding of consistency. Another limitation is that funds were not used in populating the survey to more participants. If there was a budgeted amount of money used to market this survey, then there would have been a larger number of survey takers since they could have been compensated for taking this survey. This would have allowed a larger market across the country and the results would bring about higher levels of validity.

One of the limitations that were found in the instrumentation is that the Bergen assessment that measured social media use could have been more specific in calculating hours of use instead of just asking how often participants used social media. This was an area that made the study difficult because it left the measurement open-ended because everybody has a different opinion on what addiction use is and its common use. This instrument also had only six questions and so it would be beneficial to have an instrument in this area that would have more questions and questions with higher precision. The Bergen assessment could not also place overall results in a category that showed where somebody was in overall comparison with other users. This study hopefully adds more accuracy to this area of research. Overtime this study will grow with the use of social media going upward and so there is little doubt that an improved instrument will come into existence. The other instruments used in this study were thorough and precise due to their higher number of questions and more precise grading tools.

Another limitation is that the age group was eighteen years of age and above. If the research was produced for adolescents and younger kids, then there would be a better understanding of how social media use is trafficked from one age group to the other and that would prove to help benefit counselors and researchers that deal with school-aged kids and would benefit parents to better understand the dangers of social media for their children. Since people are often diagnosed at the age of adolescents it would be profitable for this study to show younger students results to help deal with this issue earlier rather than later. The limitation of ethnicity is also an area of weakness in this study. All participants in this study were Caucasian and so if this study measured other ethnicities, then there would be more information that would benefit the researcher and would have a better target for the diagnosis.

Recommendations for Future Research

In looking at areas of further research, there is a need for a study like this in a more cross-sectional demographic as mentioned in the previous section. Research that would build upon this would be to look at what other areas are affected by social media like the areas of physical health. This study talked about the common physical health issues like a lack of quality sleep and physical obesity and malnutrition playing a factor in high-level social media use, but no instrumentation was used in this study to show this. A sleep study would be very useful to this research because a decrease in actual sleep also increases the symptomatic behaviors associated with depression and neurodevelopmental disorders and so if social media use can be shown to decrease the quality of sleep, then there would be more adequate research to prove further dangers of social media. Sleep is one of the most valuable needs that the body has for being healthy and so showing social medias effects on sleep will give true validity to the research questions in this study. As mentioned in the literature review, there is a great deal of information that talks about screen time later in the evening contributing to long delays in achieving true sleep.

Obesity in America is killing people and a great deal of government funds is dedicated to fighting obesity with higher-quality nutrition but one angle that has yet to be discovered is how social media could impact nutrition. A study on social media and obesity would be a great study that would more than likely show a connection and would be a great tool in helping this crisis. Since social media has proven to show a connection with depression and depression contributes to poor eating habits and exercise then it only makes sense that social media is a contributor to obesity. Therefore, all that is missing is valid studies and research to prove this. Therefore, the proposal would be for physiological studies to be conducted to further assess the damage of social media.

Another area of research that would be a positive tool for further assessment would be to show the age of adolescents and in the study show test scores and grade percentages to see how social media effects performance in education. A great deal of government money is spent every year to find better methods of education and test scores are an instrument to show areas of improvement and to find problems in current education methods. To research how social media use affects test scores would add another factor that could help give education departments a tool for combatting this growing trend. More students are needing to be counseled and a great deal of money has been spent to staff schools with educators that can counsel in neurodevelopmental disorders and so building a quality instrument that can show test scores associated with social media use would be a great indicator of what truly needs to be addressed in order to help this next generation that has such an increase in neurodevelopmental disorders and depression. Education departments should also invest in building parameters for social media use if they truly want to protect children in preventing educational deficiencies. This research would help build a curriculum that considers these factors.

The United States government could greatly benefit from this research and to build upon this research to build a better boundary around social media use. Social media is a vast network that has no

boundaries and boundaries are always necessary when it comes to protecting people. Even though social media has some positive use there is still much to be discovered regarding its negative use. Big tech companies that have created social media platforms need more regulations to protect the mental health of their users. If big tech companies like Facebook and Instagram would take an interest in the health of their users, then they would have the desire to help in this study and fund future studies to allow for a healthier consumer. Another boundary that should be essential in social media use is to establish safety and social media can be used as a weapon when it comes to bullying and inciting opposition and violence. A study showing how to neutralize these weapons would also be a great contributing study to establish better health for the user and protect victims that have been damaged by this. Since it is doubtful that companies would do this due to a conflict of interest there needs to be another whistleblower and the government is the only agency that has the power to do so. It would be recommended that the government takes the steps necessary to build future research and to access funds for this study to protect the American people and to better the nation.

Since this study was done with many people having different worldviews it would also benefit further research for Christian studies to show the spiritual and moral issues that social media produces, and so further instruments could be created to measure these areas so that research could further help the Christian counselor. For the Christian counselor there could be studies that measure what social media does to the moral belief of an individual and how social media affects a viewpoint of God. Spiritual formation is a huge topic in spiritual growth and so studies on the effects that social media has on spiritual formation would be helpful for further studies. There is a great deal of further research that can be done based on the research that has been conducted in this study and so the hope is that these results shown in this study will bring about more interest in this area so that therapists, counselors, and physicians can

accurately diagnose and find better remedies for fixing problems and not just placing management strategies in the mix.

Conclusion

In conclusion the research points to all three null hypotheses being rejected and all hypotheses accepted with the overall data findings. All three hypotheses claim that social media scores predict scores with neurodevelopmental in such a way that scores of the dependent variables are linked with increased scores on social media. This information shows that higher social media use will increase symptomatic behaviors of Depressive Disorder, Autism, and ADHD. The overall research findings in chapter five show a comparison with collected research in the preliminary stages of the study and run parallel in results. Therefore, this research is a great contribution to current research on the subject matter but is more specific using multiple regression analysis. This section covered the practicality of this study for physicians and therapists and how it will impact their practice as well as improve their ability to diagnose and treat neurodevelopmental disorders as well as depression. Chapter five all contributed to the limitations that held back this study from the further depth and better accuracy. Though this research does improve the understanding of the effects of social media it still can use improvement and that is why further research recommendations are also mentioned with the use of demographic expansion and participant groups. Overall, this research was meant to be a great foundational tool for researchers to build upon and help increase awareness of the dangers of increased social media use.

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Appendix A DASS 21

DASS 21 NAME _____ DATE _____

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all- NEVER
- 1 Applied to me to some degree, or some of the time- SOMETIMES
- 2 Applied to me considerable degree, or a good part of time- OFTEN
- 3 Applied to me very much, or most of the time- ALMOST ALWAYS

		N	S	O	AA	D	A	S
1	I found it hard to wind down	0	1	2	3			
2	I was aware of dryness of my mouth	0	1	2	3			
3	I couldn't seem to experience any positive feeling at all	0	1	2	3			
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3			
5	I found it difficult to work up the initiative to do things	0	1	2	3			
6	I tended to over-react to situations	0	1	2	3			

7	I experience trembling (eg, in the hands)	0	1	2	3			
8	I felt that I was using a lot of nervous energy	0	1	2	3			
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3			
10	I felt that I had nothing to look forward to	0	1	2	3			
11	I found myself getting agitated	0	1	2	3			
12	I found it difficult to relax	0	1	2	3			
13	I felt down-hearted and blue	0	1	2	3			
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3			
15	I felt I was close to panic	0	1	2	3			
16	I was unable to become enthusiastic about anything	0	1	2	3			
17	I felt I wasn't worth much as a person	0	1	2	3			
18	I felt that I was rather touchy	0	1	2	3			

19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart increase, heart missing a beat)	0	1	2	3			
20	I felt scared without any good reason	0	1	2	3			
21	I felt that life was meaningless	0	1	2	3			
								TOTALS

DASS Severity Ratings

The DASS is a **quantitative** measure of distress along the 3 axes of depression, anxiety and stress. It is not a categorical measure of clinical diagnosis.

Emotional syndromes like depression and anxiety are intrinsically dimensional- they vary along a continuum of severity (independence of the specific diagnosis). Hence the selection of a single cut-off score to represent clinical severity is necessarily arbitrary. A scale such as the DASS can lead to a useful assessment of **disturbance**, for example individuals who may fall short of a clinical cut-off for a specific diagnosis can be correctly recognized as experiencing considerable symptoms and as being at high risk of further problems.

However, for clinical purposes it can be helpful to have ‘labels’ to characterize degree of severity relative to the population. Thus, the following cut-off scores have been developed for defining mild/moderate/ severe/extremely severe scores for each DASS scale.

Note: The severity labels are used to describe the full range of scores in the population, so ‘mild’ for example means that the person is above the population mean but probably still way below the typical severity of someone seeking help (ie it does not mean a mild level disorder).

The individual DASS scores do not define appropriate interventions. They should be used in conjunction with all clinical information available to you in determining appropriate treatment for any individual.

Symptoms of psychological arousal
 The more cognitive, subjective symptoms of anxiety

DASS 21 SCORE

DEPRESSION SCORE	ANXIETY SCORE	STRESS SCORE

	Depression	Anxiety	Stress
Normal	0-4	0-3	0-7
Mild	5-6	4-5	8-9
Moderate	7-10	6-7	10-12
Severe	11-13	8-9	13-16
Extremely Severe	14+	10+	17+

Appendix B The AQ Test

		Definitely agree	Slightly agree	Slightly disagree	Definitely disagree
1	I prefer to do things with others rather than on my own.				
2	I prefer to do things the same way over and over again.				
3	If I try to imagine something, I find very easy to create a picture in my mind.				
4	I frequently get so strongly absorbed in one thing that I lose sight when others do not.				
5	I often notice small sounds when others do not.				
6	I often notice car number plates or similar strings of information.				
7	Other people frequently tell me that what I've said is impolite, even though I think it is polite.				
8	When I'm reading a story, I can easily imagine what the characters might look like.				
9	I am fascinated by dates.				
10	In social group, I can easily keep track of several different people's conversations.				
11	I find social situations easy.				

12	I tend to notice details that others do not.				
13	I would rather go to a library than to a party.				
14	I find making up stories easy.				
15	I find myself drawn more strongly to people than to things.				
16	I tend to have very strong interests, which I get upset about if I can't pursue.				
17	I enjoy social chitchat.				
18	When I talk, it isn't always easy for others to get a word in edgewise.				
19	I am fascinated by numbers.				
20	When I'm reading a story, I find it difficult to work out the characters' intentions.				
21	I don't particularly enjoy reading fiction.				
22	I find it hard to make new friends.				
23	I notice patterns in things all the time.				
24	I would rather go to the theater than to a museum.				
25	It does no upset me if my daily routine is disturbed.				
26	I frequently find that I don't know how to keep a conversation going.				
27	I find it easy to 'read between the lines' when someone is talking to me.				
28	I usually concentrate more on the whole				

	picture, rather than on the small details.				
29	I am not very good at remembering phone numbers.				
30	I don't usually notice small changes in a situation or a person's appearance.				
31	I know how to tell if someone listening to me is getting bored.				
32	I find it easy to do more than one thing at once.				
33	When I talk on the phone, I'm not sure when it's my turn to speak.				
34	I enjoy doing things spontaneously.				
35	I enjoy doing things alone.				
36	I find it easy to work out what someone is thinking or feeling just by looking at their face.				
37	If there is an interruption, I can switch back to what I was doing very quickly.				
38	I am good at social chitchat.				
39	People often tell me that I keep going on and on about the same thing.				
40	When I was young, I use to enjoy playing games involving pretending with other children.				
41	I like to collect information about				

	categories of things (e.g., types of cars, birds, trains, plants).				
42	I find it difficult to imagine what it would be like to be someone else.				
43	I like to carefully plan any activities I participate in.				
44	I enjoy social occasions.				
45	I find it difficult to work out people's intentions.				
46	New situations make me anxious.				
47	I enjoy meeting new people.				
48	I am a good diplomat.				
49	I am not very good at remembering people's date of birth.				
50	I find it very easy to play games with children that involve pretending.				

Psychologist Simon Baron-Cohen and his colleagues at Cambridge's Autism Research Centre have created the Autism-Spectrum Quotient, or AQ, as a measure of the extent of autistic traits in adults. In the first major trial using the test, the average score in the control group was 16.4. Eighty percent of those diagnosed with autism or a related disorder scored 32 or higher. The test is not a means for making a diagnosis, however, and many who score above 32 and even meet the diagnostic criteria for mild autism or Asperger's report no difficulty functioning in their everyday lives.

How to score: "Definitely agree" or "Slightly agree" responses to questions 2, 4, 5, 6, 7, 9, 12, 13, 16, 18, 19, 20, 21, 22, 23, 26, 33, 35, 39, 41, 42, 43, 45, 46, score 1 point. "Definitely disagree" or "Slightly disagree" responses to questions 1, 3, 8, 10, 11, 14, 15, 17, 24, 25, 27, 28, 29, 30, 31, 32, 34, 36, 37, 38, 40, 44, 47, 48, 49, 50 score 1 point.

MRC-SBC/SJW February 1998.

Published: *Journal of Autism and Developmental Disorders*, 31, 5-17 (2001).

Appendix C Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months.	Never	Rarely	Sometimes	Often	Very Often
1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?					
2. How often do you have difficulty getting things in order when you have to do task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					

6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					
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Part A

7. How often do you make careless mistakes when you have to work on a boring or difficult project?					
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work?					
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly?					
10. How often do you misplace or have difficulty finding things at home or at work?					
11. How often are you distracted by activity or noise around you?					
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated?					
13. How often do you feel restless or fidgety?					

14. How often do you have difficulty unwinding and relaxing when you have time to yourself?					
15. How often do you find yourself talking too much when you are in social situations?					
16. When you're in a conversation, how often do you find yourself finishing the sentence of the people you are talking to, before they can finish themselves?					
17. How often do you have difficulty waiting your turn in situations when turn taking is required?					
18. How often do you interrupt others when they are busy?					

Part B

How old were you when problems first began to occur? _____

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Description:

The Symptom Checklist is an instrument consisting of the eighteen DSM-IV TR criteria. Six of the eighteen questions were found to be the most predictive of symptoms consistent with ADHD. These six questions are the basis for the ASRS v1.1 Screener and are also Part A of the Symptom Checklist. Part B of the Symptom Checklist contains the remaining twelve questions.

Scoring and Interpretation:

If four or more marks appear in the darkly shaded boxes within Part A then the patient has symptoms highly consistent with ADHD in adults and further investigation is warranted. The frequency scores on Part B provide additional cues and can serve as further probes into the patient's symptoms. Pay particular attention to marks appearing in the dark shaded boxes. The frequency-based response is more sensitive with certain questions. No total score or diagnostic

likelihood is utilized for the twelve questions. It has been found that the six questions in Part A are the most predictive of the disorder and are best for use as a screening instrument.

References:

- Sweitzer JB, Cummins TK, Kant CA. Attention-deficit/hyperactivity disorder. *The Medical clinics of North America*. May 2001;85(3):757-777. PMID: 11349483
- Barkley RA. Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment. 2nd ed. 1998.
- Biederman J, Faraone SV, Spencer T, et al. Patterns of psychiatric comorbidity, cognition, and psychosocial functioning in adults with attention deficit hyperactivity disorder. *The American journal of psychiatry*. Dec 1993;150(12):1792-1798. PMID:8238632
- American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision. Washington, DC, American Psychiatric Association. 2000: 85-93.
- Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist. Available at: <http://www.hcp.med.harvard.edu/ncs/ftpd/ahd/18%20Questions%20ADHD-ASRS-v1-1.pdf> Accessed March 15, 2012

Appendix D Bergen Assessment

Here are six statements to consider. For each, answer: (1) very rarely, (2) rarely, (3) sometimes, (4) often, or (5) very often.

1. You spend a lot of time thinking about social media or planning how to use it.
2. You feel an urge to use social media more and more.
3. You use social media in order to forget about personal problems.
4. You have tried to cut down on the use of social media without success.
5. You become restless or troubled if you are prohibited from using social media.
6. You use social media so much that it has had negative impact on your job/ studies