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Gender Differences in Kindergarten Students' Internalizing and Externalizing Behaviors and the Role of Inhibitory Control

Joy Ann Stickney-McDonald
Walden University

Walden University

College of Psychology and Community Services

This is to certify that the doctoral dissertation by

Joy Stickney-McDonald

has been found to be complete and satisfactory in all respects,
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the review committee have been made.

Review Committee
Dr. JoAnn McAllister, Committee Chairperson, Psychology Faculty
Dr. Rolande Murray, Committee Member, Psychology Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2024

Abstract

Gender Differences in Kindergarten Students' Internalizing and Externalizing Behaviors and the Role of Inhibitory Control

by

Joy Stickney-McDonald

MSS, Bryn Mawr Graduate School of Social Work, 2004

BS, University of Pittsburgh, 2002

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Ph.D. in Psychology, Self-Design Concentration

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Abstract

Disruptive classroom behaviors are on the rise in U.S. classrooms. Children with early behavior difficulties are at an increased risk of school dropout, incarceration, and mental illness. A review of the literature indicates gender is a significant variable that can influence students' behaviors, social skills, and academics. The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing behaviors and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. Bem's gender schema theory was the structural framework used in this non-experimental study. The research question explored the extent to which female and male neurotypical and neurodiverse kindergarten students differed in externalizing and internalizing behaviors after controlling for inhibitory control as measured by teacher-reported Social Skills Rating System and Child Behavior Questionnaire Short-Form. Secondary data were gathered from the Early Childhood Longitudinal Study, Kindergarten Class of 2011. Results from the one-way multivariate analysis of covariance found a statistically significant adjusted mean difference in the combined dependent variables of externalizing problem behaviors and internalizing problem behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control according to teachers' perceptions. This study has the potential to contribute to positive social change in early education through the dissemination of information to stakeholders and the advocacy of gender-specific interventions that match kindergarten students' externalizing and internalizing behaviors while attending to the role of inhibitory control.

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Dedication

This dissertation is dedicated to neurotypical and neurodiverse students experiencing behavioral difficulties. May the information provided offer a novel perspective to stakeholders to ensure your needs are holistically met in school.

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I would like to take this opportunity to thank my family for supporting me throughout this academic endeavor and helping me achieve this goal. To my husband Chris, my children Addison and Christopher, and my mother Gail, your encouragement has been inspirational. Thank you for always believing in me.

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Chapter 1: Introduction to the Study

Introduction

Students' disruptive classroom behavior is a pervasive problem in the United States (Centers for Disease Control and Prevention [CDC], 2023; Cohen & Martin, 2023; Hoffman et al., 2021; National Center for Education Statistics [NCES], 2022; Ottenheym-Vliegen et al., 2023). This social problem is on the rise in kindergarten through fifth-grade classrooms and negatively impacts students' academic, behavioral, emotional, and social development (Ashworth & Humphrey, 2020; Hajovsky et al., 2022; Horn et al., 2021; Merga, 2020; Owens et al., 2018). Teachers have reported that students lack the necessary self-regulation and social skills required for academic and behavioral success, and teachers are required to manage students' disruptive behaviors without adequate resources (Education Advisory Board [EAB], 2019).

The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. Through the investigation of gender differences across challenging behaviors, this study has the potential to elicit social change through the advocacy of gender-specific interventions that match kindergarten students' externalizing and internalizing behaviors. This is critical as effective classroom management is crucial for students' developmental success and overall well-being (Owens et al, 2018).

In Chapter 1, I will discuss the research topic of gender differences in kindergarten students' externalizing and internalizing behaviors and the role of inhibitory

control. Furthermore, its relationship to the social problem of disruptive classroom behaviors will demonstrate alignment. In this chapter, I will review the background literature, indicate the problem statement, define the purpose of this study, and clearly state the research question and hypotheses. The theoretical framework used to ground this study will be described and the nature of this research, key definitions, assumptions, and limitations will be presented. This chapter will conclude with a discussion of the study's significance to social change.

Background

Disruptive classroom behaviors can be defined as challenging actions that hinder a teacher's ability to educate students (Beaman et al., 2007; Habersaat et al., 2020; Ottenheym-Vliegen et al., 2023). Over the past 3 years, students' disruptive behaviors have significantly risen in classrooms across the United States (Belsha, 2021; Pole, 2019; Prothero, 2023; U.S. Department of Education, 2020). According to a survey administered by the EAB (2019), more than half of the teachers and administrators interviewed indicated the presence of challenging classroom behaviors. These behaviors have been found to interfere with students' learning and result in 2 hours of lost instructional time each week (Beaman et al., 2007; EAB, 2019; Leggio & Terras, 2019). Furthermore, research has found disruptive behaviors can lead to an increase in mental illness, truancy, substance abuse, conduct disorder, and teenage pregnancy (Ashworth & Humphrey, 2020; Cohen & Martin, 2023; Cumming et al., 2022; Dursley & Betts, 2014; Gutman & McMaster, 2020; Jones et al., 2015; Kim et al., 2022; Koca, 2022; Okano et

al., 2019; Olivier et al., 2020; Ottenheym-Vliegen et al., 2023; Reinke et al., 2022; Sheaffer et al., 2021).

In 2023, the CDC (2023) found that 5.5 million children ages 3 to 17 exhibited behavioral problems. Disruptive behaviors can be categorized by externalizing and internalizing actions (Ottenheym-Vliegen et al., 2023; Shi & Ettekal, 2021). Externalizing behaviors are outward-directed and include symptoms such as physical aggression, defiance, and property destruction (Askari et al., 2022; Babicka-Wirkus et al., 2023; Beaman et al., 2007; Matos et al., 2017; Moulton & Young, 2020; Ottenheym-Vliegen et al., 2023; Quistberg & Mueller, 2019; Reinke et al., 2022). Internalizing behaviors are inner-directed and include depression, anxiety, somatic complaints, and social isolation (Askari et al., 2022; Babicka-Wirkus et al., 2023; Beaman et al., 2007; Matos et al., 2017; Moulton & Young, 2020; Ottenheym-Vliegen et al., 2023; Quistberg & Mueller, 2019; Reinke et al., 2022).

Disruptive behaviors interfere with individuals' cognitive, emotional, and social well-being (Cohen & Martin, 2023; Cook & Coley, 2019; Davis & Qi, 2020; Gaspar et al., 2018; Hajovsky et al., 2022; Jones et al., 2015; Nash et al., 2016; Ottenheym-Vliegen et al., 2023). In 2022, a national survey of school staff reported students' behavioral problems increased by 15% since the 2018–2019 school year in U.S. classrooms (Elder et al., 2023). In 2022, 69% of surveyed teachers reported the occurrence of oppositional classroom behaviors; this increased from the reported frequency of 33% in 2019 (Elder et al., 2023). Students' emotional disconnect from school was also found to increase from 20% in 2019 to 61% in 2022 (Elder et al., 2023). Additionally, during these 3 years,

bullying increased by 11% and physical violence increased by 21% in classrooms across the United States (Elder et al., 2023). Researchers have suggested the increase in misbehavior is a result of electronics, relaxed parenting, and external stressors, such as community violence, family conflict, and substance abuse (Cumming et al., 2020; EAB, 2019).

Challenging classroom behaviors can be observed in early education with the severity of these disruptive behaviors increasing with age (Beaman et al., 2007). Ashworth and Humphrey (2020) found gender, family mental health diagnoses, poverty, and social difficulties are risk factors for negative school functioning. In previous studies, researchers have investigated gender differences in challenging classroom behaviors with a direct focus on adolescents and primary to secondary students (Gutman & McMaster, 2020; Hajovsky et al., 2022; Horn et al., 2021; Koca, 2022; Lau et al., 2021; Ma et al., 2022; Olivier et al., 2020; Sheaffer et al., 2021; Shi & Ettekal, 2021). An extensive literature review indicated adolescent girls had more internalizing problems compared to boys (Babicka-Wirkus et al., 2023; Gaspar et al., 2018; Gutman & McMaster, 2020; Lau et al., 2021; Rosenfield & Smith, 2012), while adolescent boys had greater externalizing behaviors compared to girls (Gutman & McMaster, 2020; Lau et al., 2021; Ma et al., 2022; Matos et al., 2017; Olivier et al., 2018). Past research also found inhibitory control, a central executive functioning skill that permits individuals to control their thoughts and behaviors, was negatively correlated to disruptive behaviors (Cumming et al., 2022; Morgan et al., 2019; Quistberg & Mueller, 2020; Reinke et al., 2022).

When examining challenging classroom behaviors, previous studies included the variables of academics (Cook & Coley, 2019; Nash et al., 2016; Ottenheym-Vliegen et al., 2023), social skills (Davis & Qi, 2020; Gaspar et al., 2018), classroom management (Cohen & Martin, 2023; Hoffmann et al., 2021), language skills (Cook & Coley, 2019; Davis & Qi, 2020), and/or positive teacher–student connections (Koca 2016; Owens et al., 2018). Furthermore, prior research has focused on systemic literature reviews (Askari et al., 2021; Grissom & Reyes, 2018), studies in countries outside the United States (Ashworth & Humphrey, 2020; Babicka-Wirkus et al., 2023; Sadeghi et al., 2022), or individuals with pre-existing mental health diagnoses (Lau et al., 2021; Sheaffer et al., 2021). Although gender differences have been found across behavioral challenges, little research has examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. It is critical to provide early intervention as research has found the social problem of disruptive school behavior is correlated to later school drop-out, unemployment, incarceration, deficits in socialization, and mental health diagnoses (Cumming et al., 2022; Gutman & McMaster, 2020; Hajovsky et al., 2022; Koca, 2022; Okano et al., 2019; Olivier et al., 2018).

Problem Statement

The specific research problem addressed in this study was the lack of knowledge about teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. This problem evolved from the social issue of disruptive classroom

behaviors in the United States. In a 2019 survey conducted by EAB, 56% of teachers surveyed indicated an increase in students' misconduct and challenging behaviors. These behaviors interfere with students' learning and the delivery of teachers' instruction.

Scholarly studies have included the variables of academics, (Cohen & Martin, 2023; Cook & Coley, 2019; Nash et al., 2016; Ottenheym-Vliegen et al., 2023), social skills (Cohen & Martin, 2023, Cook & Coley, 2019; Davis & Qi, 2020; Gaspar et al., 2018; Hajovsky et al., 2022; Jones et al., 2015), and/or teacher closeness (Koca 2016; Owens et al., 2018) when investigating the increase of disruptive behaviors in the classrooms. Although previous research indicated gender differences in adolescents' challenging behaviors, little research has been conducted regarding teachers' perceptions of gender differences in neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control. This is important as kindergarten sets the stage for later academic and behavioral success (Cook & Coley, 2019; Morgan et al., 2019; Welsh et al., 2016) and eliminates the role of hormones, a factor known to affect behaviors (Askari et al., 2021; Babicka-Wirkus et al. 2023; Chi & Cui, 2020; Gaspar et al., 2018; Olivier et al., 2018; Olivier et al., 2020). The goal of this study was to inform stakeholders in early education of gender differences in a sample of neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors while controlling inhibitory control, as measured by teacher-reported Social Skills Rating System (SSRS-T; Gresham & Elliott, 1990) and the Child Behavior Questionnaire Short-Form (CBQ-SF; Putnam & Rothbart, 2006).

Purpose of the Study

The purpose of this quantitative study was to examine teachers' perceptions of gender (independent variable) differences in externalizing and internalizing behaviors (dependent variables), and the role of inhibitory control (covariate), in a sample of neurotypical and neurodiverse kindergarten students. This study used a non-experimental design. Secondary data from the NCES Early Childhood Longitudinal Study, Kindergarten Class: 2011 (ECLS-K2011) was used, with a focus on the 2011 kindergarten class (Tourangeau et al., 2019). This longitudinal data set is available for public use and includes a national sample of children from public and private schools in the United States (NCES, n.d.b). The ECLS-K2011 provides comprehensive data on students' cognitive development, executive functioning, behaviors, and social skills (NCES, n.d.b; Tourangeau et al., 2019).

This study assessed the statistical effect of gender on externalizing and internalizing behaviors in a sample of neurotypical and neurodiverse kindergarten students after controlling inhibitory control (Tourangeau et al., 2019). Data were analyzed with a one-way multivariate analysis of covariance (MANCOVA). This was an appropriate statistical analysis because there was one independent categorical variable (gender), two scale-dependent variables (externalizing and internalizing behaviors), and one scale covariate (inhibitory control). Results indicated a statistical difference between female and male kindergarten students' externalizing and internalizing behaviors, while controlling for inhibitory control, according to teachers' reports using the SSRS-T and CBQ-SF.

This research will contribute to knowledge of gender differences in kindergarten students' challenging behaviors and the role of inhibitory control. Furthermore, this study may contribute to systemic changes in the educational context through the implementation of behavioral strategies that use a gender-specific approach. The methodology will be further discussed in Chapter 3.

Research Question and Hypotheses

The research question for this study was:

RQ: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control as measured by teacher-reported SSRS-T and CBQ-SF?

H_0: There is no significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

H_a: There is a significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

To address the research question in this quantitative study, archival data using teachers' reports of kindergarten students' behaviors were used (Tourangeau et al., 2019). Two data collection instruments were utilized in the ECLS-K2011: the SSRS-T and CBQ-SF (Tourangeau et al., 2019). The SSRS-T measured kindergarten students' internalizing and externalizing behaviors and their impact on academics, teacher interactions, and peer relationships (Gresham & Elliott, 1990; Tourangeau et al., 2019).

This assessment tool measured externalizing behaviors with five items and internalizing behaviors with four items; each item used four values and was used as the dependent variables in this study (Gresham & Elliott, 1990). The CBQ-SF measured kindergarten students' inhibitory control through the assessment of students' behaviors related to the executive functioning skill of inhibitory control and attentional focusing (Putnam & Rothbart, 2006). Inhibitory control was measured using six items with values 1 to 7 (Tourangeau et al., 2019). This variable was the covariate. The independent variable of gender (female or male) was reported by parents/guardians during interviews with trained NCES (n.d.b) staff.

Theoretical Framework for the Study

Sandra Bem's (1981) gender schema theory was the theoretical framework for this study. This social cognitive theory examines how individuals become "gendered from an early age" through societal influences on their behavior and cognitive processing (Starr & Zurbriggen, 2017, p. 567). According to gender schema theory, children align their behaviors to observed gender norms and construct cognitive schemas through gender processing (Bem, 1981). Gender schemas permit individuals to arrange gender-related knowledge, experiences, and information into mental categories. Bem (1981) proposed that children become feminine or masculine by modeling the behavior of others during early development and creating beliefs about gender.

Gender is an important way children structure their world during early development. Scholarly literature has found gender differences in children's disruptive behaviors, closeness with teachers, academics, and social skills (Hajovsky et al., 2022;

Horn et al., 2021; Lau et al., 2021; Sheaffer et al., 2021). Although differences have been found, little research has examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students. According to Bem's (1981) gender schema theory, gender differences in kindergarten students' challenging behaviors may be explained by gender-specific modeling of behaviors and the construction of gender schemas based on social experiences and cultural differences.

Bem's (1981) gender schema theory provided a structural framework for the examination of gender differences in kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control. Gender schemas permit children to self-identify, organize gender norms, and drive their behaviors (Bem, 1981). This theory would suggest female and male kindergarten students modify their behaviors to align with gender-specific expectations socially observed during early development. In Chapter 2, I will further discuss Bem's (1981) gender schema theory and its relationship to this study.

Nature of the Study

This study utilized a quantitative non-experimental research design. The research question posed was intended to measure the extent of female and male kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control according to teachers' reports using the SSRS-T and CBQ-SF. These are two reliable data collection instruments that will be further discussed in Chapter 3. A quantitative study was appropriate as data were measured and statistically analyzed (Creswell & Creswell,

2018). This was a non-experimental study because the relationship between gender and challenging behavior was examined without manipulating the variables; furthermore, random assignment did not occur in the ECLS-K2011 data set (Creswell & Creswell, 2018; Tourangeau et al., 2019).

Secondary data from the ECLS-K2011 provided teachers' reports of kindergarten students' disruptive behaviors and inhibitory control (Tourangeau et al., 2019). This longitudinal study collected a national sample of data on U.S. children in grades kindergarten through fifth regarding their cognitive, behavioral, physical, and emotional development (Tourangeau et al., 2019). This archival data set offers reliable measures of students' behavior. The focus of this study was on teachers' perceptions of gender (independent variable) differences in externalizing and internalizing behaviors (two dependent scale variables) and the role of inhibitory control (covariate) in a sample of neurotypical and neurodiverse kindergarten students.

A sample of 18,174 kindergarten students from public (1,036) and private (283) schools was used in this study (Tourangeau et al., 2019). The kindergarten population was selected because most kindergarten students in the United States are 5 to 6 years of age, a time when inhibitory control is coordinated (NCES, 2020; Quistberg & Mueller, 2020). Additionally, kindergarten students are pre-pubescent, and hormones are known to negatively impact behaviors (Chi & Cui, 2020; Olivier et al., 2018). Furthermore, this transitional period presents a host of academic, social, and behavioral expectations (Cook & Coley, 2019; Morgan et al., 2019; Welsh et al., 2016).

Teachers' reports were used to determine the extent of differences in female and male kindergarten students' externalizing and internalizing behaviors. Measures were reported using the SSRS-T and CBQ-SF. This is important as the student–teacher relationship is the foundation for students' school experiences and elicits a sense of safety within the learning environment (Hoffman et al., 2021; Koca, 2016). Horn et al. (2021) found teachers' emotional closeness with students was positively correlated to students' overall well-being, while students' conflictual relationships with teachers were associated with disruptive behaviors.

Gender was the independent variable in this study. The ECLS-K2011 categorized gender as female or male (Tourangeau et al., 2019). The archival data set did not distinguish between gender and sex or gender identity. Students' gender was reflected in the demographic information completed by their parents/guardians during the interview with trained NCES field staff (Tourangeau et al., 2019). This study mirrored this definition of gender for reliability purposes.

Externalizing and internalizing behaviors were the dependent variables. The SSRS-T measures students' externalizing and internalizing behaviors according to teachers' perceptions (Tourangeau et al., 2019). Externalizing problem behaviors included five items with values 1 to 4 (Tourangeau et al., 2019). Internalizing problem behaviors included four items with values 1 to 4 (Tourangeau et al., 2019). Greater scores indicate a higher incidence of behavioral problems (Gresham & Elliott, 1990; Tourangeau et al., 2019).

Inhibitory control was the covariate. The ECLS-K2011 used the CBQ-SF to measure students' inhibitory control and attentional focus according to teachers' reports (Tourangeau et al., 2019). Inhibitory control included six items with values 1 to 7 (Tourangeau et al., 2019). A higher score indicates the behavior occurred more frequently (Putnam & Rothbart, 2006; Tourangeau et al., 2019).

This study sought to evaluate the effect of gender (independent variable) on the dependent variables of externalizing and internalizing behaviors, after controlling for inhibitory control. Data were analyzed by MANCOVA using IBM SPSS (n.d.). This statistical analysis was selected because it permits researchers to test if there is a statistically significant adjusted mean difference between the independent variable of gender and the combined dependent variables of externalizing and internalizing behaviors after controlling for the covariate of inhibitory control (Creswell & Creswell, 2018). Inhibitory control was included in this study because previous research found this variable to be negatively correlated with internalizing and externalizing behaviors; therefore, this analysis helped reduce the risk of error when assessing the extent of gender differences in neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors as measured by teachers' perceptions using the SSRS-T and CBQ-SF.

Definitions

The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students.

Academics: School-readiness skills (Sheaffer et al., 2021). Academics relate to students' learning and performance. When defining academics, it is important to consider a student's grade level, ability, and course of study (Shi & Ettekal, 2021).

Disruptive classroom behaviors: Actions that interfere with students' learning environment (Ottenheym-Vliegen et al., 2023). These behaviors disrupt teachers' instruction and students' academic functioning (Babicka-Wirkus et al., 2023; Gaspar et al., 2018; Olivier et al., 2018). Disruptive classroom behaviors can be categorized as externalizing behaviors and internalizing behaviors (Ekornes & Bere, 2022; Ottenheym-Vliegen et al., 2023). *Challenging behaviors* were used synonymously with disruptive behaviors in this study.

Externalizing behaviors: Outwardly directed behaviors (Askari et al., 2021). These behaviors can result in harm to others and the environment (Babicka-Wirkus et al., 2023; Matos et al., n.d.; Ogden et al., 2023; Reinke et al., 2022). Externalizing behaviors include physical aggression, hyperactivity, stealing, lying, and property destruction (Gutman & McMaster, 2020; Reinke et al., 2022; Shi & Ettekal, 2021).

Gender: Female or male in this study. Gender was the independent variable. The ECLS-K2011 did not differentiate between gender, sex, or gender identity (Tourangeau et al., 2019). Students' gender was reported by their parents/guardians during the fall interview with field staff and verified with school records (NCES, n.d.b; Tourangeau et al., 2019). In this study, and in alignment with the ECLS-K2011 archival data being used, gender was identified using the categories of female or male (Tourangeau et al., 2019).

Inhibitory control: The ability to control inappropriate behaviors, thoughts, and responses (Dönmez & Imamoglu, 2022; Garcia et al., 2019; Sadeghi et al., 2022). This central executive functioning skill permits individuals to resist automatic urges and ignore distractions (Pascual et al., 2019). Inhibitory control develops rapidly from birth at age 6, continues to develop throughout one's lifespan, and steadily declines in older age (Delalande et al., 2018; Kang et al., 2022; Otterson, 2022; Sadeghi et al., 2022).

Internalizing behaviors: The "internal expression of distress" (Askari et al., 2021, p. 737). These behaviors are directed inward and can result in harm to oneself (Ekornes & Bere, 2022; Mouton & Young, 2020; Reinke et al., 2022). Anxiety, depression, social withdrawal, fearfulness, and somatic complaints are examples of internalizing behaviors (Babicka-Wirkus et al., 2023; Gutman & McMaster, 2020; Ma et al., 2022; Shi & Ettekal, 2021).

Kindergarten: The transitional grade that prepares children for primary education (U.S. Department of Homeland Security [DHS], n.d.; NCES, n.d.b). In the United States, this educational program is offered to 5- to 6-year-old students, depending on state requirements (DHS, n.d.). Kindergarten provides developmentally appropriate social, behavioral, and academic learning opportunities to children in a formal setting (NCES, n.d.b).

Neurodiverse: The differences in children's development and functioning (Hens & Van Goidsenhoven, 2023). Children with developmental disorders such as autism, Tourette syndrome, cerebral palsy, and attention-deficit/hyperactivity disorder are

considered neurodiverse (Hens & Van Goidsenhoven, 2023). These differences are the result of various gene variances (Hens & Van Goidsenhoven, 2023).

Neurotypical: Brain functioning in children that is deemed socially typical (Hens & Van Goidsenhoven, 2023). Neurotypical children develop academic, social, and behavioral skills around the same time as their peers (Hens & Van Goidsenhoven, 2023). Children labeled *neurotypical* exhibit behaviors that are socially expected (Hens & Van Goidsenhoven, 2023).

Social skills: The daily skills used to interact with others (Davis & Qi, 2020; Gaspar et al., 2018). These skills permit verbal and nonverbal methods of communication (Davis & Qi, 2020). Strong social skills enable individuals to understand social contexts and behave accordingly (Olivier et al., 2018; Olivier et al., 2020).

Teacher closeness: The positive emotional connection between a student and teacher (Horn et al., 2021). Teachers have an essential role in students' social, academic, and behavioral development (Mohamed, 2018). High teacher closeness is positively correlated to academics and expected prosocial classroom behaviors (Hoffmann, et al., 2021; Horn et al., 2021).

Assumptions

"Whether we are aware of it or not, we always bring certain beliefs and philosophical assumptions to our research" (Creswell & Poth, 2018, p. 15). Quantitative research uses measurable data to explain areas of interest (Moroi, 2020). This non-experimental quantitative study was guided by a positivistic approach suggesting knowledge is obtained through evidence (Moroi, 2020; Scotland, 2012). Four

philosophical assumptions were made in this research: ontological, epistemological, axiological, and methodological (see Creswell & Creswell, 2018; Moroi, 2020). These philosophical assumptions influenced the formation of my research question, theoretical framework, and the analysis of variables (see Moroi, 2020).

The ontological assumption in this study assumed the kindergarten sample used in the ECLS-K2011 was a nationally representative sample of kindergarten students in the United States (Tourangeau et al., 2019). I assumed gender, challenging behaviors, and inhibitory control were observable and measurable (see Creswell & Creswell, 2018; Scotland, 2012). Furthermore, I assumed the social problem of disruptive classroom behavior existed.

My epistemological assumption suggested the relationship between gender and disruptive behavior was meaningful and could be quantified in this study through teachers' knowledge (see Creswell & Creswell, 2018; Moroi, 2020). I assumed teachers provided accurate reports of kindergarten students' externalizing and internalizing behaviors using the SSRS-T and precise measures of kindergarten students' inhibitory control using the CBQ-SF (see Tourangeau et al., 2019).

My axiological assumption presumed data were objective and free of bias (see Creswell & Creswell, 2018; Moroi, 2020). I assumed the instruments used in the ECLS-K2011 study provided reliable measures of kindergarten students' behaviors and those teachers understood the questions posed (Tourangeau et al., 2019). Additionally, I assumed parents/guardians accurately reported kindergarten students' gender during interviews and school registration (Tourangeau et al., 2019). Furthermore, I assumed

social influences impacted gender differences in internalizing and externalizing behaviors, and the role of inhibitory control in neurotypical and neurodiverse kindergarten students, according to teachers' perceptions. This assumption led to the selection of Bem's (1981) gender schema theory for the structural framework used in this study (Creswell & Creswell, 2018; Moroi, 2020).

Finally, my methodological assumption presumed the SSRS-T and CBQ-SF accurately measured teachers' perceptions of kindergarten students' externalizing and internalizing behaviors and inhibitory control (Moroi, 2020; Tourangeau et al., 2019). I assumed the MANCOVA would inform the scholarly audience of any significant gender differences in neurotypical and neurodiverse kindergarten students' internalizing and externalizing behaviors after controlling for inhibitory control (Tourangeau et al., 2019). Furthermore, I assumed the findings of this study could be generalized to other kindergarten students when examining teachers' perceptions of gender differences in internalizing and externalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students (Moroi, 2020; Scotland, 2012).

Scope and Delimitations

This quantitative study examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. Kindergarten students were selected in this study because they are pre-pubescent and hormones have been found to affect behaviors (Askari et al., 2021; Moulton & Young, 2020; Olivier et al., 2020). Additionally, the covariate of inhibitory control is at its prime development at 5 to 6 years

of age, a time when children are entering kindergarten in the United States (NCES, 2020; Quistberg & Mueller, 2020).

The ECLS-K2011 provided a nationally representative sample of kindergarten students in the United States (NCES, n.d.b; Tourangeau et al., 2019). Students were selected using a multistage sampling design (NCES, n.d.b; Tourangeau et al., 2019). In the first stage, primary sampling units were developed from 3,141 counties in the United States (NCES, n.d.b; Tourangeau et al., 2019). A stratified sampling procedure was used with 40 strata defined by race/ethnicity, income, class size, and geographic region (NCES, n.d.b). The second stage entailed choosing samples of public and private schools with kindergarten programs (NCES, n.d.b; Tourangeau et al., 2019). This included 1,036 public schools and 283 private schools in the initial sampling (NCES, n.d.b). The final stage of sampling included selecting 23 kindergarteners from each sampled school (NCES, n.d.b; Tourangeau et al., 2019). Asian and Pacific Islander students were oversampled to ensure accurate measures were estimated (NCES, n.d.b; Tourangeau et al., 2019). These sampling strategies helped increase the generalizability of the findings using this archival data (Creswell & Creswell, 2018). State, district, school, and parent/guardian consent were required for participation in the longitudinal study (NCES, n.d.b). The ECLS-K2011 sample included 18,174 kindergarten students enrolled in public (1,036) and private (283) schools in the United States (NCES, n.d.b; Tourangeau et al., 2019).

The present study measured the influence of gender on neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role

of inhibitory control using archival data from the ECLS-K2011 (Tourangeau et al., 2019). Gender was selected as the independent variable. Internal validity was protected by confirming students' gender from two sources: parent/guardian interviews and school registration records (Creswell & Creswell, 2018; Tourangeau et al., 2019). Bem's (1981) gender schema theory was the theoretical framework used in this study to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students.

Data were obtained from parents/guardians, teachers, school administrators, students, and before- and after-school providers (Tourangeau et al., 2019). This study focused on the data collected from teachers' reports of kindergarten students' behavior and inhibitory control using the SSRS-T and CBQ-SF (Tourangeau et al., 2019). All participating general education teachers used the same instrument to report students' behaviors to ensure the internal validity of these dependent variables (Tourangeau et al., 2019).

The methodology will be further discussed in Chapter 3. Results may be generalized to kindergarten students in the United States to better understand teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students.

Limitations

The limitation of this study was the use of archival data. Secondary data permit researchers to have access to available data, saving time and money; however, the

accuracy of the data received from teachers in the ECLS-K2011 class cannot be confirmed, presenting a potential limitation (Tourangeau et al., 2019). It is unknown if the researchers followed steps to ensure the data collected were reliable and valid. Furthermore, I assumed this secondary data adhered to the multistage sampling design to obtain an accurate representation of kindergarten students in the United States (NCES, n.d.b; Tourangeau et al., 2019). This quantitative study employed a non-experimental design; therefore, cause-and-effect conclusions could not be made (Creswell & Creswell, 2018).

Kindergarten students' externalizing and internalizing behaviors and inhibitory control were reported by teachers using the SSRS-T and CBQ-SF. Although these instruments ensure reliability and validity, these assessments are closed-ended and do not provide a context to kindergarten students' behaviors (see Creswell & Creswell, 2018). The timing of self-administered assessments and teachers' biases possibly posed a limitation to this study. For example, if teachers completed the SSRS-T and CBQ-SF after a stressful day or when sleep deprived, results may be inaccurate. Additionally, if teachers held preconceived ideas about gender behavioral expectations, results may have been biased (Creswell & Creswell, 2018). Furthermore, the use of self-reporting posed limitations, such as underreporting and overreporting, misunderstanding of the assessment questions, or acquiescence bias where raters disproportionately selected higher responses (see Creswell & Creswell, 2018).

Social desirability bias may also have occurred in this study (see Creswell & Creswell, 2018). Teachers may have assessed students' behavior based on what they

believe to be socially acceptable responses or behaviors (Creswell & Creswell, 2018). This study assumed teachers provided accurate assessments of kindergarten students' externalizing and internalizing behaviors and inhibitory control. Because this study focused on teachers' measures, generalizations of gender differences in kindergarten students' behaviors may be limited to teachers' perceptions (Creswell & Creswell, 2018).

Limitations were addressed by using a large sample (N = 18,174) of kindergarten students in this study (NCES, n.d.b; Tourangeau et al., 2019). Data were retrieved from the ECLS-K2011 class (NCES, n.d.b; Tourangeau et al., 2019); this data source was sponsored by the NCES (n.d.b) and provided credible and verified information. Measures were taken by the NCES to ensure data were collected ethically and consistently to ensure reliability (NCES, n.d.b; Tourangeau et al., 2019). Furthermore, valid instruments were used for teachers to self-report students' behavior and data were frequently checked to establish data integrity and security (NCES, n.d.b). Statistical tests using the IBM SPSS (n.d.) program were employed in this study. Before analyzing the data using a one-way MANCOVA, the assumptions were evaluated. Testing of assumptions included two dependent variables (externalizing and internalizing behaviors), one independent variable with two categories (gender: male or female), one covariate (inhibitory control), independent observations, a liner relationship with the independent variable and each pair of dependent variables, a linear relationship between each dependent variable and the covariate, homogeneity of regression slopes, homogeneity of variances and covariances, no significant outliers, and multivariate normality (see Warner, 2013).

Significance of the Study

This study addresses the gap in understanding teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. Children enter kindergarten with various cognitive, behavioral, and social abilities. This study sought to assess if there is a significant mean difference between male and female kindergarten students' externalizing and internalizing behaviors after controlling for inhibitory control. Findings from this study may provide program administrators and teachers in early education with information regarding the influence of gender on challenging classroom behaviors according to teachers' reports. Furthermore, this study may contribute to the advocacy for gender-specific interventions in early education.

One of the goals of this study was to elicit social change in the educational system. Findings from this study highlight the mean difference between female and male neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors after adjusting for inhibitory control according to teachers' reports. This may educate teachers on the power of observed behaviors and the influence of gender schemas.

Bem's (1981) gender schema theory guided my research and campaign for proactive behavioral interventions that respect the active role children take in observing others, processing information, and creating gender beliefs that influence their behaviors. If students are motivated to model gender-specific behaviors, early interventions need to be implemented to proactively address disruptive behaviors and cognitive schemas. This

would permit educators and policymakers to effectively address the social problem of challenging classroom behaviors in the United States with a gender awareness approach (CDC, 2023; Cohen & Martin, 2023; EAB, 2019; NCES, 2022; Ottenheym-Vliegen et al., 2023).

Summary

In Chapter 1, I presented the social problem of increased challenging behaviors in classrooms across the United States (CDC, 2023; EAB, 2019; Ottenheym-Vliegen et al., 2023; Sheaffer et al., 2021). Disruptive behaviors can be categorized as externalizing and internalizing behaviors that impact the learning environment. Previous literature has addressed gender differences across behavioral challenges; however, little research has examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students.

In Chapter 1, I reviewed background information, presented the social problem, described the study's purpose, and posed the research question: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control as measured by teacher-reported SSRS-T and CBQ-SF? Additionally, in Chapter 1, I presented Bem's (1981) gender schema theory that guided my research. In conclusion, I discussed this quantitative study's assumptions, the scope of this research, its limitations, and its significance. In Chapter 2, I will review and synthesize the literature related to the social

problem of challenging classroom behaviors, identify a gap in the research, discuss literature search strategies, and demonstrate a need for this study.

Chapter 2: Literature Review

Introduction

As discussed in Chapter 1, previous literature has included investigations into gender differences in children's disruptive behavior with a direct focus on adolescents or longitudinal studies of students in primary to secondary grades (Koca, 2022; Lau et al., 2021; Ma et al., 2022; Sheaffer et al., 2021; Shi & Ettekal, 2021). In Chapter 2, I review the research related to the social problem of disruptive school behaviors and discuss the gap in the literature. Furthermore, in this chapter, I analyze the relationship between gender, externalizing and internalizing behaviors, and inhibitory control in kindergarten students in the United States. The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students.

Literature Review Strategy

Walden University's library was used to retrieve peer-reviewed scholarly articles. The databases used included EBSCO, Education Source, ERIC, SAGE Journal, and APA PsychInfo. Additionally, to find scholarly literature, the following key search terms were utilized: *children's external and internal behavior problems*; *gender differences* AND *internal and external behavior*; *gender differences* AND *internal and external behavior* AND *students; gender differences* AND *aggression; gender differences* AND *aggression* AND *children; gender* AND *aggression* AND *children; gender differences* AND *acting out behavior* AND *children; gender differences* AND *anxiety; gender differences* AND

anxiety AND *children; gender differences* AND *depression; gender differences* AND *depression* AND *children; gender differences* AND *self-esteem* AND *children; externalizing and internalizing behavior* AND *student achievement*; *gender differences in student behavior* AND *literature review*; *internal and external behavior* AND *gender differences* AND *literature review*; *student behavior* AND *gender differences* AND *literature review; SSRS* AND *behavior* AND *gender differences; kindergarten students* AND *behavior; kindergarten students* AND *behavior* AND *gender; children* AND *inhibitory control; inhibitory control* AND *children* AND *behavior; inhibitory control* AND *behavior; inhibitory control* AND *kindergarten; inhibitory control* AND *kindergarten* AND *behavior.*

After examining databases using these criteria, I reviewed the abstracts to determine if the articles were relevant to my study. The literature search was limited to full-text and peer-reviewed scholarly journals from 2018–2023. The journals included in this literature were *AERA Open, Applied Developmental Science, Behavioral Disorders, Child and Adolescent Psychiatry and Mental Health, Child Development, Early Education and Development, Education Research and Reviews, Frontiers in Psychology, Grantee Submission, Journal of Educational Psychology, Journal of Emotional and Behavioral Disorders, Journal of Library Administration, Journal of Pedagogical Research, Journal of School Psychology, Journal of Research in Special Educational Needs, Journal of Youth and Adolescence, Psychology Review, National Institute of Health, Social Psychiatry and Psychiatric Epidemiology, Social Sciences and Humanities Open, The Clinical Neuropsychologist,* and *Topics in Early Childhood Special*

Education. Articles were selected that incorporated the key variables of gender and externalizing and/or internalizing behavior, and gender and inhibitory control. This extensive search revealed a literature gap in gender differences in kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control.

In this quantitative study, I utilized a public secondary data set. To find archival data, I used Walden University's library to conduct a statistics and data search. The educational site selected was the NCES (n.d.a). Key search terms used on the NCES site included *kindergarten behavior*. I was able to find the ECLS-K2011 using this strategy (Tourangeau et al., 2019). This data set included key variables of gender, kindergarten students, externalizing behaviors, internalizing behaviors, and inhibitory control using teachers' reports; therefore, it was relevant to my research study.

Theoretical Foundation

Sandra Bem's (1981) gender schema theory was the theoretical framework for my research. This theory examines gender differences in individuals and the effects of biological and social influences on their behaviors and cognitions (Bem, 1981). Bem (1981) proposed that female and male children become feminine and masculine through gender processing. This occurs when observing others in their social environment, constructing cognitive schemas, and modeling these gender norms.

Bem's (1981) gender schema theory introduced the idea of mental constructs that categorize gender-specific behaviors; these structures are called gender schemas. Bem (1981) found children develop gender schemas early in life through social influences. As a result, individuals strive to match their behaviors to the expectations believed to be

gender appropriate (Bem, 1981). With time, these gender schemas become more complex (Bem, 1981).

This social cognitive theory helps explain how children become gendered through society (Bem, 1981). Gender differences have been found across the following variables in children: disruptive behavior, teacher-closeness, academics, social skills, and inhibitory control; however, scholarly research has focused on adolescents or a large age range of elementary and secondary students (Hajovsky et al., 2022; Shi & Ettekal, 2021). Although differences have been found, little information is known regarding teachers' reports of gender differences in kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control.

According to Bem (1981), gender schemas influence individuals' play, career choices, academics, relationships, and behavior (Ogden et al., 2023; Starr & Zurbriggen, 2017). Furthermore, Bem (1981) found children are more inclined to imitate same-gender behaviors. Researchers have suggested gender differences in externalizing and internalizing behaviors and inhibitory control are due to differences in socialization (Babicka-Wirkus et al., 2023; Mohamed, 2018). Through behavioral modeling, female children receive the message that their socialization should be organized and calm while male children are exposed to higher energy and fantasy play (Bradshaw et al., 2010; Hajovsky et al., 2022; Stewart et al., 2021). Children construct gender schemas from these observations, which later influence their behaviors (Bem, 1981).

Gender schema theory suggests teachers expect students' behavior to adhere to gender-specific societal influences and norms (Olivier et al., 2018). In the United States,

female individuals are expected to be quiet, kind, and empathetic, while male individuals are expected to be loud, strong, and aggressive (Amin et al., 2018; Bem, 1981; Hajovsky et al., 2022). This explains why male adolescents have been found to exhibit more externalizing behaviors compared to female adolescents (Davis & Qi, 2020; Olivier et al., 2020) and girls were found to display higher inhibitory control than boys (Dönmez & Imamoglu, 2020; Pascual et al., 2019). Furthermore, researchers have reported female students have closer emotional relationships with their teachers compared to male students (Horn et al., 2021; Sheaffer et al., 2021). These relationships create a positive attachment figure at school and establish the structural foundation for future student–teacher interactions (Mohamed, 2018; Ottenheym-Vliegen et al., 2023; Owens et al., 2018).

Previous research has supported Bem's (1981) gender schema theory and used this framework to guide their studies. Students spend a great deal of time within the school setting. The school context expects students to be compliant, attentive to instruction, and responsible citizens (Gaspar et al., 2018; Horn et al., 2021). These are conflicting societal messages for boys who are typically taught to be competitive, aggressive, and independent (Horn et al., 2021).

Hajovsky et al. (2022) found male primary school students (kindergarten through sixth grade) had greater social and academic challenges compared to female students and suggested these differences were due to socialization and observed modeling. Similarly, Horn et al. (2021) and Olivier et al. (2018) reported that first-grade and adolescent girls had fewer conflicts with teachers compared to boys. They proposed these differences

reflect societal expectations for female students to follow teachers' rules. In addition, Garcia et al. (2019), Dönmez and Imamoglu (2020), and Pascual et al. (2019) found primary to adolescent-age girls had greater inhibitory control compared to boys. These researchers hypothesized differences were due to gender-specific imitation as girls are socially advised to be amendable and control their automatic actions (Stewart et al., 2021). These findings further support Bem's (1981) gender schema theory; however, little research has examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in kindergarten students.

Bem's (1981) gender schema theory was an appropriate choice for my research as I examined the extent to which female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control as measured by the teacher-reported SSRS-T and CBQ-SF. Societal influences provide gender-specific behaviors for female individuals and male individuals to model, resulting in the construction of cognitive schemas (Bem, 1981). This theoretical framework suggests female and male kindergarten students modify their externalizing and internalizing behaviors and control their inhibitions to align with gender-specific expectations observed during early development.

According to Bem's (1981) gender schema theory, I hypothesized that teachers in the United States would report male kindergarten students exhibited more externalizing behaviors compared to female students due to the societal expectations for boys to be tough, active, and confident (Amin et al., 2018; Bem, 1981; Starr & Zurbriggen, 2017; Stewart et al., 2021). Furthermore, I expected teachers to report kindergarten female

students displayed more internalizing behaviors and greater inhibitory control compared to boys due to the socially constructed beliefs for girls to be compliant, nurturing, and empathetic (Amin et al., 2018; Bem, 1981; Starr & Zurbriggen, 2017; Stewart et al., 2021). This study analyzed archival data using a one-way MANCOVA to test if there was a statistically significant difference between kindergarten students' gender and the combined dependent variables of externalizing and internalizing behaviors after controlling for inhibitory control. I hypothesized there would be a gender difference in the combined reports of neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors according to teachers.

Literature Review Related to Key Variables

The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. The specific research design was non-experimental. I focused on teachers' reports of these gender differences in their kindergarten classrooms. The data collection instruments focused on teachers' observations from archival data using the SSRS-T and CBQ-SF (Tourangeau et al., 2019). The research question was: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control, as measured by the teacher-reported SSRS-T and CBQ-SF?

Previous literature has covered tests of the relationship between gender differences and challenging behavior (Babicka-Wirkus et al., 2023; Olivier et al., 2020);

gender, age, and challenging behavior (Hajovsky et al., 2022; Koca, 2022); behavior problems and language skills (Davis & Qi, 2020); gender differences and social skills (Gaspar et al., 2018; Sheaffer et al., 2021); gender differences and behavior and mental health diagnoses (Lau et al., 2021; Sheaffer et al., 2021); gender differences, disruptive behavior, and teacher closeness (Horn et al., 2021; Shi & Ettekal, 2021); gender differences and executive functioning (Pascual et al., 2019); and disruptive behavior and executive functioning (Quistberg & Mueller, 2020; Reinke et al., 2022). Furthermore, past studies have approached this social problem by focusing on adolescents or primary and secondary students (Babicka-Wirkus et al., 2023; Ma et al., 2022). Although gender differences have been found among these variables, minimal research has examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. In this review of the literature, I discuss research in the following areas: gender, kindergarten students, disruptive behaviors, externalizing behaviors, internalizing behaviors, and inhibitory control.

Gender

An extensive literature review suggests gender is an important variable in the development of disruptive behaviors (Almurtaji et al., 2018; Babicka-Wirkus et al., 2023; Chung & Chen, 2020; Granero-Gallegos et al., 2020; Gutman & McMaster, 2020; Hayes, 2007; Lau et al., 2021; Matos et al., 2017; Rosenfield & Smith, 2012; Salavera et al., 2019; Sheaffer et al., 2021). Alink et al. (2006) reported gender differences could be found as early as 12 to 36 months of age, with male children displaying more aggressive

behaviors than female children. Habersaat et al. (2020) found that “when males and females are exposed to the same level of strain, males are more prone to respond with other-directed negative emotions (e.g., anger or irritability), whereas females show more self-directed negative emotions, including anxiety and depression symptoms” (p. 1,113). Gender differences have been established in students’ academics, social skills, teacher closeness, inhibitory control, and challenging behaviors (Borg, 2014; Granero-Gallegos et al., 2020; Grissom & Reyes, 2019; Hajovsky et al., 2022; Koca, 2022; Lau et al., 2021; Olivier et al., 2018; Sheaffer et al., 2021; Zen et al., 2019). Additionally, literature has indicated gender has a critical role in education and can be a potential risk factor for poor school functioning (Ashworth & Humphrey, 2020; Borg, 2014; Pascual et al., 2019).

Gender differences have been found in brain structures; male individuals with disruptive behaviors had lower prefrontal cortex gray matter and volume compared to female individuals (Ibrahim et al., 2021). Previous literature has reported male students had greater externalizing problems and teacher conflicts compared to female students, while female students had more internalizing problems, inhibitory control, and social skills in comparison to male students (Bradshaw et al., 2009; Granero-Gallegos et al., 2020; Horn et al., 2021; Lau et al., 2021; Ma et al., 2022; Maguire et al., 2016; Sheaffer et al., 2021; Zen et al., 2019). For example, Babicka-Wirkus et al. (2023) reported female adolescents in Poland self-reported more somatic complaints and anxiety than male adolescents did. Similarly, Gaspar et al. (2018) found that Portuguese female adolescents had greater social empathy, social awareness, and social support in comparison to male adolescents. Oliver et al. (2018) indicated male adolescents had greater conflicts with

teachers and lower academic engagement compared to female adolescents, and Oliver et al. (2020) found externalizing problems were correlated to lower cognitive achievement. Additional literature reviewed revealed male adolescents developed disruptive behaviors before female adolescents (Babicka-Wirkus et al., 2023). Furthermore, Bradshaw et al. (2009) found male individuals with challenging behaviors had significantly more negative life outcomes compared to female individuals; this included unemployment and substance abuse problems.

Pascual et al. (2019) suggested gender is a moderating variable between executive functioning and academic achievement. Dönmez and Imamoglu (2020) found female primary students in Turkey had greater inhibitory control compared to male students. Similarly, Garcia et al. (2019) reported U.S. adolescent girls had greater executive functioning skills; this indicates the important role gender has on behavior and cognition.

Due to the significant influence of gender in past research, this variable was selected as the independent variable in the present study. Furthermore, Bem's (1981) gender schema theory was used as the structural foundation. In this study, gender is defined as female or male and not distinguished from physiological sex or gender identity to align with the archival data used (see Tourangeau et al., 2019).

Kindergarten Students

Maguire et al. (2016) noted, "Schools are social places and learning is a social process" (p. 1,408). Classrooms provide students with a structured environment that sets the stage for academics and socialization (Zach et al., 2016). Furthermore, Gaspar et al.

(2018) noted schools are an ideal context for preventative social and emotional learning programs.

Teachers have been found to have a greater impact on students' social and behavioral development than on their academics (Little, 2016). Kindergarten is a critical transitional period for children. Students are expected to follow rules, attend to instruction, and demonstrate self-control. Researchers found approximately one-half of kindergarteners had difficulty adjusting to the academic and social demands placed upon them during this learning shift (Quistberg & Mueller, 2019; Welsh et al., 2016). Additionally, Welsh et al. (2016) noted rules are not always explicitly taught. This period of school entry is the foundation for later educational, social, behavioral, and emotional success (Cook & Coley, 2019; Watson & Bell, 2013; Welsh et al., 2016).

The kindergarten population was selected for this study because kindergarten students enter school at the age of 5 to 6 years, a time when their inhibitory control is at rapid development (NCES, 2020; Quistberg & Mueller, 2020). Additionally, previous literature found hormones to increase disruptive behaviors; therefore, the potential influence of this variable was removed because kindergarten students are pre-pubescent (Askari et al., 2021; Gutman & McMaster, 2020; Lau et al., 2021; Moulton & Young, 2020; Olivier et al., 2020). This study is unique as the focus was on students' first year of traditional public school education (kindergarten through 12th grade), whereas previous studies focused on adolescents or a range of academic grades (Gutman & McMaster, 2020; Hajovsky et al., 2022; Koca, 2022; Lau et al., 2021; Ma et al., 2022).

Disruptive Behaviors

Scholarly research has found a recent increase in disruptive behaviors in United States classrooms (Beaman et al., 2007; Hoffmann et al., 2021; Prothero, 2023; Sheaffer et al., 2021; Tourangeau et al., 2019). Ekornes and Bele (2022) reported behavior challenges are a "contextual phenomenon that is dependent on and emerges from the equality of relationships to teachers and peers and the degree to which the student's needs for academic and social support are met in school" (p. 384). Behavior is problematic when it interferes with students' learning and social relationships (Ekornes & Bele, 2022). Students with behavioral difficulties have been found to have deficits in social skills and academics (Kim et al., 2022; Sheaffer et al., 2021). Disruptive behaviors often result from maladaptive methods of coping with stressful life events (Habersaat et al., 2020). Furthermore, Nash et al. (2016) suggested behavior is a form of communication and can be viewed as a relationship problem. This is important as students spend a lot of time in this educational context and teachers have an essential role in students' overall well-being and development (Mohamed, 2018; Quistberg & Mueller, 2019; Shi & Ettekal, 2021).

Disruptive classroom behaviors are present in kindergarten and continue into adolescence and adulthood (Beaman et al., 2007; EAB, 2019; Maguire et al., 2016; Owens et al., 2018). Kim et al. (2022) noted early symptoms of behavioral challenges can be difficult to identify and increase in intensity without proper intervention. Steed and Kranski (2020) reported these "challenging behaviors are more common in young children with autism spectrum and other disabilities" (p. 110).

Twenty percent of youth in the United States have reported behavioral, emotional, and/or social difficulties (Reinke et al., 2022). Maguire et al. (2016) indicated the presence of challenging behaviors during early childhood is indicative of later behavioral problems, with a stronger influence on boys. Furthermore, Kim et al. (2022) and Ottenheym-Vliegen et al. (2023) found mental health problems often begin as behavioral difficulties.

Literature has indicated students' disruptive behaviors pose a challenge for teachers and negatively impact the classrooms' learning environments (Cohen & Martin, 2023; Dursley & Betts, 2014; Granero-Gallegos et al., 2020; Ottenheym-Vliegen et al., 2023). Teachers are required to address disruptive behaviors resulting in interference with academic instruction (Almurtaji et al., 2018). Leggio and Terras (2019) found students' emotional and behavioral problems consume 80% of teachers' daily instructional time. Furthermore, Shi and Ettekal (2021) found disruptive behaviors are associated with academic deficits and strained teacher relationships. Similarly, Reinke et al. (2022) reported children with disruptive behaviors in first grade were three times more likely to be arrested by grade 12.

Disruptive behaviors include calling out, physical aggression, somatic complaints, and social isolation (Arbuckle & Little, 2004; Ottenheym-Vliegen et al., 2023). Students with behavioral and emotional difficulties present a challenge for themselves and others. Disruptive behaviors affect teachers' instruction, social relationships, and academic outcomes (Arbuckle & Little, 2004; Ottenheym-Vliegen et al., 2023). Two types of disruptive behaviors can be found: externalizing and internalizing (Babicka-Wirkus et al.,

2023; Ekornes & Bere, 2022; Shi & Ettekal, 2021). Previous literature has focused on the presence of these challenging behaviors in primary and secondary classrooms, with the rate and severity of these challenging behaviors increasing during adolescence (Askari et al., 2021; Olivier et al., 2020; Owens et al., 2018). Furthermore, research has found gender differences across disruptive behaviors, with male individuals developing externalizing and internalizing behaviors before female individuals (Askari et al., 2021; Grissom & Reyes, 2019; Hajovsky et al., 2022; Hoffmann et al., 2021; Horn et al., 2021). These findings led to the selection of externalizing and internalizing behaviors as the dependent variables.

Externalizing and Internalizing Behaviors

Externalizing behaviors are outward-directed and include aggression and defiance (Moulton & Young, 2020; Ottenheym-Vliegen et al., 2023). Internalizing behaviors can be defined as inner-directed behaviors and include anxiety and social withdrawal (Quistberg & Mueller, 2019; Reinke et al., 2022). Students with externalizing and internalizing behavioral problems have difficulty focusing on the lesson, exhibit lower academic success, have greater teacher-student conflicts, and have higher rates of school dropout (Koca, 2022; Nikstat & Riemann, 2020). Olivier et al. (2020) reported up to one-third of elementary and secondary school students displayed some degree of externalizing and/or internalizing behaviors. Furthermore, Askari et al. (2021) found externalizing and internalizing behaviors were associated with higher rates of suicide, incarceration, and substance abuse later in life.

Maguire et al. (2016) found 4- to 6-year-old boys in Northern Ireland exhibited greater externalizing behaviors compared to girls, while girls displayed greater internalizing behaviors compared to boys. Similarly, Ma et al. (2022) found externalizing behaviors and attention problems were higher in 6- to 18-year-old boys residing in Nepal. Lau et al. (2021) found 6- to 18-year-old Singaporean girls with ADHD had more depressive symptoms than boys, while boys had more delinquent behaviors. Finally, Hayes (2007) found that Australian teachers reported 5- to 10-year-old male students exhibited more hyperactivity and conduct problems compared to female students.

Externalizing Behaviors

Externalizing behaviors impact academics, social interactions with peers and teachers, and the classroom environment (Shi & Ettekal, 2021). These behaviors can cause inattention, bullying, and property destruction (Gutman & McMaster, 2020; Reinke et al., 2022). Furthermore, these outward-directed behaviors are correlated to negative social and health outcomes, such as criminal activity, high-risk sexualized behavior, and physical violence (Askari et al., 2021; Bradshaw et al., 2009). Externalizing behaviors are often indicative of observable behavioral disorders, are found to be developmentally atypical, and can be harmful to others and their environment (Moulton & Young, 2020; Ogden et al., 2023; Reinke et al., 2022).

Past studies found male adolescents had higher externalizing behaviors, such as aggression, peer conflict, and delinquency, compared to female adolescents (Babicka-Wirkus et al., 2023; Gutman & McMaster, 2020; Lau et al., 2021; Ma et al., 2022; Olivier et al., 2020). Ma et al. (2022) reported over 15% of teachers in Nepal indicated

behavioral problems in their classrooms, with male students engaging in more rule-breaking behavior and attention problems. Gaspar et al. (2018) speculated this was due to female students having more social awareness and empathy compared to male students; therefore, female students were less likely to exhibit externalizing behaviors because they sought social approval, aligning with Bem's (1981) gender schema theory. Furthermore, Olivier et al. (2020) suggested this increase in externalizing behaviors among male adolescents was due to puberty.

Internalizing Behaviors

Internalizing behaviors "focus on the internal expression of distress" and have increased since 2012 (Askari et al., 2021, p. 737). These behaviors can cause anxiety, depression, social isolation, and somatic complaints (Babicka-Wirkus et al., 2023; Ekornes & Bere, 2022; Ma et al., 2022). Researchers found neighborhood violence, family discord, and parental drug use are risk factors for internalizing behaviors (Askari et al., 2021; Reinke et al., 2022). Shi and Ettekal (2021) reported internalizing problems affect cognitive functioning and school performance. Internalizing symptoms are predictive of later mental health problems, social difficulties, reduced academic performance, and increased self-harm (Gutman & McMaster, 2020). Internalizing behaviors can be hard to identify as they are not always obvious or observable.

Previous research conducted in Canada, Poland, Portugal, Singapore, the United Kingdom, and the United States found female adolescents had more internalizing problems compared to male adolescents (Babicka-Wirkus et al., 2023; Gaspar et al., 2018; Gutman & McMaster, 2020; Lau et al., 2021; Matos et al., 2017; Olivier et al.,

2018; Rosenfield & Smith, 2012). Additionally, female adolescents had greater depressive symptoms and incidents of self-harm than male adolescents (Gutman & McMaster, 2020; Lau et al., 2021). Hajovsky et al. (2022) suggested these differences were due to gender socializing. Female individuals are expected to be compassionate to others and compliant with rules, contributing to the internalizing of behaviors (Amin et al., 2018; Stewart et al., 2021). According to Bem's (1981) gender schema theory, this explains why female students have greater self-control and are more motivated to establish close relationships with their teachers in comparison to male students (Hajovsky et al., 2022; Oliver et al., 2018).

Disruptive Behaviors and Age

Askari et al. (2021) reported a high rate of externalizing and internalizing behaviors in adolescents, with internalizing symptoms occurring before externalizing symptoms. Olivier et al. (2020) found internalizing behaviors significantly increased in girls and boys during puberty and adolescence. Similarly, Lau et al. (2021) found that Singaporean adolescents had greater externalizing and internalizing problems compared to younger children. Researchers hypothesized this increase in disruptive behaviors was due to hormonal changes that occurred during puberty (Chi & Cui, 2020; Gutman & McMaster, 2020; Lau et al., 2021; Moulton & Young, 2020; Olivier et al., 2020). This can be supported by Askari et al. (2021) and Moulton and Young (2020) results indicating comorbidity between internalizing and externalizing problem behaviors in adolescents. Gutman and McMaster (2020) suggested the effect of hormones is stronger in girls compared to boys, with a significant increase in internalizing problems during

adolescence. Additionally, Horn et al. (2021) reported female individuals tend to develop their prefrontal cortex before male individuals; this brain region is responsible for self-regulation. Due to these findings, the kindergarten sample was included in this study to minimize the effect of hormones.

Disruptive Behaviors and Culture

Cultural factors may influence the role of gender in externalizing and internalizing behaviors. Raday (2003) noted gender varies across regions due to socialization and religion. Additionally, Olivier et al. (2018) stated social expectations differ across genders, supporting Bem's (1981) gender schema theory. Babicka-Wirkus et al. (2023) found Polish female adolescents had higher internalizing and externalizing behaviors compared to male adolescents, while Olivier et al. (2018) found that Canadian male adolescents had greater externalizing behaviors compared to female adolescents. Salavera et al. (2019) found gender was a significant influence on Spanish female adolescents' internalizing problems, ability to manage emotions, and social skills; however, the relationship was not as strong for male adolescents. Additionally, Koca (2022) found no gender differences in 12–16-year-old students in Turkey, and Ma et al. (2022) found no gender differences in the internalizing problems of Nepal students ages 6 to 18. To eliminate any cultural influences, this study focused on neurotypical and neurodiverse kindergarten students in the United States.

Inhibitory Control

Inhibitory control is a core executive functioning skill that enables individuals to control irrelevant and inappropriate responses (Baruah & Rani, 2021; Delalande et al.,

2018; Nicastri et al., 2020; Raver & Blair, 2016; te Brinke et al., 2021). Inhibitory control "involves inhibition at the cognitive, behavioral, emotional, and motor levels" (Otterson, 2022, para. 5). Research has found that inhibitory control develops rapidly between the ages of 3 and 6 and is fully developed around the age of 12 (Kang et al., 2022; Sadeghi et al., 2022). This skill permits students to resist distractions and is central to cognitive and socioemotional development (Liu et al., 2015; Morgan et al., 2019; Sadeghi et al., 2022; Saied, 2022). Previous research found individuals with low inhibitory control had greater behavioral challenges in school and across social contexts (Franklin et al., 2018; Son et al., 2019; Watson & Bell, 2013). Furthermore, Cumming et al. (2022) indicated inhibitory control acts as a protective factor for students deemed at-risk for academic and psychosocial issues.

Inhibitory control is the structural framework for students' academic, behavioral, and social success (Son et al., 2019). Research has found low inhibitory control to be associated with psychological disorders, academic difficulties, and social issues (Baruah & Rani, 2021; Cumming et al., 2022; Nyroos et al., 2018). Franklin et al. (2018) found students with low executive functioning skills had greater emotional and behavioral difficulties. Additionally, a negative correlation has been found between externalizing behavior and inhibitory control, and internalizing behavior and inhibitory control (Cumming et al., 2022; Morgan et al., 2019; Reinke et al., 2022). Furthermore, previous studies have reported gender differences in inhibitory control, with female individuals having a greater ability to suppress their behaviors compared to male individuals

(Dönmez & Imamoglu, 2020; Franklin et al., 2018; Garcia et al., 2019). To reduce the risk of error, inhibitory control was controlled in this study.

Literature Synthesis

The school setting presents various social, behavioral, and academic demands on students, and the kindergarten grade is a critical transitional period for children (Gaspar et al., 2018; Quistberg & Mueller, 2019). Disruptive behaviors affect the classroom learning environment and present numerous challenges for teachers and peers (Hoffman et al., 2021; Ottenheym-Vliegen et al., 2023). A review of the literature indicated gender was a significant variable that influenced students' behaviors, social skills, and teacher closeness (Babicka-Wirkus et al., 2023; Gutman & McMaster, 2020; Sheaffer et al., 2021). Past studies found male adolescents developed disruptive behaviors earlier than female adolescents; furthermore, male adolescents had greater externalizing behaviors compared to female adolescents, while female adolescents had more internalizing behaviors compared to male adolescents (Askari et al., 2021; Babicka-Wirkus et al., 2023; Gutman & McMaster, 2020; Lau et al., 2021).

The literature analysis additionally exposed the negative correlation between inhibitory control and disruptive behaviors, with female individuals exhibiting greater inhibitory control compared to male individuals (Baruah & Rani, 2021; Hajovsky et al., 2022; Kang et al., 2022; Sadeghi et al., 2022). These results are not surprising as previous findings indicated male individuals had more externalizing behaviors compared to female individuals (Babicka-Wirkus et al., 2023). Inhibitory control permits individuals to

control their emotions, behaviors, and attention (Delalande et al., 2018; Pascual et al., 2019).

Previous research found gender differences in behaviors, social skills, and academics (Hajovsky et al., 2020; Sheaffer et al., 2021). However, little research examined teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students. Kindergarten students in the United States were used in this study to help minimize the effect of cultural influences (Babicka-Wirkus et al., 2023; Olivier et al., 2018; Raday, 2003) and hormones (Horn et al., 2021; Olivier et al., 2020), two known variables to affect disruptive behaviors.

The analysis and synthesis of scholarly research provided a foundation for the present study. Various themes that aligned with the stated research question and social problem emerged. Furthermore, gaps in the literature provided evidence for the need for this study and the potential to elicit social change.

Summary and Conclusions

Seventy percent of school staff have indicated an increase in students' disruptive behaviors since 2019 (Prothero, 2023). Research has further indicated an abrupt rise in challenging behaviors in elementary classrooms across the United States (Pole, 2019). These disruptive actions can be categorized by externalizing and internalizing behaviors that interfere with students' learning and teachers' instruction (Askari et al., 2021; CDC, 2023; EAB, 2019; Ottenheym-Vliegen et al., 2023).

According to a national survey of public-school teachers, 32% reported students' behavior obstructed their daily teaching during the 2020-2021 school year (NCES, 2022). Additionally, research from the ECLS-K2011 found 2% of third graders were verbally teased, physically pushed, or socially excluded by classmates (Tourangeau et al., 2019). During the past 3 years, 30% of teachers, administrators, and support specialists reported the frequency of externalizing behaviors, such as physical violence and verbal threats, significantly increased (EAB, 2019). This included 52% of teachers reporting oppositional behaviors frequently impeded their delivery of instruction (EAB, 2019). In terms of internalizing behaviors, 36% of teachers reported disengaged students frequently disrupted their classrooms (EAB, 2019). This social problem and an extensive search of the literature led to the development of the research problem: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control, as measured by the teacher-reported SSRS-T and CBQ-SF?

Themes emerged from the key variables of gender, externalizing behavior, internalizing behavior, kindergarten students, and inhibitory control. The first theme was gender differences across behavioral challenges. Previous studies found male adolescents had greater measures of externalizing behaviors compared to female adolescents (Gaspar et al., 2018; Horn et al., 2018; Lau et al., 2021; Olivier et al., 2018). Conversely, female adolescents had higher internalizing behaviors compared to male adolescents (Babicka-Wirkus et al., 2023; Gutman & McMaster 2020). Hajovsky et al. (2022) suggested gender differences were due to adult socialization. Throughout the literature review, gender

evolved as an important variable in the development of behaviors (Sheaffer et al., 2021). These findings resulted in the selection of gender as the independent variable and Bem's (1981) gender schema theory as the theoretical framework. This social cognitive structure helped ground the study and explain the influence of gender on challenging behaviors in kindergarten students, according to teachers' reports.

The association between challenging classroom behaviors and inhibitory control was an additional subject that emerged during this scholarly search (Cumming et al., 2022; Reinke et al., 2022). Researchers found inhibitory control to be negatively correlated to disruptive behaviors (Pascual et al., 2019; Quistberg & Mueller, 2020). Additionally, previous studies found female individuals to have greater measures of inhibition and attention compared to male individuals (Grissom & Reyes, 2019; Quistberg & Mueller, 2020). According to Bem's (1981) gender schema theory, these results reflect the social messages received by children during early development.

Another reoccurring topic that surfaced during the literature review was the relationship between challenging behaviors and hormones (Horn et al., 2021; Olivier et al., 2020). Scholarly findings indicated externalizing and internalizing behaviors increased during adolescence and hypothesized this was due to the presence of hormones (Lau et al., 2021). Due to these findings, the kindergarten population was selected as these individuals are prepubescent.

An additional theme that developed during the literature review was the relationship between challenging classroom behaviors and academics (Koca, 2022; Sheaffer et al., 2021; Shi & Ettekal, 2021). The negative effect of externalizing and

internalizing behaviors on students' academics could be explained by disruptive behaviors interfering with the delivery of instruction, or the behaviors resulting from learning deficits. Koca (2022) reported students with externalizing and internalizing behavioral problems had difficulty focusing on the lesson and communicating their needs; this resulted in decreased academic scores and increased school dropout.

Previous studies found externalizing and internalizing behaviors negatively impacted individuals' social skills (Davis & Qi, 2020; Salavera et al., 2019; Sheaffer et al., 2021; Shi & Ettekal, 2021). This theme suggests challenging behaviors can interfere with the development and mastery of prosocial skills. Classmates may feel unsafe near the students displaying disruptive behaviors, or poor social skills may result in students feeling isolated, contributing to future behavioral problems. Sheaffer et al. (2021) speculated this relationship was the result of social influences on gender-specific behavioral expectations; male individuals are told to be competitive and strong while female individuals are advised to be accommodating and nurturing (Amin et al., 2018; Bem, 1981; Stewart et al., 2021). This is further supported by research finding female individuals have greater social skills compared to male individuals (Sheaffer et al., 2021).

The relationship between disruptive behaviors and teacher closeness was another topic that emerged during the literature review (Hajovsky et al., 2022; Ogden et al., 2023; Shi & Ettekal, 2021). Disruptive behaviors were reported to negatively impact the teacher-student connection, contributing to conflictual relationships (Hajovsky et al., 2022; Ogden et al., 2023; Skalicka, 2015). Previous studies found female students had greater emotional closeness with their teachers compared to male students (Koca, 2016;

Shi & Ettekal, 2021). Researchers suggested this association occurred because disruptive behaviors interfered with teachers' instruction, resulting in a strained relationship (Hoffmann et al., 2021). Furthermore, female individuals receive the social expectation to be compliant with adults and develop positive emotional relationships (Bem, 1981; Horn et al., 2021; Skalicka et al., 2015).

The final theme presented throughout the literature search was the advocacy for social change within the school system (Francis, 2020; Hoffmann et al., 2021; Jagers, 2018; Kim et al., 2022). This aligned with the social problem of increased disruptive behaviors in United States classrooms (EAB, 2019; Tourangeau, et al., 2019). Scholarly research advocated for the early detection of externalizing and internalizing behaviors through universal screenings, and the implementation of effective prevention and intervention programs such as the schoolwide positive behavioral support program (Cohen & Martin, 2023; Gaspar et al., 2018; Kim et al., 2022). Ekornes and Bele (2020) further suggested the need to provide collaboration between teachers and parents/guardians to enhance students' social, emotional, and behavioral success in school.

Across these studies, gender was found to play a significant role in the presence of disruptive classroom behaviors and supports the foundational framework of Bem's (1981) gender schema theory (Askari et al., 2021; Lau et al., 2021; Ma et al., 2022; Moulton & Young, 2021; Olivier et al., 2018; Sheaffer et al., 2021). While previous research provided insight into gender differences across disruptive behaviors, little research has examined gender differences in kindergarten students' externalizing and

internalizing behaviors and the role of inhibitory control according to teachers. This is important as kindergarten is a critical period of children's cognitive, social, and behavioral development (Cook, & Coley, 2019). This transitional time presents students with a multitude of tasks: turn-taking, academic demands, peer socializing, and self-control (Cook, & Coley, 2019; Welsh et al., 2016; Zach et al., 2016).

This quantitative study addressed the gap in scholarly research by examining teachers' perceptions of gender differences in externalizing and internalizing behaviors, and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students in the United States. The ECLS-K2011 archival data were used in this study (Tourangeau et al., 2019). Data were obtained from the teacher-administered SSRS-T and CBQ-SF (NCES, n.d.c). These tools provided consistent and valid measures of kindergarten students' externalizing and internalizing behaviors and inhibitory control. In this study, I focused solely on teachers' self-reported data as previous studies have found differences between teacher-reported and parent-reported measures (Davis & Qi, 2020; Sheaffer et al., 2021).

This study was unique because teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control were examined in a sample of neurotypical and neurodiverse kindergarten students. Although previous studies have found gender differences across disruptive behaviors, minimal studies have focused solely on neurotypical and neurodiverse students in the kindergarten population and included inhibitory control as the covariate. This study addressed the social problem of increased disruptive classroom behaviors and has the potential to

contribute to the knowledge of stakeholders in early education regarding the role of gender in challenging classroom behaviors. Furthermore, findings may advocate for systemic changes in the educational context, suggesting professionals utilize a gender-specific approach when addressing behaviors.

The research question posed in this study was: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors and the role of inhibitory control, as measured by the teacher-reported SSRS-T and CBQ-SF? In Chapter 3, I will evaluate this research question and explain the methodology used in this study. Furthermore, I will discuss the research design, population, sample, archival data, and statistical analysis used in this quantitative study. I hypothesized teachers would report a significant gender difference in the externalizing and internalizing behaviors in kindergarten students after controlling for inhibitory control.

Chapter 3: Research Method

Introduction

Students' disruptive behaviors have become a predominant problem in U.S. classrooms (CDC 2023; Cohen & Martin, 2023; Hoffman et al., 2021; Ottenheym-Vliegen et al., 2023). The purpose of this quantitative study was to investigate teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students.

> When conducting quantitative research studies, researchers seek to describe current situations, establish relationships between variables, and sometimes attempt to explain causal relationships between variables. This type of research is truly focused on describing and explaining in a somewhat definitive manner the phenomenon under investigation. (Mertler, 2016, p. 108)

This non-experimental design permitted me to objectively understand if there was a statistically significant difference between female and male neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors after controlling for inhibitory control according to teachers' reports using the SSRS-T and CBQ-SF.

Chapter 3 will begin with a discussion of the research design, followed by the methodology, which will detail the target population, sampling procedures, data collection strategies, and procedures for using archival data. The instruments used in this quantitative study will be discussed and the data analysis plan will be reviewed. This

chapter will conclude with a discussion of threats to validity and ethical considerations applicable to this non-experimental research design.

Research Design and Rationale

This study utilized secondary data from the NCES ECLS-K2011 (see Tourangeau et al., 2019). The research question driving this study was: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control as measured by teachers' reports using the SSRS-T and CBQ-SF? A quantitative research design was selected for this study for an objective investigation of gender differences in kindergarten students' externalizing and internalizing behaviors after controlling for inhibitory control. Furthermore, I wanted my results to be measurable, specific, and generalizable when interpreting gender differences in the sample of neurotypical and neurodiverse kindergarten students (Creswell & Creswell, 2018; Mertler, 2016).

In this study, the sample was neurotypical and neurodiverse kindergarten students in the United States. The independent variable was gender (female or male). The dependent variables were externalizing behaviors (five items with values 1–4) and internalizing behaviors (four items with values 1–4). The SSRS-T was used to measure these behaviors in the ECLS-K2011 (Tourangeau et al., 2019). The covariate variable was inhibitory control (six items with values 1–7). Teachers self-reported these behaviors using the CBQ-SF in the secondary data set (Tourangeau et al., 2019).

This quantitative study used a non-experimental research design. This was an appropriate choice as the variables were measured as they occur naturally; the

independent variable gender was not manipulated and the sample of kindergarten students was not randomly assigned (see Mertler, 2016, p. 111). This research design aligned with the purpose of this study, which was to measure the extent of gender differences in female and male neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control according to teachers' reports.

Secondary data from the NCES (n.d.b, n.d.c) was used in this study. This is a reputable and ethical site that provides archival data for research purposes. The data set used in this study was from the ECLS-K2011 (Tourangeau et al., 2019). Secondary data provide researchers with available data, saving time and money (Creswell & Creswell, 2018). I had immediate access to this free and public data set (NCES, n.d.c), and data assistance from the NCES, ECLS-K2011 study director and staff (NCES, n.d.c).

This non-experimental quantitative research used a correlational design. In correlational studies, a researcher examines the extent and strength of a statistical relationship between two or more variables (Creswell & Creswell, 2018). Extraneous variables were not controlled in this archival data (NCES, n.d.c; Tourangeau et al., 2019). Teachers self-reported ratings of kindergarten students' behaviors as they naturally occurred in their classrooms (Tourangeau et al., 2019). Measurements were obtained using the SSRS-T and CBQ-SF instruments (Tourangeau et al., 2019). This study accessed data from the ECLS-K2011 (Tourangeau et al., 2019); variables were examined using MANCOVA statistical analysis on SPSS (IBM SPSS, n.d.).

According to Creswell and Creswell (2018), quantitative research tests the relationship between variables using an objective theoretical framework. This study sought to fill the gap in understanding gender differences in neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control according to teachers' reports using the SSRS-T and CBQ-SF. Bem's (1981) gender schema theory was the structural framework. Findings from this study will provide the scholarly community with knowledge of teachers' perceptions of gender differences in a sample of neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control. These results may be generalized to other kindergarten students in the United States and help advocate for early behavioral interventions utilizing a gender-specific approach.

Methodology

Quantitative research methodology includes data collection, analysis, and interpretation (Creswell & Creswell, 2018). The positivistic philosophical worldview was the driving force used in this research approach, design, and methodology (Creswell & Creswell, 2018; Moroi, 2020). The social problem of disruptive classroom behaviors was studied to identify the extent of gender differences in neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control according to teachers' perspectives. This study contributes to the understanding of gender variances in kindergarten students using data, knowledge, and an objective approach (see Creswell & Creswell, 2018).

Population

The target population was kindergarten students in the United States. This study used archival data from the ECLS-K2011 (Tourangeau et al., 2019). The ECLS-K2011 was sponsored by the NCES within the Institute of Education Sciences of the U.S. Department of Education (Tourangeau et al., 2019). ECLS-K2011 data provide researchers with national data on child, family, school, and community interactions related to children's development and academic performance (NCES, 2017). The ECLS-K2011 collected a data sample on 18,174 children in grades kindergarten through fifth regarding their social, emotional, physical, and cognitive development (NCES, n.d.b; Tourangeau et al., 2019). The sample size was predetermined by the ECLS-K2011; furthermore, weights were used to make the sample representative of the kindergarten population in the United States (NCES, n.d.b). This study focused on the kindergarten sample and data obtained from teachers in fall 2010; this time frame was known as the base year (NCES, 2017; Tourangeau et al., 2019). According to the U.S. Census, there were over four million students enrolled in kindergarten programs in the United States during the 2010–2011 school year (Davis & Bauman, 2013).

Sampling Procedures

The ECLS-K2011 included children from public and private schools in the United States (NCES, n.d.b; Tourangeau et al., 2019). Sample weights were used to make the sample representative of the population of kindergarten children in the United States (NCES, 2017). A multistage, stratified, clustered design was used to collect the kindergarten sample (NCES, 2017; Tourangeau et al., 2019). Stratified sampling

"requires prior knowledge of a characteristic from the population" and is "used to form sampling strata. Members of the population are first categorized based on their value of this characteristic. Then, a percentage of members from these strata is randomly selected based on the ratio known in the population" (Burkholder et al., 2020, p. 62). This sampling design permits researchers to formulate a study sample that is representative of the true population of interest (Burkholder et al., 2020).

According to the NCES (2017), over 20,000 kindergarten children in 1,320 public and private schools were eligible for the base year data collection for the longitudinal study. This sample included various racial and socioeconomic backgrounds (NCES, 2017; Tourangeau et al., 2019). The first stage of sampling involved separating the country into primary sampling units (PSUs; NCES, 2017; Tourangeau et al., 2019). During this stage, a list of the 3,151 counties in the United States was created and used to develop a PSU (NCES, 2017; Tourangeau et al., 2019). These PSUs were stratified based on median household income, metropolitan status, race, and region (NCES, 2017). The size was then operationalized based on the number of 5-year-olds in the PSU (NCES, 2017; Tourangeau et al., 2019).

During the second sampling stage, public and private schools that provided kindergarten programs were selected within the sampled PSUs (NCES, 2017; Tourangeau et al., 2019). The target number of schools to participate in the base year of the study was 900 schools (180 private and 720 public); to achieve this goal, over 1,200 schools were sampled from the 2010 National Assessment of Education Progress (NCES, 2017). In the third and final stage, the sampling unit included children in kindergarten or

of kindergarten age within each school (NCES, 2017). Asian and Pacific Islander descent children were oversampled at two five-tenths time the rate of other children to ensure this group was accurately represented in the study (NCES, 2017).

Data were retrieved from students, parents/guardians, teachers, school administrators, and before- and after-school care providers using direct child assessments, parent interviews, and teacher questionnaires (NCES, 2017). Data were continuously reviewed to ensure quality assurance was maintained and nonresponse biases were avoided (NCES, 2017). Furthermore, data were periodically edited to ensure accuracy was maintained (NCES, 2017). Weights were used during each sampling stage to adjust for nonresponse and reduce bias using the jackknife method and Taylor series method (NCES, 2017; Tourangeau et al., 2019).

The ECLS-K2011 sample of kindergarten students was from diverse racial/ethnic backgrounds and socioeconomic statuses (NCES, n.d.b). Children were enrolled in full-time and part-time kindergarten classes for the 2010–2011 school year (NCES, n.d.b). The goal of the ECLS-K2011 study was "to provide comprehensive and reliable data that can be used to describe and to better understand children's development and experiences in the elementary grades, and how children's early experiences relate to their later development, learning, and experiences in school" (NCES, n.d.b, para. 6). The ECLS-K2011 offers valuable information regarding children's school readiness and cognitive and socioemotional development during elementary school (Tourangeau et al., 2019). The ECLS-K2011 collected data from a nationally representative sample of over 18,000

kindergarten students from public (1,036) and private (283) schools across the United States (Tourangeau et al., 2019).

The present study focused on teachers' perceptions of neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors as well as inhibitory control. Secondary data from the ELCS-K2011 included teacher-reported responses related to students' classroom behaviors (Tourangeau et al., 2019). This study also included demographic data regarding students' gender provided by parents/guardians to NCES field staff (Tourangeau et al., 2019). Information was verified with district registration (Tourangeau et al., 2019). NCES field staff and representatives of the ECLS-K2011 took the steps necessary to ensure identities of students, schools, and families would remain anonymous (Tourangeau et al., 2019).

Burkholder et al. (2020) suggested that power, alpha, and effect size are critical factors when determining a sample size. Statistical power is "the probability of correctly concluding that a result was not due to chance" (Burkholder et al., 2020, p. 71). The power is typically set at .80 (Burkholder et al., 2020). This value demonstrates there is a 20% ($\beta = .20$) chance of making a Type II error, meaning the researcher accepts the null hypothesis when it is false (Burkholder et al., 2020). The level of significance, also known as the alpha (α), is typically set to the standard value of .05 (Creswell & Creswell, 2018; Warner, 2013). The alpha is the probability (p) that results will occur due to chance. This indicates there is less than a 5% chance the variables being tested will occur under the null hypothesis (Creswell & Creswell, 2018; Warner, 2013). The strength of the relationship between gender and externalizing and internalizing behaviors, while

accounting for inhibitory control, was assessed with the effect size (Burkholder et al., 2020). This is referred to as Cohen's $f^{2>}$ when using a one-way MANCOVA (Burkholder et al., 2020). Cohen defined effect sizes as small (.2), medium (.5), and large (.8; Burkholder et al., 2020). The sample size did not need to be calculated with a power analysis software program, such as G*Power, because this study used secondary data (Burkholder et al., 2020; Creswell & Creswell, 2018).

Procedures for Recruitment, Participation, and Data Collection

Archival data from the ECLS-K2011 (Tourangeau et al., 2019) was used in this study. The ECLS-K2011 included a nationally representative sample of kindergarten students in the United States (Tourangeau et al., 2019). The ECLS-K2011 was "sponsored by the National Center for Education Statistics within the Institute of Education Sciences of the U.S. Department of Education" (Tourangeau et al., 2019, p. 1.2). As part of the recruiting process, the NCES (n.d.b) contacted key educational organizations and asked for an endorsement. Recruitment began in the fall of 2009 to ensure a high participation rate (Tourangeau et al., 2019). Letters were provided to major organizations that detailed the purpose of the longitudinal study (Tourangeau et al., 2019). Furthermore, school administrators were required to provide permission to participate in the study (Tourangeau et al., 2019). Public schools required state, district, and school permission; Catholic schools required diocese and school permission; private schools required school permission (Tourangeau et al., 2019). Once permission was obtained, the NCES provided study materials to the sample schools in February 2010

(Tourangeau et al., 2019). Data collection staff began to contact schools by telephone in February 2010, followed by in-person pre-assessments (Tourangeau et al., 2019).

The ECLS-K2011 obtained data from a sample of schools in the United States as part of a mandate from Congress requiring the Department of Education to report the educational progress of students and educators (NCES, n.d.b; Tourangeau et al., 2019). Parents/guardians, students, and schools were randomly selected to participate in the study (Tourangeau et al., 2019). Participation was voluntary, and identity was kept confidential (Tourangeau et al., 2019). Parent/guardian consent was required for the child, teacher, and before- and after-care provider participation (Tourangeau et al., 2019). Information provided by participants was used for statistical purposes only and staff signed a non-disclosure agreement (NCES, n.d.b; Tourangeau et al., 2019).

Field staff were trained over three sessions to prepare for the data collection process (Tourangeau et al., 2019). Field staff were required to assess kindergarten students one-on-one in their schools and collect data from parents/guardians and care providers (NCES, n.d.b; Tourangeau et al., 2019). Schools provided contact information for parents/guardians (Tourangeau et al., 2019). Parent/guardian interviews were conducted by telephone, using computer-assisted instruction, or in person if preferred (Tourangeau et al., 2019). Before and after-care providers received hard-copy questionnaires to complete if they provided five or more hours per week of care to the identified sample of children (Tourangeau et al., 2019). Field staff worked in teams; this included one team leader and two or more assessors (Tourangeau et al., 2019). School administrators and general education teachers completed hard-copy self-administered

questionnaires regarding the observed behaviors of the selected sample students (Tourangeau et al., 2019). Team leaders collaborated extensively with assigned school coordinators to ensure questionnaires were completed and collected during the spring assessment visit (Tourangeau et al., 2019). If students transferred, field staff attempted to conduct the remainder of the assessment in the child's home or obtain permission for the transfer school to participate in the study (Tourangeau et al., 2019).

Effective measures were implemented throughout the data collection process to ensure quality control (Tourangeau et al., 2019). In August 2010, field staff completed 8 hours of home and 6 days of in-person training on the study design, field procedures, assessment, observations, and evaluations (Tourangeau et al., 2019). Field staff included: school recruitment field managers, team leaders (3 days of training plus 6 days with team assessors), and team assessors (6 days of training; Tourangeau et al., 2019). During training, field staff practiced child assessments and parent interviews (Tourangeau et al., 2019). Field staff had to pass a written exam to show mastery in the administration of the child assessment (Tourangeau et al., 2019). Field supervisors received certification and team leaders provided supervision of field teams (Tourangeau et al., 2019). During fieldwork in the ECLS-K2011, team leaders observed child assessments, and parent interviews were validated by NCES staff through audio recordings (Tourangeau et al., 2019).

In August of 2010, study information was mailed to each participating school. A school coordinator was identified as the liaison (Tourangeau et al., 2019). At the preassessment fall visit, 23 kindergarten children were randomly selected from each

school (Tourangeau et al., 2019). Some schools had a total of 27 or fewer kindergarten students enrolled; all students were selected in these instances (Tourangeau et al., 2019). After sample students were selected, parent/guardian consent forms were distributed to the parents/guardians (Tourangeau et al., 2019). Each sample child's teacher received a child-level and teacher-level questionnaire (Tourangeau et al., 2019). The team leader was responsible for coordinating assessments and obtaining consent forms (Tourangeau et al., 2019). Parent interviews were conducted from August 2010 to mid-January 2011 (Tourangeau et al., 2019). Direct child assessments were conducted from August through mid-December 2010 (Tourangeau et al., 2019).

This study used archival data from the ECLS kindergarten class of 2010–2011 data set (NCES, n.d.b; NCES, n.d.c; Tourangeau et al., 2019). This public dataset is available for research purposes and includes records on the 18,174 children who participated in the study (Tourangeau et al., 2019). Data documents can be downloaded from the NCES (n.d.c) webpage to access the child, parent, teacher, care provider, and administrator responses to questions related to students' social, behavioral, and academic development (NCES, n.d.b; Tourangeau et al., 2019). The NCES (n.d.c) does not require permission to gain access to this secondary data. Furthermore, variables can easily be studied by researchers by referencing the electronic codebook and downloading the files into SAS, SPSS, or STATA (NCES, n.d.c). SPSS was used in this study (IBM SPSS, n.d.).

This quantitative study focused on teachers' perspectives of gender differences in a sample of neurotypical and neurodiverse kindergarten students' externalizing and

internalizing behaviors and the role of inhibitory control using the ECLS-K2011 data obtained in the fall of 2010 (August 2010 to mid-January 2011; Tourangeau et al., 2019). Secondary data were obtained from the SSRS-T and CBS-SF. The SSRS-T was self-administered by students' general education teachers and measured kindergarten students' externalizing and internalizing behaviors (Tourangeau et al., 2019). The CBQ-SF was self-administered by teachers and measured students' inhibitory control (Tourangeau et al., 2019). Students reported gender was obtained from demographic data supplied to NCES field staff during interviews and confirmed with district registration (Tourangeau et al., 2019).

The ECLS-K2011 acknowledged the interrelationship between the child, school, family, and community (NCES, n.d.b; Tourangeau et al., 2019). Teachers' reports provide valuable information about their student's learning environment and their cognitive and socioemotional skills (Tourangeau et al., 2019). Therefore, this archival data set was an appropriate selection for this study. Permission to use this public data source was requested and granted by Walden University's Institutional Review Board (IRB), approval number 04-08-24-1160174 (Walden University Office of Research and Doctoral Services, n.d.).

Instrumentation and Operationalization of Constructs

This study focused on the SSRS-T (Gresham & Elliott, 1990) and CBQ-SF (Putnam & Rothbart, 2006). These copyright-protected instruments were used in the ECLS-K2011 and are intended for research purposes (Tourangeau et al., 2019).

Social Skills Rating System Teacher Form (SSRS-T)

Kindergarten students' externalizing and internalizing behaviors were measured by teachers' reports using the SSRS-T (Gresham, 2001; Gresham & Elliott, 1990; Tourangeau et al., 2019). Gresham and Elliott developed this instrument in 1990 to assess three domains of students' behaviors: social skills, problem behaviors, and academic competencies (Gresham & Elliott, 1990). The SSRS has separate rating forms for parents, teachers, and students in grades three and above (Gresham & Elliott, 1990). Additionally, there are three levels of this rating tool: preschool (ages 3 to 5), elementary (grades kindergarten to sixth), and secondary (grades seventh to 12th; Gresham, 2001; Gresham & Elliott, 1990). This assessment was standardized using a national sample of more than 4,000 children and adolescents ages 3 to 18 (Gresham & Elliott, 1990). Gresham (2001) reported the stability estimates for the total problem behavior scale ranged from .65 (parent) to .84 (teacher). Previous research has provided evidence for the content and construct validity of this assessment instrument (Gresham, 2001).

In the ECLS-K2011, teachers used the SSRS-T to assess students' behaviors and social skills that may impact their academics, relationships with their teachers, and peer interactions (Gresham & Elliott, 1990; Tourangeau et al., 2019). There were four social skills assessed with teachers' responses: self-control, people skills, externalizing problem behaviors, and internalizing problem behaviors (Tourangeau et al., 2019). The present study focused on teachers' ratings of students' externalizing behaviors (five items) and internalizing behaviors (four items) using archival data obtained from the ECLS-K2011 (Tourangeau et al., 2019). In the ECLS-K2011, teachers reported the frequency sample

children in their classroom displayed specific behaviors (Tourangeau et al., 2019). This scale focused on the domain of problem behaviors and took approximately 15 minutes to complete using a four-option frequency scale from *never* to *very often* (Gresham, 2001; Tourangeau et al., 2019). Gresham (2011) defined externalizing behaviors as "behaviors representing undercontrolled or acting-out behavior patterns" and internalizing behaviors were defined as "behaviors representing overcontrolled or inhibited behavior patterns" (pp. 325-355). For scores to be computed, a minimum of four out of five items were required to be completed for externalizing problem behaviors and three out of four items for internalizing problem behaviors (Tourangeau et al., 2019). Greater scores indicated the student demonstrated the problem behavior more often (Tourangeau et al., 2019). To address copyright restrictions, and to protect participants' identity, individual items were not included in the archival data (Tourangeau et al., 2019).

Burkholder et al. (2020) defined reliability as "the extent to which findings and results are consistent across researchers using the same methods of data collection and analysis" (p. 180). Tourangeau et al. (2019) indicated the internal consistency reliability coefficient for teacher-reported externalizing problem behaviors to be α = .88 (good) and the reliability coefficient for teacher-reported internalizing problem behaviors to be α = .79 (acceptable). Previous studies found high internal consistency coefficients for teachers' SSRS total scores (.94 to .98; Elliott et al., 1988; Pedersen et al., 2001). Test-retest for the SSRS-T was found to be high (r = .90) by Elliott et al. (1988); this indicates the test is stable over time. Furthermore, moderate (r = .65) interrater reliability was

found, suggesting different raters provided consistent measures of the same behavior (Elliott et al., 1988).

The original SSRS was assessed on a national sample of 4,000 children in grades third through 10th (Gresham & Elliott, 1990). Internal consistency ranged from .83 to .94 (good to strong alignment) for the full-scale social skills scores (Gresham & Elliott, 1990). In a study conducted by Pedersen et al. (2001), 280 children from nine rural school districts in Pennsylvania were included to evaluate the reliability of the SSRS with children from low-income families in kindergarten to second grade (Pedersen et al., 2001). Internal consistency coefficients for teacher ratings were .02 (poor) for male students and .91 (strong) for female students in second grade (Pedersen et al., 2001).

The SSRS-T was an appropriate instrument for this study because teachers' reports of neurotypical and neurodiverse kindergarten students' behaviors were needed to determine the extent of male and female differences in externalizing and internalizing behaviors (Gresham & Elliott, 1990). This valid assessment permitted these variables to be measured. Furthermore, this scale was free, publicly available for research purposes, and tailored for interventions (Gresham, 2001).

Child Behavior Questionnaire Short Form (CBQ-SF)

Teachers' reports of students' inhibitory control were measured using the CBQ-SF (Putnam & Rothbart, 2006). Putnam and Rothbart developed this instrument in 2006 to focus specifically on how children display behaviors and social skills related to fifteen subscales. These behaviors and social skills include pleasure, discomfort, soothability, activity, fear, frustration, sadness, approach, positive anticipation, perceptual

sensitivity, attentional focusing, and inhibitory control (Putnam & Rothbart, 2006; RAND Corporation, n.d.). This tool is used frequently in developmental research with children ages 3 to 7 to assess differences in their reactivity and self-regulation (Putnam & Rothbart, 2006). The CBQ-SF includes 94 items that use a Likert-type scale to measure children's interpersonal and intrapersonal skills from parent or teacher reports (Putnam & Rothbart, 2006). This instrument is free and publicly available (RAND Corporation, n.d.).

The internal consistency reliability coefficient for inhibitory control was found to be .87 (Tourangeau et al., 2019). This indicated good reliability (Warner, 2013). Quality evidence of the CBQ-SF was obtained from three samples of U.S. children ages 3 to 8 (RAND Corporation, n.d.). Internal consistency ranged from .43 to .87 (poor to good alignment) for the fifteen subscales used (RAND Corporation, n.d.). Validity evidence for the CBQ-SF was based on the Infant Behavior Questionnaire (Rothbart, 1981, as cited in RAND Corporation, n.d.) and the Physiological Reactions Questionnaire (Derryberry & Rothbart, 1988, as cited in RAND Corporation, n.d.). This suggests content, concurrent, and construct validity exists, as items measured the indicated content and correlated with previous results (Creswell & Creswell, 2018).

This study focused on the temperament dimension related to the executive functioning skill of inhibitory control in the CBQ-SF (Putnam & Rothbart, 2006; Tourangeau et al., 2019). This questionnaire measured teachers' reports on students' attentional focus and inhibitory control over the past six months using a seven-point scale with options of extremely true or extremely untrue (Putnam & Rothbart, 2006). Scale

scores used in the ECLS-K2011 were based on guidelines from Putnam and Rothbart (2006) and included six items from the attentional focusing subscale and six items from the inhibitory control subscale (Tourangeau et al., 2019). The present study focused on teachers' reported measures of kindergarten students' inhibitory control using the CBQ-SF (Tourangeau et al., 2019). Teachers responded to situations that had occurred over the past 6 months using a 7-point scale ranging from *extremely untrue* to *extremely true* (Tourangeau et al., 2019). Greater scores indicated higher inhibitory control, suggesting the student was able to demonstrate socially expected behavior (Tourangeau et al., 2019). Reliability measures for the inhibitory control scale were .87 (moderate), according to Tourangeau et al. (2019). Individual scores for each item of the CBQ-SF were not included in the archival data due to copyright restrictions and to ensure participant anonymity (Putnam & Rothbart, 2006; Tourangeau et al., 2019).

Reliability evidence was measured for the CBQ-SF; internal consistency was measured from .43 (poor alignment) to .87 (good alignment) for the fifteen subscales, according to RAND Corporation (n.d.). This was found using three samples of children ages 3 to 8 in the United States (Putnam & Rothbart, 2006; RAND Corporation, n.d.). Putnam and Rothbart (2006) reported the CBQ-SF showed satisfactory internal consistency and criterion validity to the standard CBQ (N = 289, 3-year-olds). Putnam and Rothbart (2006) used three diverse samples of children and found consistency across age and informant.

The CBQ-SF takes approximately 30 minutes to complete the 94 items while the standard CBQ takes 1 hour to complete the 195 items (Putnam & Rothbart, 2006).

Furthermore, Teglasi et al. (2015) reported internal consistencies of the CBQ-SF for preschool and kindergarten teachers in a sample of 1,055 kindergarten students from five schools in the Washington, D.C., and Chicago area. Construct validity for the CBQ-SF was found when comparing this shorter version to the standard form (Putnam & Rothbart, 2006; Teglasi et al., 2015). Alpha values of .70 or above were found for all but one subscale of the CBQ-SF (sadness) indicating fair internal consistency (Teglasi et al., 2015). De la Osa (2014) additionally found moderate reliability and valid scores for measuring children's temperament in preschool children using the CBQ-SF. Consistency was found across age and informant using the CBQ-SF (de la Osa, 2014; Putnam & Rothbart, 2006; Teglasi et al., 2015). The CBQ-SF was an appropriate tool to use in this study as the role of inhibitory control was used as a covariate when examining the extent of female and male kindergarten students' externalizing and internalizing behaviors according to teachers' reports.

Data Analysis Plan

The IBM Statistical Package for the Social Sciences (SPSS; n.d.) software was used for this research study. This tool permits researchers to organize data and test variables using various statistical procedures. IBM SPSS (n.d.) enables researchers to perform statistical procedures when analyzing data and examining the relationships between dependent and independent variables (IBM SPSS, n.d.).

Archival data were used in this study. The process of cleaning and screening data were completed by NCES (n.d.b; n.d.c). Team members ensured data were entered correctly to provide valid, accurate, complete, consistent, and uniform data (NCES, n.d.b;

NCES, n.d.c). Standard errors were calculated using the Taylor Series linearization, missing data were recoded, and weights were applied to ensure data were representative of the kindergarten target population (NCES, n.d.b; NCES, n.d.c). Teachers' questionnaires were scanned into Teleform, a scanning data system, and data were edited to check for validity (Tourangeau et al., 2019). Data underwent additional data cleaning for this study to ensure incorrect data and structural errors were rectified. This procedure occurred using IBM SPSS (n.d.). SPSS enabled me to perform a statistical analysis of the ECLS-K2011 data set and investigate the relationship between the dependent and independent variables, after controlling a covariate (IBM SPSS, n.d.; Tourangeau et al., 2019).

The research question posed in this study was: To what extent do female and male kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control, as measured by teachers' reports using the SSRS-T and CBQ-SF?

The null hypothesis was: There is no significant difference in externalizing and internalizing behaviors between female and male kindergarten students after controlling for inhibitory control. The alternative hypothesis was: There is a significant difference in externalizing and internalizing behaviors between female and male kindergarten students after controlling for inhibitory control.

The statistical test used in this quantitative non-experimental design was the one-way multivariate analysis of covariance (MANCOVA; Warner, 2013). This statistical test assessed the influence of one independent variable on multiple dependent variables while removing the effects of a third variable, known as the covariate (Warner, 2013).

Covariates are included in studies to reduce error (Warner, 2013). The one-way MANCOVA conducts a regression of the covariate on the dependent variable. A MANOVA is then conducted on the unexplained variance, known as the residuals, to determine whether the independent variable continues to influence the dependent variables after the covariate has been removed (Warner, 2013).

In this study, the independent variable was gender: female or male neurotypical and neurodiverse kindergarten students (categorical variable). The dependent variables were externalizing behaviors (scale variable with five items) and internalizing behaviors (scale variable with four items). The covariate was inhibitory control (scale variable with six items). Inhibitory control was selected as the covariate because previous research found this variable to be negatively related to challenging behavior; therefore, was controlled to reduce the risk of error (Cumming et al., 2022; Morgan et al., 2019; Reinke et al., 2022).

Assumptions were first checked to ensure the one-way MANCOVA was an appropriate analysis (Burkholder et al., 2020; Warner, 2013). This included two dependent continuous variables (externalizing and internalizing behaviors), one independent categorical variable (gender), one continuous covariate (inhibitory control), and independence of observation (Warner, 2013). The following assumptions were tested using SPSS (IBM SPSS, n.d.) analysis: a linear relationship between the dependent variables and independent variable (tested using a scatterplot), a linear relationship between the covariate and each pair of dependent variables and independent variable (tested using a scatterplot), homogeneity of regression (tested with Levene's test),

homogeneity of variances and covariances (tested using the Box's M test of equality), no significant univariate outliers (tested with sample size and examination of residuals), no significant multivariate outliers (tested using the Mahalanobis distance), and multivariate normality (tested using the Shapiro-Wilk test of normality; Warner, 2013).

Results in this study were interpreted after running a one-way MANCOVA using IBM SPSS (n.d.). The purpose of this analysis was to determine the extent of gender differences (IV) in a sample of neurotypical and neurodiverse kindergarten students' externalizing (DV) and internalizing behaviors (DV) while controlling for inhibitory control (covariate). A statistically significant one-way MANCOVA ($p < .05$) would suggest there was a statistically significant adjusted mean difference between female students and male students in terms of the combined dependent variables of externalizing and internalizing problem behaviors, after adjusting for inhibitory control. Results were interpreted using the Multivariate Tests table (Pillai's Trace, Wilks' Lambda, Hotelling's Trace, or Roy's Largest Root) to test the statistical significance of the difference between groups; the *F*-statistic and *p*-value were reported and used to determine if the null hypothesis was accepted or rejected (Warner, 2013). The effect size was used to interpret how meaningful the difference between the groups is (Warner, 2013).

Threats to Validity

Creswell and Creswell (2018) stated "Validity in quantitative research refers to whether one can draw meaningful and useful inferences from scores on particular instruments" (p. 251). Validity addresses the extent the results represent reality (Burkholder et al., 2020; Creswell & Creswell, 2018). Threats to validity include internal,

external, construct, face, and content (Burkholder et al., 2020). Internal and external validity are important concepts to address when designing a quantitative study (Burkholder et al., 2020; Creswell & Creswell, 2018). Internal validity attends to the framework of the study and assesses whether changes in the dependent variable may be attributed to manipulations in the independent variable while external validity addresses the generalizability of the research findings (Burkholder et al., 2020; Creswell & Creswell, 2018).

Internal validity measures the confidence you have in the results from your study; this suggests results are not influenced by other factors and represent the truth (Burkholder et al., 2020; Creswell & Creswell, 2018). Internal validity helps demonstrate your results are not coincidental. Internal validity ensures the independent variable is responsible for influencing the dependent variable you are measuring (Creswell & Creswell, 2018). Threats to internal validity include history, researcher bias, maturation, mortality, selection, instrumentation, and testing (Burkholder et al., 2020).

Archival data were used in this study; a limitation of using a secondary dataset is that I cannot confirm the accuracy of the data or the collection process. This may have presented a threat to validity. Additionally, students may have moved and transferred to school districts. This would result in losing students from the study sample and pose an attrition threat to internal validity (Burkholder et al., 2020). Historical events could have impacted the results in the ECLS-K2011 (NCES, n.d.c); for example, if there was a fire or neighborhood conflict, results may have impacted students' behaviors and teachers' reports (Burkholder et al., 2020). Experimental bias and teacher bias were additional

threats to internal validity in this study; NCES field staff views and teachers' perspectives regarding the study and the kindergarten population may have influenced the ratings of students' challenging behaviors (Burkholder et al., 2020; NCES, n.d.b). Finally, because this study was not experimental in design, extraneous variables were not controlled, which may have threatened internal validity (Creswell & Creswell, 2018).

Threats to internal validity were addressed by providing NCES field staff with extensive training and supervision to ensure universal guidelines were followed and implemented to eliminate bias (NCES, n.d.b; NCES, n.d.c). Random selection of participants occurred through stratification to ensure the sample population was representative of kindergarten students in the United States (NCES, n.d.b); these measures helped address the selection threat to internal validity. Additionally, consistent instruments were used in the ECLS-K2011 to measure students' behaviors (SSRS-T and CBQ-SF) according to teachers' reports (Tourangeau et al., 2019). This prevented the influence of incorrect measurement of students' behaviors or variances due to instrumentation (Burkholder et al., 2020). Furthermore, coders reviewed assessments to ensure responses were recorded (Tourangeau et al., 2019). Finally, this study focused on neurotypical and neurodiverse kindergarten students in the Fall of 2010 to eliminate the possible internal validity threat of maturation and test-taking behavior (NCES, n.d.b; Tourangeau et al., 2019). Children are exposed to various influences during the first few months of school entry; this period was selected to decrease the changes that may occur during extended periods or after repeated exposure to teacher ratings (Burkholder et al., 2020).

Burkholder et al. (2020) defined external validity as “the extent to which findings hold across contexts” (p. 186). Threats to external validity could include treatment variations, selection bias, experimenter effect, or situation effect (Burkholder et al., 2020). The ECLS-K2011 study addressed possible threats to external validity, such as sampling bias, by including a nationally representative sample of neurotypical and neurodiverse kindergarten students through stratified, clustered sampling (Tourangeau et al, 2019). This strategy increased population validity through the presentation of a sample population that was representative of all kindergarten students in the United States (Burkholder et al., 2020). Furthermore, ecological validity was addressed through this stratified design; various public and private schools that provided kindergarten programs to students in the United States were included in this study, suggesting results may be generalized to additional educational settings (Burkholder et al., 2020; Creswell & Creswell, 2018).

Observer bias is a potential external threat to validity (Burkholder et al., 2020). This study used archival data from teachers’ reports of students’ externalizing and internalizing behaviors and inhibitory control (Tourangeau et al, 2019). Teachers may have unintentionally influenced students’ behaviors resulting in potential biases (Burkholder et al., 2020). Additionally, situational effects may also be an external threat to validity (Burkholder et al., 2020). The school setting and time of day may limit the generalizability of the results (Burkholder et al., 2020).

Construct validity is the extent to which the assessment measures what it is supposed to (Warner, 2013). Previous research has found the SSRS-T to have construct

validity by comparing this tool to other behavioral rating scales, such as the Revised Behavior Problem Checklist and the Teacher Ratings of Academic Performance (Elliott et al., 1988). Similarly, the CBQ-SF was found to have construct validity through the comparison to the Infant Behavior Questionnaire and the Physiological Reactions Questionnaire (RAND Corporation, n.d.). Having strong construct validity permits researchers to properly explore the theoretical concept (Burkholder et al., 2020; Waner, 2013). Furthermore, these instruments had strong face validity and adequately captured kindergarten students' behavioral problems and inhibitory control (Burkholder et al., 2020). Content validity was increased by using two instruments to adequately assess the variables of interest: externalizing and internalizing behaviors and inhibitory control (Burkholder et al., 2020).

Ethical Procedures

The ECLS-K2011 adhered to the ethical issues of data collection: confidentiality, consent, and respect (Tourangeau et al., 2019; Walden University Office of Research and Doctoral Services, n.d.; Warner, 2013). Strict procedures were implemented to ensure that privacy was protected for everyone in the study (Tourangeau et al., 2019). After the three-stage clustered sampling design occurred, informed consent was obtained by state and district officials detailing the purpose of the study (Tourangeau et al., 2019). Once approved, parents/guardians' consent of selected sampled kindergarten students was obtained (Tourangeau et al., 2019). Informed consent was additionally obtained from the sample kindergarten students' general education teachers (Tourangeau et al., 2019). Participation was voluntary and data were collected from teachers using a self-reported

hard copy of the SSRS-T and CBQ-SF (Tourangeau et al., 2019). Participants were permitted to discontinue participation at any time (Tourangeau et al., 2019).

Data were anonymous to protect respondents' identities (Tourangeau et al., 2019). Furthermore, data underwent consistency checks and a nonresponse bias analysis occurred from trained NCES personnel for verification purposes (Tourangeau et al., 2019). Teacher-reported questionnaires were scanned using Teleform and validated through this software program (Tourangeau et al., 2019). Scanned images were stored in Alchemy, a secure database (Tourangeau et al, 2019). Identity was kept confidential and research findings were shared responsibly with the intent of increasing researchers' understanding of children's behavioral, social, and learning development in elementary grades, and providing policymakers with current data regarding children's early educational experiences (Tourangeau et al., 2019).

The ethical principles of voluntary participation of subjects, informed consent, anonymity, transparency, and confidentiality were adhered to throughout this longitudinal study (Creswell & Creswell, 2018; Tourangeau et al., 2019; Walden University Office of Research and Doctoral Services, n.d.). Participants were not at risk for any harm and had the right to discontinue participation at any time (Tourangeau et al., 2019). The ECLS-K2011 followed U.S. Federal Regulations and the American Psychological Association Code of Ethics for research studies (Burkholder et al., 2020; Tourangeau et al., 2019; Walden University Office of Research and Doctoral Services, n.d.). NCES staff provided clear information about the purpose of the ECLS-K2011 study and how data would be collected (Tourangeau et al., 2019). Furthermore, a risk assessment was completed before

providing data for public use (Tourangeau et al., 2019). Appropriate procedures to obtain IRB approval were followed in this quantitative study (IRB approval number 04-08-24-1160174; Walden University Office of Research and Doctoral Services, n.d.). This secondary data had no identifying information; therefore, ethical risks were minimized.

Summary

This chapter discussed the methodology used in this quantitative non-experimental research study. The target population was identified, and the sampling procedures, instrumentation, and data collection using the ECLS-K2011 archival data set were reviewed (Tourangeau et al., 2019). Furthermore, the data analysis plan, threats to validity, and ethical considerations were considered. Chapter 4 will present the results of this study.

Chapter 4: Results

Introduction

This chapter will present the results from the statistical analysis of teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students. Archival data were acquired from the NCES ECLS-K2011 (NCES, n.d.c; Tourangeau et al., 2019). This research was guided by Sandra Bem's (1981) gender schema theory, as discussed in Chapter 2. Additionally, the research methodology used in this study was described in Chapter 3.

The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students in the United States. The following research question and hypotheses guided this study:

RQ: To what extent do female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control as measured by teacher-reported SSRS-T and CBQ-SF?

H_0: There is no significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

H_a: There is a significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

Chapter 4 discusses the results of this non-experimental quantitative study. A summary of how data were collected using secondary data from the ECLS-K2011 is provided (NCES, n.d.c; Tourangeau et al., 2019). Descriptive statistics are described, MANCOVA assumptions are evaluated, and statistical analyses using IBM SPSS (n.d.) version 29 are reported.

Data Collections

This study utilized secondary data from the ECLS-K2011 (Tourangeau et al., 2019). The ECLS-K2011 was sponsored by the NCES (n.d.c). This data set is available for public use and intended to provide reliable data that researchers and policymakers can use to describe and understand children's development and experiences in early education (NCES, n.d.c). Secondary data were selected for this study because the population of interest was neurotypical and neurodiverse kindergarten students. This population is deemed vulnerable by the IRB; therefore, utilizing secondary data helps safeguard their rights and provides minimal risks (Walden University Office of Research and Doctoral Services, n.d.).

Over 18,000 kindergarten students were represented in the ECLS-K2011 data (NCES, n.d.c; Tourangeau et al., 2019). A multistage, stratified, clustered design was used to collect this nationally representative kindergarten sample of neurotypical and neurodiverse students (Tourangeau et al., 2019). This ensured the sample followed the IRB principle of justice; the sample was not merely obtained out of convenience (Walden University Office of Research and Doctoral Services, n.d.). Ethical procedures were followed by the NCES in explaining the purpose of the study and obtaining consent for

participation from district personnel and sample students' parents/guardians (Tourangeau et al., 2019; Walden University Office of Research and Doctoral Services, n.d.). Over 1,300 public (15,953 students) and private (2,221 students) schools were included in the national school sample during the 2010–2011 school year; data were retrieved from teachers, parents/guardians, students, and care providers (Tourangeau et al., 2019). Neurotypical and neurodiverse kindergarten students' races included American Indian or Alaska Native (181), Asian (1,576), Black (2,425), Hispanic (4,507), Pacific Islander (114), White (8,527), and more than one race (843; Tourangeau et al., 2019). The census region of the United States included the Northeast (3,010), Midwest (3,870), South (6,640), and West (4,660; Tourangeau et al., 2019).

This study focused on the teacher-reported data obtained from the SSRS-T and CBQ-SF in fall 2010 (Tourangeau et al., 2019). This period from August 2010 through January 2011 was deemed the baseline year of the ECLS-K2011 (Tourangeau et al., 2019). Teachers of sample students self-reported neurotypical and neurodiverse kindergarten students' observable behaviors as they naturally occurred in their classrooms during the past 6 months using the SSRS-T and CBQ-SF (Tourangeau et al., 2019). The SSRS-T included four teacher scales: self-control, interpersonal skills, externalizing problem behaviors, and internalizing problem behaviors (Tourangeau et al., 2019). This study focused on externalizing problem behaviors (five items) and internalizing problem behaviors (four items) using a frequency scale (Tourangeau et al., 2019). Higher scores indicated the behavior was observed more often (Tourangeau et al., 2019). CBQ-SF included two scales: attentional focus and inhibitory control (Tourangeau

et al., 2019). This study focused on inhibitory control (six items) measured on a scale (Tourangeau et al., 2019). Higher scores indicated the sample child demonstrated greater inhibitory control (Tourangeau et al., 2019). These questionnaires were collected by NCES team leaders and the overall response rate for teacher questionnaires was 53.4% (Tourangeau et al., 2019). Quality control measures were implemented to ensure the results were anonymous, reliable, and valid (Tourangeau et al., 2019). Coders reviewed teacher-reported questionnaires and scanned documents for verification; data were securely stored in a protected database (Tourangeau et al., 2019). Data for the individual items of the externalizing problem behaviors, internalizing problem behaviors, and inhibitory control were not included in the ECLS-K2011 data file due to copyright restrictions and to ensure anonymity (Tourangeau et al., 2019).

Secondary data were obtained from the NCES (n.d.c). The syntax file and raw data were downloaded and transferred into IBM SPSS for this study. The variables of interest included neurotypical and neurodiverse kindergarten students' gender, teacher-reported externalizing problem behaviors, teacher-reported internalizing problem behaviors, and teacher-reported inhibitory control observed during fall 2010 (Tourangeau et al., 2019). As discussed in Chapter 3, the reliability coefficient for teacher-reported externalizing problem behaviors was $\alpha = .88$ (good), $\alpha = .79$ for teacher-reported internalizing problem behaviors (acceptable), $\alpha = .87$ (good) for teacher-reported inhibitory control (Tourangeau et al., 2019; Warner, 2013).

Results

Descriptive statistics summarize the main characteristics of a data set (Warner, 2013). Descriptive statistics are reported numerically to describe data related to the sample used in a study. General education teachers reported the internalizing and externalizing problem behaviors of 14,866 neurotypical and neurodiverse kindergarten students (Table 1). In this sample, there were 7,608 male students and 7,224 female students; 34 kindergarten students' gender was not ascertained (Table 1). An analysis of descriptive statistics indicated the mean score of teacher-reported externalizing problem behaviors for 7,608 male students (M = 1.38, SD = 2.02) and the mean score of teacher-reported externalizing problem behaviors for 7,224 female students (M = 1.13, SD = 1.91). An analysis of descriptive statistics indicated the mean score of teacher-reported internalizing problem behaviors for 7,608 male students (M = 1.02, SD = 2.21) and the mean score of teacher-reported internalizing problem behaviors for 7,224 female students (M = 1.03, SD = 2.09). This number likely differs from the ECLS-K2011 referenced sample of 18,174 kindergarten students due to teacher-response rate and sample attrition (Tourangeau et al., 2019; Warner, 2013).

Table 1

Descriptive Statistics

	Child composite sex-revised	Mean	Std. deviation	N
X1 Teacher-reported internalizing problem behaviors	–9: Not ascertained	.526959	3.0482721	34
	1: Male	1.016386	2.2113614	7,608
	2: Female	1.027927	2.0943253	7,224
	Total	1.020875	2.1575374	1,4866
X1 teacher-reported externalizing problem behaviors	–9: Not ascertained	.6279	3.11743	34
	1: Male	1.3845	2.01760	7,608
	2: Female	1.1288	1.91287	7,224
	Total	1.2585	1.97482	1,4866

The statistical test that was used in this quantitative non-experimental design was MANCOVA. This statistical test assessed the influence of one independent variable (gender) on multiple dependent variables (teacher-reported externalizing problem behaviors and teacher-reported internalizing problem behaviors) while removing the effects of the third variable known as the covariate (teacher-reported inhibitory control) in a sample of neurotypical and neurodiverse kindergarten students. The purpose of this statistical test was to determine if there was a statistically significant adjusted mean difference between female students and male students in terms of the combined dependent variables of externalizing and internalizing problem behaviors, after adjusting for inhibitory control according to teachers' perceptions (Laerd Statistics, n.d.; Warner, 2013).

MANCOVA assumptions were tested before running the data (Burkholder et al., 2020; Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). The two dependent variables selected (teacher-reported externalizing problem behaviors and teacher-reported

internalizing problem behaviors) met the first assumption of two continuous variables (Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). The independent variable of gender consisted of three categories (female, male, or not ascertained); this meets the second MANCOVA assumption (Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). The covariate of inhibitory control was a continuous variable and teacher observations were independent in this study, indicating further assumptions were met (Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). Furthermore, there was a large sample size that helped reduce the chance of sampling error and provided a national representation of neurotypical and neurodiverse kindergarten students (Table 1; Laerd Statistics, n.d.; Warner, 2013).

Multivariate outliers were tested using residual statistics and indicated a maximum Mahalanobis value of 72.99 (Table 2; Laerd Statistics, n.d.). This critical value was below the allowable value of 13.82, suggesting outliers may be present (Grande, 2015). I computed the chi-square on SPSS and found no significant multivariate outliers in the groups of gender in terms of teacher-reported externalizing problem behaviors and teacher-reported internalizing problem behaviors (Grande, 2015). This met another MANCOVA assumption (Laerd Statistics, n.d.).

Table 2

Residual Statistics

	Minimum	Maximum	Mean	Std. deviation	N
Predicted value	.97	1.73	1.46	.073	14866
Mahal. distance	.000	72.988	3.000	9.374	14866

Multivariate normalcy was tested using the Shapiro-Wilk test (Tables 3–5; Laerd Statistics, n.d.; Taylor, 2023). Data indicated the Shapiro-Wilk had a significant value of $p < .001$ for externalizing problem behaviors (Table 3), internalizing problem behaviors (Table 4), and inhibitory control (Table 5). This would suggest a non-normal distribution (Grande, 2015). Figures 1–6 show a normal distribution of externalizing problem behaviors for male students (Figure 1) and female students (Figure 2); a normal distribution of internalizing problem behaviors for male students (Figure 3) and female students (Figure 4); and a normal distribution of inhibitory control for male students (Figure 5) and female students (Figure 6). This meets the assumption of multivariate normality and linearity between each pair of dependent variables and the independent variable and between the covariate and the independent variable (Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013).

Table 3

Tests of Normality Externalizing Problem Behaviors

		Shapiro-Wilk		
	Child composite sex-revised	Statistic	df	Sig.
X1 Teacher-report externalizing problem behaviors	-9: Not ascertained 1: Male 2: Female	.515	34	<.001

Table 4

Tests of Normality Internalizing Problem Behaviors

		Shapiro-Wilk		
	Child composite sex-revised	Statistic	df	Sig.
X1 Teacher-report internalizing problem behaviors	-9: Not ascertained 1: Male 2: Female	.466	34	<.001

Table 5

Test of Normality Inhibitory Control

		Shapiro-Wilk		
	Child composite sex-revised	Statistic	df	Sig.
X1 Teacher-report inhibitory control	-9: Not ascertained 1: Male 2: Female	.593	34	<.001

Figure 1

Teacher Reported Externalizing Problem Behaviors: Male

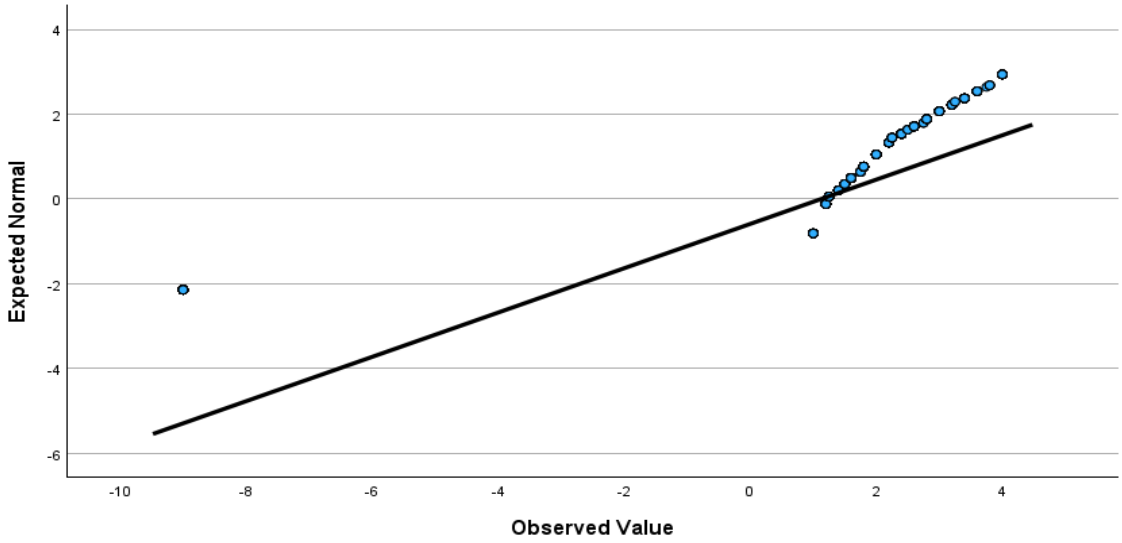


Figure 2

Teacher Reported Externalizing Problem Behaviors: Female

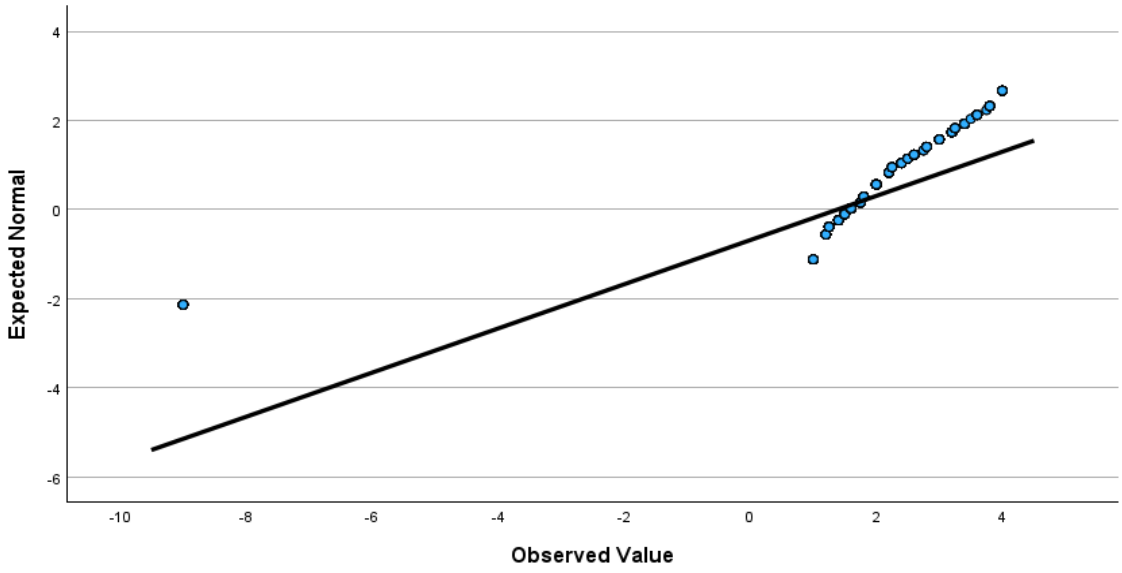


Figure 3

Teacher Reported Internalizing Problem Behaviors: Male

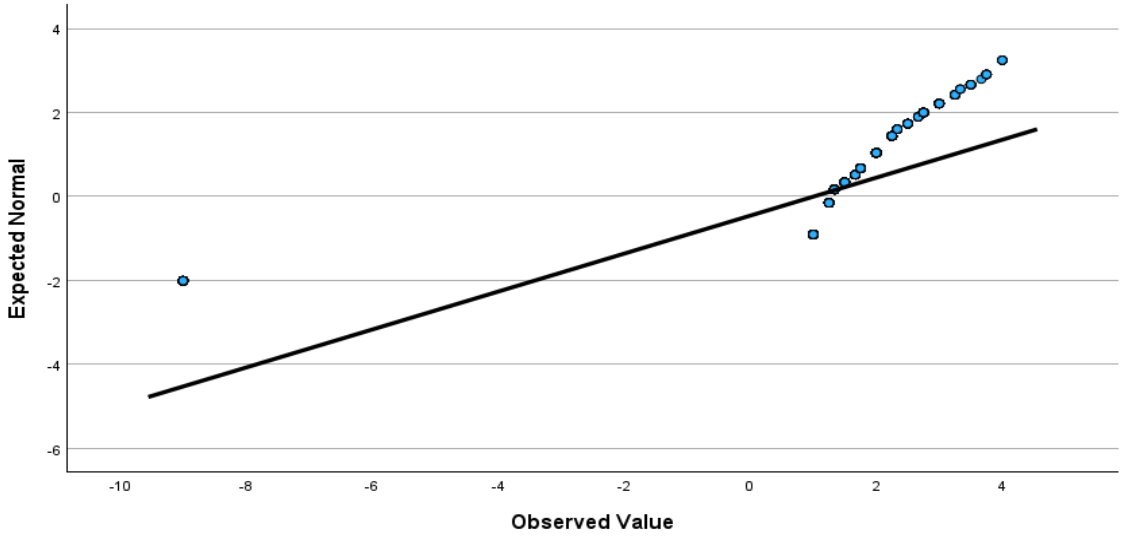


Figure 4

Teacher Reported Internalizing Problem Behaviors: Female

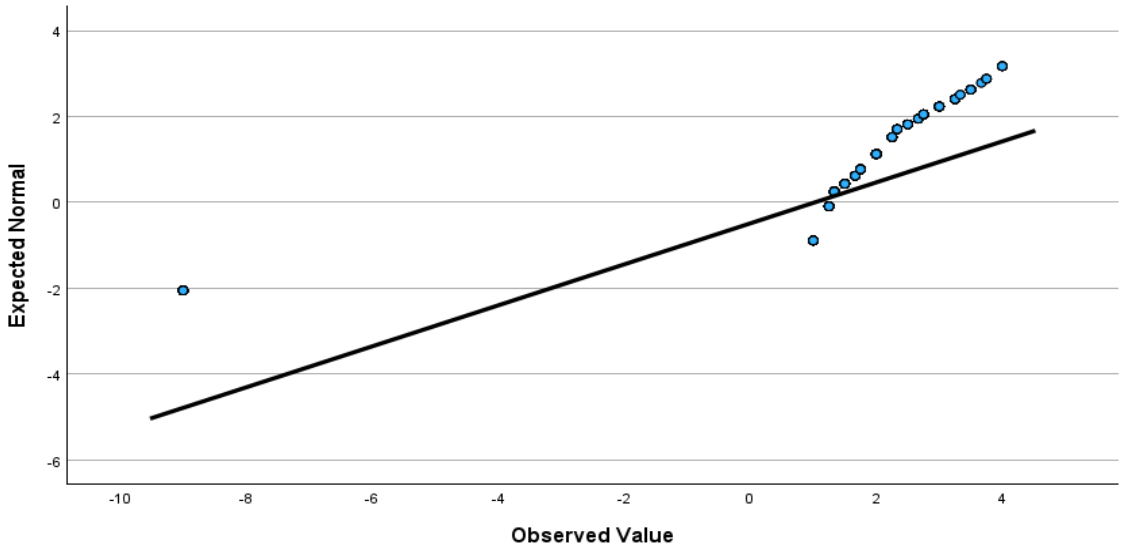


Figure 5

Teacher Reported Inhibitory Control: Male

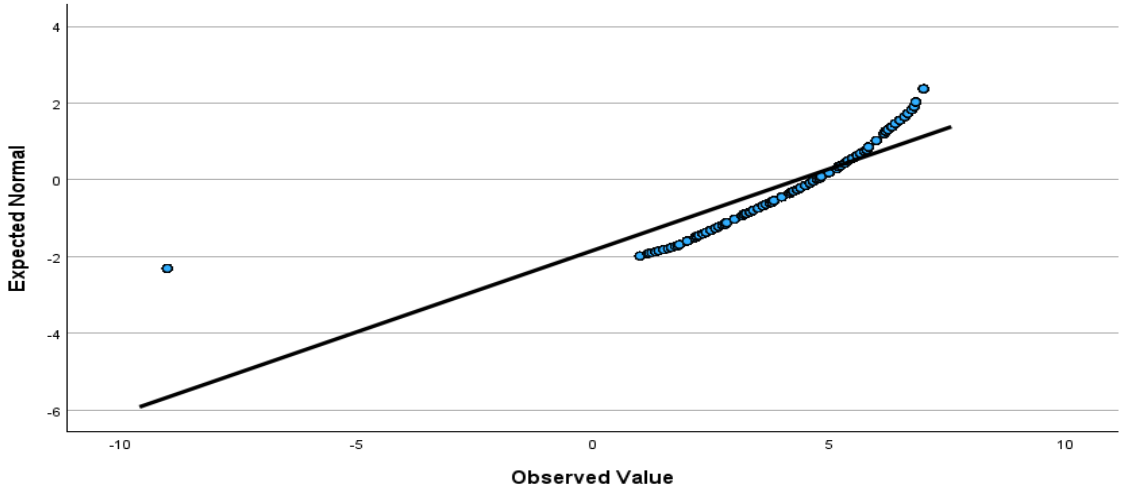
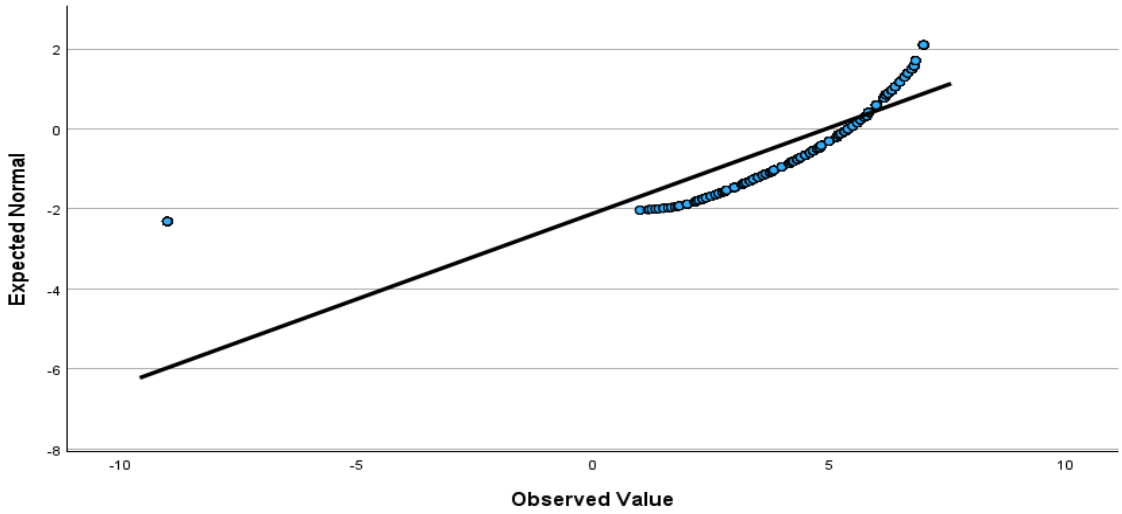


Figure 6

Teacher Reported Inhibitory Control: Female



The MANCOVA assumption of homogeneity was tested using the Box's *M* test of equality (Table 6; Laerd Statistics, n.d.). This test verifies the covariance and variance

of the dependent variables are equal in all groups of the independent variable (Laerd Statistics, n.d.). M = 141.88, $p < .001$, suggesting non-normality (Table 6). The Box's M test of equality of covariance matrices is sensitive to large data files, which may be the case in this study (Grande, 2015; Warner, 2013).

Table 6

Box's Test of Equality of Covariance Matrices

Box's M	141.881
F	23.383
df1	6
df2	43301.494
Sig.	<.001

Pillai's Trace V and Wilks' Λ Multivariate tests were used because some of the MANCOVA assumptions were not met; therefore, further analyses were conducted to help reduce any violations of homogeneity (Table 7; Grande, 2015; Laerd Statistics, n.d.; Warner, 2013). These multivariate tests were found to be statistically significant, $p < .001$ (Table 7). The Pillai's Trace V = .007 and was significant, $F(4, 29724) = 27.51$, $p < .001$, $\eta_p^2 = .04$ (small effect size) with an observed power of 1.00 (Warner, 2013). The Wilks' Λ = .99 and was significant, $F(4, 29722) = 27.56$, $p < .001$, $\eta_p^2 = .04$ (small effect size; Warner, 2013). The observed power was 1.00 (Table 7; Warner, 2013). These results suggest there was a statistically significant adjusted mean difference in the combined dependent variables of externalizing and internalizing problem behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

Table 7

Multivariate Tests

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial eta squared	Observed power
Intercept	Pillai's trace	.001	10.495	2.000	14861.000	<.001	.001	.989
	Wilks' lambda	.999	10.495	2.000	14861.000	<.001	.001	.989
X1 Teacher-reported inhibitory control	Pillai's trace	.043	337.186	2.000	14861.000	<.001	.043	1.000
	Wilks' lambda	.957	337.186	2.000	14861.000	<.001	.043	1.000
X1 Child composite sex-revised	Pillai's trace	.007	27.512	4.000	29724.000	<.001	.004	1.000
	Wilks' lambda	.993	27.560	4.000	29722.000	<.001	.004	1.000

Multicollinearity was tested with the Pearson Correlation (Table 8; Laerd Statistics, n.d.). This is "the degree of intercorrelation among predictor variables" (Warner, 2013, p. 1100). Results indicated the correlation between gender and teacher-reported externalizing problem behaviors ($r = –.04$) was significant ($p < .001$); the correlation between gender and teacher-reported internalizing problem behaviors ($r = .01$) was not significant ($p = .12$); and the correlation between gender and teacher-reported inhibitory control ($r = .09$) was significant ($p < .001$; Table 8). Results indicated no multicollinearity (Table 8; Laerd Statistics, n.d.; Warner, 2013).

Table 8

Pearson Correlation

		Child composite sex-revised	X1 Teacher-reported externalizing problem behaviors	X1 Teacher-reported internalizing problem behaviors	X1 Teacher-reported inhibitory control
Pearson Correlation	Child composite sex-revised	1.000	-.035	.010	.091
	X1 Teacher-reported externalizing problem behaviors	-.035	1.000	.447	1.36
	X1 Teacher-reported internalizing problem behaviors	.010	.447	1.000	.197
	X1 Teacher-reported inhibitory control	.091	1.36	.197	1.000
Sig. (1-tailed)	Child composite sex-revised		<.001	.120	<.001
	X1 Teacher-reported externalizing problem behaviors	.000		.000	.000
	X1 Teacher-reported internalizing problem behaviors	.120	.000		.000
	X1 Teacher-reported inhibitory control	.000	.000	.000	

Levene's test of equality (Table 9) indicated that teacher-reported externalizing problem behaviors ($p = .001$) and teacher-reported internalizing problem behaviors ($p < .001$) were significant (Laerd Statistics, n.d.; Warner, 2013). This test assumes equal variances; when this test is significant, equality of variance may be violated (Warner, 2013).

Table 9

Levene's Test of Equality

	F	df1	df2	Sig.
X1 Teacher-reported internalizing problem behaviors	6.737	2	14863	.001
X1 Teacher-reported externalizing problem behaviors	18.877	2	14863	<.001

Following the testing of assumptions, a one-way MANCOVA (Tables 7 and 10) was conducted to investigate gender differences in a linear combination of neurotypical and neurodiverse kindergarten students' problem behaviors after controlling for inhibitory control according to teachers' perceptions (Taylor, 2023). This analysis aimed to determine if there was a statistically significant adjusted mean difference between female students and male students regarding the combined dependent variables of externalizing and internalizing problem behaviors, after adjusting for inhibitory control according to teachers' perceptions (Warner, 2013). The independent variable was gender, with three categories, male, female, and not ascertained. The dependent variables were

teacher-reported externalizing problem behaviors and teacher-reported internalizing problem behaviors. Teacher-reported inhibitory control was used as the covariate. The sample population was a national representation of neurotypical and neurodiverse kindergarten students in the United States (Tourangeau et al., 2019). Preliminary assumptions of this omnibus statistical test were conducted to check for sufficient sample size, appropriate variable measures (scale dependent variables, categorical independent variable, and scale covariate), independence of observation, linearity, homogeneity of variances, univariate and multivariate outliers, and normality (Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013).

Table 10 indicates there was a statistically significant mean difference between female students and male students on the combined dependent variables of teacher-reported externalizing problem behaviors and teacher-reported internalizing problem behaviors, $F(4, 29722) = 27.56$, $p = < .001$; Wilks' $\Lambda = .99$, $\eta_p^2 = .004$ (small effect size), after controlling for inhibitory control (Warner, 2013). The observed power = 1.00, suggesting the study will correctly detect a false null hypothesis (Warner, 2013). Results indicated that there was a statistically significant difference between neurotypical and neurodiverse kindergarten students' gender on the combined dependent variables of externalizing and internalizing problem behaviors after controlling for inhibitory control.

Table 10

Multivariate Tests

	Value	F	Hypothesis df	Error df	Sig.	Partial eta squared	Observed power
Pillai's trace	.007	27.512	4.000	29724.000	<.001	.004	1.000
Wilks' lamda	.993	27.560	4.000	29724.000	<.001	.004	1.000

The MANCOVA assessed the influence of one independent variable (gender) on multiple dependent variables (externalizing and internalizing problem behaviors) while removing the effects of a third variable (inhibitory control; Warner, 2013). Because the one-way MANCOVA did not determine if there was a statistically significant difference between the independent variable and each dependent variable, a between-subjects analysis was run to provide a post-hoc analysis (Table 11; Laerd Statistics, n.d.). The dependent variables were considered separately using a Bonferroni-adjusted alpha level of 0.05 divided by the number of dependent variables (two) to find significance for the test of .025 (Grande, 2015). The between-subjects test indicated a significant effect of gender on teacher-reported externalizing problem behaviors $F(2, 14862) = 53.49$, $p < .001$, $\eta_p^2 = .007$ (small effect size) when controlling for inhibitory control. The observed power was 1.00. The between-subjects test also showed a significant effect of gender on teacher-reported internalizing problem behaviors $F(2, 14862) = 4.72$, $p = .009$, $\eta_p^2 = .001$ (small effect size) when controlling for inhibitory control. The observed power was .79. This is indicated in Table 11.

Table 11

Test of Between-Subjects Effects

Source	Dependent variable	df	Mean square	F	Sig.	Partial eta squared	Observed power
X1 Child composite sex-revised	X1 Teacher-reported internalizing problem behaviors	2	21.109	4.721	.009	.001	.791
	X1 Teacher-reported externalizing problem behaviors	2	203.334	53.486	<.001	.007	1.000
Error	X1 Teacher-reported internalizing problem behaviors	14862	4.472				
	X1 Teacher-reported externalizing problem behaviors	14862	3.802				

The pairwise comparison was another post-hoc analysis run in IBM SPSS (n.d.; Warner, 2013). The mean difference between male and female teacher-reported externalizing problem behaviors was statistically different at .329, $p < .000$ (Table 12). This suggests the independent variable of gender influenced teacher-reported externalizing behaviors; according to teachers' perceptions, neurotypical and neurodiverse male kindergarteners had more externalizing behaviors than female kindergarteners when controlling inhibitory control (Table 12; Laerd Statistics, n.d.;

Warner, 2013). The mean difference between male and female teacher-reported internalizing problem behaviors was statistically different at .098, $p = .016$ (Table 12). This suggests the independent variable of gender influenced teacher-reported internalizing behaviors; according to teachers' perceptions, neurotypical and neurodiverse male kindergarteners had more internalizing behaviors than female kindergarteners when controlling inhibitory control.

Table 12

Pairwise Comparisons

Dependent variable	Child composite sex-revised	Child composite sex-revised	Mean difference	Std. error	Sig.
X1 Teacher-reported internalizing problem behaviors	-9: Not ascertained	1: Male	-.515	.363	.469
		2: Female	-.418	.364	.752
	1: Male	-9: Not ascertained	.515	.363	.469
		2: Female	.098	.035	.016
	2: Female	-9: Not ascertained	.418	.364	.752
		1: Male	-.098	.035	.016
X1 Teacher-reported externalizing problem behaviors	-9: Not ascertained	1: Male	-.774	.335	.063
		2: Female	-.445	.335	.552
	1: Male	-9: Not ascertained	.774	.335	.063
		2: Female	.329	.032	<.001
	2: Female	-9: Not ascertained	.445	.335	.552
		1: Male	-.329	.032	<.001

Univariate test results showed a statistically significant finding between neurotypical and neurodiverse kindergarten students' gender and teacher-reported externalizing behaviors, $F(2, 14862) = 53.49$, $p < .001$, $\eta_p^2 = .007$ indicating a small effect size (Table 13). The observed power was 1.00 (Table 13; Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). Univariate test results showed a statistically significant finding between neurotypical and neurodiverse kindergarten students' gender and teacher-reported internalizing behaviors, $F(2, 14862) = 4.72$, $p = .009$, $\eta_p^2 = .001$ indicating a small effect size (Table 13). The observed power was .79 (Table 13; Laerd Statistics, n.d.; Taylor, 2023; Warner, 2013). This was the same as the between-subject data reported in Table 11.

Table 13

Univariate Tests

Dependent variable		df	F	Sig.	Partial eta squared	Observed power
X1 Teacher-reported internalizing problem behaviors	Contrast Error	2 14862	4.721	.009	.001	.791
X1 Teacher-reported externalizing problem behaviors	Contrast Error	2 14862	53.486	<.001	.007	1.000

Output results suggest the null hypothesis is rejected and the alternative hypothesis is accepted. There was a significant difference in externalizing and

internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control. Results from the MANCOVA (Tables 7 and 10) and post-hoc tests (Tables 11–13) indicated a statistically significant adjusted mean difference between female and male neurotypical and neurodiverse kindergarten students combined externalizing and internalizing problem behaviors according to teachers' perceptions, after controlling for inhibitory control. Furthermore, according to teachers' perceptions, neurotypical and neurodiverse male kindergarteners had more externalizing problem behaviors and more internalizing problem behaviors than their female peers when controlling inhibitory (Table 12). Results stand alone (Laerd Statistics, n.d.; Warner, 2013).

Summary

This chapter discussed the secondary data collection procedures used in this quantitative study. Descriptive statistics were reported, MANCOVA assumptions were tested, and data were analyzed. Tables and figures were provided to illustrate the results. Results indicated a statistically significant adjusted mean difference between neurotypical and neurodiverse kindergarten students' gender and the combined dependent variables of teacher-reported externalizing and internalizing problem behaviors after controlling for inhibitory control. The alternative hypothesis is accepted: There is a significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

The dissertation will conclude with Chapter 5. This chapter will discuss the interpretation of the findings, limitations of the study, and future recommendations. Furthermore, the implications for social change will be described.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Students' disruptive behaviors are a significant social problem in U.S. classrooms (Ottenheym-Vliegen et al., 2023; Sheaffer et al., 2021; Tourangeau et al., 2019). "Behavioural difficulties are identified when the students' behavior largely deviates from present norms, rules, and expectations, based on the current context and the student's age" (Ekornes & Bele, 2022, p. 384). Disruptive behaviors interfere with teachers' ability to provide adequate instruction and students' learning capacity (Beaman et al., 2007; Habersaat et al., 2020; Ottenheym-Vliegen et al., 2023). Research has found challenging classroom behaviors occur more frequently in neurodiverse children (Steed & Kranski, 2020) and the gravity of these disruptive behaviors increases with age (Beaman et al., 2007). While previous literature has included investigations into gender differences in disruptive classroom behaviors with a direct focus on adolescents and longitudinal studies, little research has examined the teachers' perceptions of gender differences in internalizing and externalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students (Babicka-WIrkus et al., 2023; Davis & Qi, 2020; Lau et al., 2021; Ma et al., 2022).

This quantitative non-experimental research study aimed to examine to what extent female and male neurotypical and neurodiverse kindergarten students differ in externalizing and internalizing behaviors after controlling for inhibitory control, as measured by teacher-reported SSRS-T and CBQ-SF. Secondary data from the ECLS-K2011 was used (NCES, n.d.c; Touarangeau et al., 2019). Results found a statistically

significant mean difference between female students and male students on the combined dependent variables of teacher-reported externalizing problem behaviors and teacher-reported internalizing problem behaviors, $F(4, 29722) = 27.56$, $p = < .001$; Wilks' $\Lambda = .99$, $\eta_p^2 = .004$ (small effect size), after controlling for inhibitory control (Table 10; Warner, 2013).

Chapter 5 will discuss the interpretation of the results referenced in Chapter 4. Results from this study will be compared to findings from previous scholarly literature, as discussed in Chapter 2. Furthermore, findings will be interpreted using Bem's (1981) gender schema theory. Limitations of this study will be described, as cited in Chapter 1. Chapter 5 will conclude with recommendations for further research and implications for positive social change.

Interpretation of the Findings

Results from the MANCOVA (Tables 7 and 10) and post-hoc tests (Tables 11–13) found a statistically significant adjusted mean difference between female and male neurotypical and neurodiverse kindergarten students combined externalizing and internalizing problem behaviors according to teachers' perceptions, after controlling for inhibitory control. These results confirm previous research finding gender differences in students' externalizing and internalizing behaviors (Askari et al., 2021; Babicka-Wirkus et al., 2023; Davis & Qi, 2020; Gaspar et al., 2018; Lau et al., 2021; Ma et al., 2022; Maguire et al., 2016; Matos et al., 2017; Olivier et al., 2018; Olivier et al., 2020; Sheaffer et al., 2021; Shi & Ettekal, 2021; Salavera et al., 2019). Furthermore, these findings verify prior scholarly literature indicating the presence of disruptive classroom behaviors

in kindergarten classrooms and persisting into adolescence and adulthood (Beaman et al., 2007; EAB, 2019; Maguire et al., 2016; Owens et al., 2018).

This study found neurotypical and neurodiverse male kindergarteners had more externalizing problem behaviors than their female peers when controlling inhibitory; these post-hoc results are similar to previous research (Babicka-Wirkus et al., 2023; Gutman & McMaster, 2020; Lau et al., 2021; Ma et al., 2020 Olivier et al., 2020; Rosenfield & Smith, 2012). Lau et al. (2021) and Ma et al. (2022) found male adolescent had more externalizing behaviors, such as aggression, than their female peers. Additionally, Askari et al. (2021) and Barbicka-Wirkus et al. (2023) found male adolescents developed externalizing and internalizing symptoms before female adolescents.

Post-hoc analyses conducted in this study differed in gender differences in internalizing behaviors compared to previous studies. This study found neurotypical and neurodiverse male kindergarteners had more internalizing problem behaviors than their female peers when controlling inhibitory, whereas prior research indicated female adolescents had greater internalizing problem behaviors compared to male adolescents (Babicka-Wirkus et al., 2023; Gaspar et al., 2018; Gutman & McMaster, 2020; Lau et al., 2021; Matos et al., 2017; Olivier et al., 2018; Rosenfield & Smith, 2012). Gaspar et al (2018), Gutman and McMaster (2020), and Lau et al. (2021) reported female adolescent had greater internalizing symptoms, such as depression, than male adolescents. These findings may differ due to age (the sample population in this study was kindergarten students versus other studies focused on adolescent students), the inclusion of

neurotypical and neurodiverse students, or controlling for the effect of inhibitory control. Prior studies found low inhibitory control was correlated with behavioral difficulties, academic deficits, and social issues (Baruah & Rani, 2021; Cumming et al., 2022; Nyroos et al., 2018); therefore, controlling this variable may have helped reduce the risk of error. Additionally, kindergarten students are prepubescent and hormones have been found to increase disruptive behaviors (Horn et al., 2021; Lau et al., 2021; Olivier et al., 2020). Furthermore, this study included neurotypical and neurodiverse kindergarten students, an accurate representation of inclusive classrooms in the United States (United Nations Educational, Scientific, and Cultural Organization, 2021), whereas previous studies focused on neurodiverse students (Lau et al., 2021; Sheaffer et al., 2021).

As discussed in Chapter 2, previous literature indicated gender is an important variable in the construction of challenging behaviors (Almurtaji et al., 2018; Babicka-Wirkus et al., 2023; Chung & Chen, 2020; Gaspar et al., 2018; Granero-Gallegos et al., 2020; Gutman & McMaster, 2020; Hajovsky et al., 2022; Hayes, 2007; Horn et al., 2018; Lau et al., 2021; Matos et al., 2017; Rosenfield & Smith, 2012; Salavera et al., 2019; Sheaffer et al., 2021). This study confirms prior research indicating gender differences in students' externalizing and internalizing behaviors and extends scholarly knowledge by including neurotypical and neurodiverse kindergarten students and controlling inhibitory control (Askari et al., 2021; Babicka-Wirkus et al., 2023; Davis & Qi, 2020; Gaspar et al., 2018; Lau et al., 2021; Ma et al., 2022; Maguire et al., 2016; Matos et al., 2017; Olivier et al., 2018; Olivier et al., 2020; Sheaffer et al., 2021; Shi & Ettekal, 2021; Salavera et al., 2019). Findings indicated a significant difference in teacher-reported externalizing and

internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control.

The interpretation of these findings supports Bem's (1981) gender schema theory. This structural framework suggests gender is an important variable that impacts how children structure their cognitions and behaviors (Bem, 1981). Bem (1981) proposed children align their behaviors to observed gender norms and create cognitive schemes through socialization. Bem (1981) found children were inclined to model same-gender behavior of others during early development and created cognitive beliefs about gender. According to this theoretical framework, the statistical results found in this study may be explained by gender-specific modeling of behaviors and the social construction of gender schemas (Bem, 1981). Students are motivated to behave in a certain way based on gender expectations established by social norms and contextually reinforced (Bem, 1981).

Limitations of the Study

Rahman (2017) stated quantitative research methods are limited because "they take snapshots of a phenomenon" (p. 102). A limitation of this non-experimental quantitative study is the lack of information regarding teachers' experiences related to neurotypical and neurodiverse kindergarten students' disruptive behaviors. Students' externalizing and internalizing problem behaviors were reported by teachers using the SSRS-T and students' inhibitory control was reported by teachers using the CBQ-SF; these data were obtained through secondary data (Tourangeau et al., 2019). Although secondary data saves time and money, the accuracy of the data received from teachers in the ECLS-K2011 cannot be verified, as discussed in Chapter 1 (Tourangeau et al., 2019).

Teacher-reported results may have been biased and did not provide a context to neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and inhibitory control, which could pose additional limitations to this study (Creswell & Creswell, 2018; Tourangeau et al., 2019).

Limitations were addressed by using a large sample size, testing MANCOVA assumptions using IBM SPSS (n.d.), and using valid instruments with good reliability (Tourangeau et al., 2019). Furthermore, the NCES team implemented quality control measures to ensure this archival data set was obtained ethically, verified when scanned, and securely stored (Tourangeau et al., 2019). Results from this study can be generalized to neurotypical and neurodiverse kindergarten students in the United States as data were collected in the ECLS-K2011 using a multistage, stratified, clustered design (Creswell & Creswell, 2018; Tourangeau et al., 2019).

Recommendations

Recommendations for future research include repeated measures of MANCOVA to examine gender differences in neurotypical and neurodiverse students' externalizing and internalizing behaviors after controlling inhibitory control according to teachers' perceptions in kindergarten, first grade, and second grade (NCES, n.d.c; Warner, 2013). This study indicated a significant difference in externalizing and internalizing behaviors between female and male neurotypical and neurodiverse kindergarten students after controlling for inhibitory control. It would be interesting to compare the results found in this study to data obtained from the ECLS-K2011 sample of neurotypical and neurodiverse first graders and the sample of neurotypical and neurodiverse second

graders using teacher-reported data obtained in fall 2011 and fall 2012, respectively (NCES, n.d.c; Tourangeau et al., 2019). The ECLS-K2011 study collected teacher-reported fall data in grades kindergarten, first, and second; spring data were the focus for grades third, fourth, and fifth, which could present variances in the results (Tourangeau et al., 2019). First and second grades would be of interest because fifth-grade students begin to experience the effects of hormones so this extraneous factor may affect teacher-reported disruptive behaviors (Askari et al., 2021; Olivier et al., 2020). Future research should continue to use the covariate of inhibitory control because previous findings indicated the negative correlation between inhibitory control and disruptive behaviors; therefore, controlling this variable may help reduce error (Cumming et al., 2022; Reinke et al., 2019).

As noted in Chapter 2, previous literature reported the negative effects of disruptive behaviors on students' social skills (Davis & Qi, 2020; Salavera et al., 2019; Sheaffer et al., 2021; Shi & Ettekal, 2021). Recommendations for future research include the addition of teacher-reported interpersonal skills (five items using the SSRS-T) as a covariate in the investigation of teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students (NCES, n.d.c; Tourangeau et al., 2019). This may help decrease the influence of social skills on teacher-reported gender differences in neurotypical and neurodiverse kindergarten students‘ externalizing and internalizing behaviors after controlling for inhibitory control.

Additional recommendations for further research using secondary data from the ECLS-K2011 include adding the variable of race (seven categories) when analyzing teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students (NCES, n.d.c; Tourangeau et al., 2019). This analysis could be performed using MANCOVA with two covariates: race and inhibitory control. Output results would indicate if there was a statistically significant adjusted mean difference between gender and neurotypical and neurodiverse kindergarten students combined externalizing and internalizing problem behaviors according to teachers' perceptions, after controlling for inhibitory control and race. This is important as previous studies found disparities between teacher-reported disruptive behaviors in youth and their identified race (Fadus et al., 2021; Sabol et al., 2022); adding race as a covariate may help reduce any chance of errors.

When recommending further research, it is important to note many societal changes have occurred in U.S. classrooms since the ECLS-K2011 data set was collected (NCES, n.d.c; Tourangeau et al., 2019). According to the NCES (2022), "84 percent of public schools agreed or strongly agreed that students' behavioral development has been negatively impacted" by the COVID-19 epidemic (para. 1). Furthermore, research has found social media platforms, such as TikTok, have contributed to the rise in students' disruptive behaviors (Loy, 2021). These extraneous variables may further influence teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students.

Currently, the NCES (n.d.d) is sponsoring an additional Early Childhood Longitudinal Study for the Kindergarten Class of 2023-2024 (ECLS-K2024). It would be of scholarly interest to investigate teachers' perceptions of gender differences in externalizing and internalizing problem behaviors and the role of inhibitory control in the ECLS-K2024 kindergarten sample of neurotypical and neurodiverse students (NCES, n.d.d) and compare these findings to the current results.

Implications

This study addressed the gap in understanding teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in neurotypical and neurodiverse kindergarten students. This study found a statistically significant adjusted mean difference between female and male neurotypical and neurodiverse kindergarten students combined externalizing and internalizing problem behaviors according to teachers' perceptions, after controlling for inhibitory control. This is grounded in Bem's (1981) gender schema theory suggesting children model their behaviors to observed gender norms and develop socially constructed schemas. Children regulate their behaviors based on gender processing (Bem, 1981). Furthermore, Bem (1981) found children are rewarded for pursuing and modeling gender-specific behaviors. This supports previous results indicating kindergarten and first-grade girls had a greater closeness with their teachers compared to boys (Horn et al., 2021), and male adolescents displayed more aggressive behaviors than female adolescents (Olivier et al., 2020).

Future implications from these results suggest program administrators and teachers should be informed of gender differences across disruptive classroom behaviors

and the role of inhibitory control in neurotypical and neurodiverse kindergarten students in the United States. Stakeholders should be informed of the socially constructed gender schemas developed and enforced during early education (Bem, 1981). This may include early behavioral health screenings, positive behavioral programs, and advocacy of gender-specific behavioral interventions that are guided by Bem's (1981) gender schema theory (Cohen & Martin, 2023; Gaspar et al., 2018; Kim et al., 2022). If students are motivated to model gender-specific behaviors, interventions need to be proactively implemented to address these challenging behaviors and cognitive schemas with gender awareness (Bem, 1981).

Research has found students' disruptive classroom behaviors depend on their relationships with their teachers and peers, and whether their academic and social needs are fulfilled (Ekornes & Bele, 2022; Nyroos et al., 2018). The school setting provides the ideal context for social change. Collaboration with teachers, administrators, parents/guardians, and students will help enhance students' academic, behavioral, and social success in school (Ekornes & Bele, 2022). This can be implemented through school-wide behavioral strategies that provide students with the skills for academic, social, and emotional learning and acknowledge the impact of gender on externalizing and internalizing behaviors (Gaspar et al., 2018; Hoffmann et al., 2021; Kim et al., 2022).

"School is a privileged arena for universal and selective prevention interventions that can help pupils raise their competence to cope with life challenges in a relaxed, non-violent, and effective way" (Gaspar et al., 2018, p. 57). Interventions are most successful when they involve the entire school culture and are implemented early (Gaspar et al.,

2018; Kim et al., 2022). Expected classroom behaviors can be modeled and scaffolded in classrooms to proactively address disruptive behaviors and cognitive schemas and provide the opportunity to learn replacement behaviors (Babicka-Wirkus et al., 2023; Nyroos et al., 2018). For interventions to be most effective, stakeholders must have adequate knowledge of gender differences in externalizing and internalizing behaviors and the role of inhibitory control to effectively meet the needs of neurotypical and neurodiverse kindergarten students (Gaspar et al., 2018).

Conclusion

This study evolved from the social problem of students' disruptive classroom behaviors. Research has found students' challenging behaviors are a pervasive problem in United States classrooms (CDC, 2023; Cohen & Martin, 2023; Hoffman et al., 2021; NCES, 2022; Ottenheym-Vliegen et al., 2023). The purpose of this quantitative study was to examine teachers' perceptions of gender differences in externalizing and internalizing behaviors and the role of inhibitory control in a sample of neurotypical and neurodiverse kindergarten students in the United States.

Results from the MANCOVA (Tables 7 and 10) and post-hoc tests (Tables 11–13) indicated a statistically significant adjusted mean difference between female and male neurotypical and neurodiverse kindergarten students combined externalizing and internalizing problem behaviors according to teachers' perceptions, after controlling for inhibitory control. Furthermore, according to teachers' perceptions, neurotypical and neurodiverse male kindergarteners had more externalizing problem behaviors and more

internalizing problem behaviors than their female peers when controlling inhibitory (Table 12).

This study filled the gap in the literature by focusing on teacher-reported gender differences in neurotypical and neurodiverse kindergarten students' externalizing and internalizing behaviors and the role of inhibitory control. Little (2016) reported teachers have a greater impact on students' social and behavioral development than their academic success. The school setting provides an ideal context for behavioral intervention and education.

Kindergarten is an important transitional period during children's development and sets the stage for later academic and behavioral success. Students enter kindergarten with various cognitive, behavioral, and emotional abilities (Cook & Cooley, 2019). This study accounted for the potential effects of hormones (Gaspar et al., 2018) and inhibitory control (Cumming et al., 2022; Reinke et al., 2019), as previous research found correlations between hormones and disruptive behavior and lack of inhibition and challenging behaviors. This study is unique because neurodiverse and neurotypical kindergarten students were included in the sample and inhibitory control was used as a covariate.

Research has found the earlier the intervention the better as neural circuits and connections are most adaptable and build the strongest foundation early in life (CDC, 2024). Through the investigation of gender differences in neurotypical and neurodiverse kindergarten students, direction from Bem's (1981) gender schema theory, and advocacy of gender-specific interventions in the school context, this study may help minimize the

correlation between disruptive classroom behaviors in the United States and later school drop-out, incarceration, deficits in socialization, mental illness, and substance abuse in adolescents and adults (Ashworth & Humphrey, 2020; Cohen & Martin, 2023; Cumming et al., 2022; Dursley & Betts, 2014; Gutman & McMaster, 2020 Jones et al., 2015; Kim et al., 2022; Koca, 2022; Okano et al., 2019; Olivier et al., 2020; Ottenheym-Vliegen et al., 2023; Reinke et al., 2022; Sheaffer et al., 2021).

References

Alink, M. R., J. Mesman, J. van Zeijl, M. N. Stolk, F. Juffer, H. M. Koot, M. J. Bakermans-Kranenburg, & M. H. van Ijzendoorn. (2006). The early childhood aggression curve: Development of physical aggression in 10- to 50-month-old children. *Child Development 77*(4), 954–966. https://doi.org/10.1111/j.1467-8624.2006.00912.x

Almurtaji, Y., Everatt, J., Almenaye, N. S., Alazemi, A. S., & Alradaan, D. A. H. (2018). Gender and behavioural differences in Kuwait primary schools. *Emotional & Behavioural Difficulties, 23*(2), 141–153. https://doi.org/10.1080/13632752.2017.1370283

Amin, A., Kagesten, A., Adebayo, E., & Chandra-Mouli, V. (2018). Addressing gender socialization and masculinity norms among adolescent boys: Policy and programmatic implications. *Journal of Adolescent Health, 62*(3), S3–S5. https://doi.org/10.1016/j.jadohealth.2017.06.022

Arbuckle, C., & Little, E. (2004). Teachers' perceptions and management of disruptive classroom behaviour during the middle years. *Australian Journal of Educational & Developmental Psychology, 4*, 59–70. https://eric.ed.gov/?id=EJ815553

Ashworth, E., & Humphrey, N. (2020). More than the sum of its parts: Cumulative risk effects on school functioning in middle childhood. *British Journal of Educational Psychology, 90*, 43–61. https://doi.org/10.1111/bjep.12260

Askari, M. S., Rutherford, C. G., Mauro, P. M., Kreski, N. T. & Keyes, K. M. (2021). Structure and trends of externalizing and internalizing psychiatric symptoms and

gender differences among adolescents in the US from 1991 to 2018. *Social Psychiatry and Psychiatric Epidemiology, 57*, 737–748. https://doi.org/10.1007/s00127-021-02189-4

Babicka-Wirkus, Kozlowski, P., Wirkus, L., & Stasiak (2023). Internalizing and externalizing disorder levels among adolescents: Data from Poland. *International Journal of Environmental Research and Public Health, 20*(3). https://doi.org/10.3390/ijerph20032752

Bardack, S., & Obradovic, J. (2019). Observing teachers' displays and scaffolding of executive functioning in the classroom context. *Journal of Applied Developmental Psychology, 62*, 205–219. https://doi.org/10.1016/j.appdev.2018.12.004

Baruah, D., & Rani, A. (2021). Differences in executive functioning skills among children about their gender. *Kalyan Bharati, 36*(4), 193–200.

Beaman, R., Wheldall, K., & Kemp, C. (2007). Recent research on troublesome classroom behavior: A review. *Australasian Journal of Special Education, 31*(1), 45–60.

Belsha, K. (2021, September 27). Stress and short tempers: Schools struggle with behavior as students return. *Chalkbeat*. https://www.chalkbeat.org/2021/9/27/22691601/student-behavior-stress-trauma-return

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*(4), 354–364. https://doi.org/10.1037/0033-295X.884.354

Borg, E. (2014). Classroom behaviour and academic achievement: How classroom behaviour categories relate to gender and academic performance. *British Journal of Sociology of Education 36*(8), 1127–1148. https://doi.org/10.1080/01425692.2014.916601

Bradshaw, C. P., Schaeffer, C. M., Petras, H., & Ialongo, N. (2010). Predicting negative life outcomes from early aggressive-disruptive behavior trajectories: Gender differences in maladaptation across life domains. *Journal of Youth Adolescence, 39*, 953–966. https://doi.org/10.1007/s10964-009-9442-8

Burkholder, G. J., Cox, K. A., Crawford, L. M., & Hitchcock, J. H. (2020). *Research design and methods: An applied guide for the scholar-practitioner*. Sage Publications.

Centers for Disease Control and Prevention. (2023, March 8). *Data and statistics on children's mental health.* https://www.cdc.gov/childrensmentalhealth/data.html

Centers for Disease Control and Prevention. (2024, April 3). *Why act early if you're concerned about development?* https://www.cdc.gov/ncbddd/actearly/whyActEarly.html

Chi, X., & Cui, X. (2020). Externalizing problem behaviors among adolescents in a southern city of China: Gender differences in prevalence and correlates. *Children and Youth Services Review, 119*. https://doi.org/10.1016/j.childyouth.2020.105632

Chung, M. C., & Chen, Z. S. (2020). Gender differences in child abuse, emotional processing difficulties, alexithymia, psychological symptoms, and behavioural

problems among Chinese adolescents. *Psychiatric Quarterly, 9*(12), 321–332. https://doi.org/10.1007/s11126-019-09700-w

Cohen, G., & Martin, N. (2023). High-teach classroom management: Effects of the use of an app on disruptive and on-task classroom behaviors for students with emotional and behavioral disorders. *Behavioral Sciences, 13*(1), 23. https://doi.org/10.3390/bs13010023

Cook, K. D., & Coley, R. L. (2019). Coordination between Head Start and elementary schools to enhance kindergarten success. *Early Education and Development, 30*(8), 1063-1083. https://doi.org/10.1080/10409289.2019.1656318

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Creswell, J. W., & Poth, C. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

Cumming, M. M., Poling, D. V., Patwardhan, I., & Ozenbaugh, I. C. (20020). Executive function in kindergarten and development of behavioral competence: the moderating role of positive parenting practices. *Early Childhood Research Quarterly, 60,* 161-172. https://doi.org/10.1016/j.ecresq.2022.01.008

Davis, J., & Bauman, K. (2013, September). *School enrollment in the United States: 2011*. United States Census. https://www.census.gov/content/dam/Census/library/publications/2013/demo/p20-571.pdf

Davis, A. N., & Qi, C. H. (2020). A longitudinal examination of language skills, social

skills, and behavior problems of preschool children from low-income families. *Topics in Early Childhood Special Education, 40*(3), 172-186. https://doi.org/10.1177/0271121420946104

de la Osa, N., Granero, R., Penelo, E., Domenech, J. M., & Ezpeleta, L. (2014). The short and very short forms of the children's behavior questionnaire in a community sample of preschoolers. *Sage Journals, 21*(4), 463-476. https://doi.org/10.1177/1073191113508809

Dehn, M. J. (n.d.). *Executive functions: Academic skills and gender differences.* Schoolhouse Educational Services. https://www.schoolhouseeducationalservices.com/wp-content/uploads/2022/02/Executive-Function-Gender-Differences.pdf

Delalande, L., Moyon, M., Tissier, C. Dorriere, V., Guillois, B., Meveli, K., Charron, S., Salvia, E., Poirel, N., Vidal, J., Lion, S., Oppenheim, C., Houde, O., Cachia, A., & Borst, G. (2018). Complex and subtle structural changes in the prefrontal cortex are induced by inhibitory control training from childhood to adolescence. *Developmental Science, 23*(4), 1-12. https://doi.org/10.1111/desc.12898

Dönmez, M. U., & Imamoglu, O. (2020). Comparison of attention levels in primary school students in terms of gender and physical activity. *Asian Journal of Education and Training, 6*(2), 256-260. https://doi.10.20448/journal.522.2020.62.256.260

Dursley, L, & Betts, L. (2014). Exploring children's perceptions of the perceived seriousness of disruptive classroom behaviors. *Educational Psychology, 35*(4),

416-429. https://doi.org/10.1080/01443410.2014.907556

Education Advisory Board. (2019, February 14). *Educators report growing behavioral issues among young students.* https://www.globenewswire.com/news-release/2019/02/14/1725406/0/en/Educators-Report-Growing-Behavioral-Issues-Among-Young-Students.html

Ekornes, S., & Bele, I. V. (2021). Teachers' perceived efficacy in parental collaboration when students exhibit internalizing or externalizing behavior: Perspectives from a Norwegian context. *Scandinavian Journal of Educational Research, 66*(3), 382-395. https://doi.org/10.1080/00313831.2020.1869083

Elder, J., Romero, U., & Goyang, C. (2023, February 24). A new study shows classroom behavior is getting worse after the pandemic. *News4SA.* https://news4sanantonio.com/news/local/new-study-shows-classroom-behavior-is-getting-worse-after-the-pandemic

Elliott, S. N., Gresham, F. M., Freeman, T., & McCloskey, G. (1988). Teacher and observer ratings of children's social skills: Validation of the Social Skills Rating Scales. *Journal of Psychoeducational Assessment*, *6*(2), 152–161. https://doi.org/10.1177/073428298800600206

Fadus, M. C., Ginsburg, K. R., Sobowale, K., Halliday-Boykins, C. A., Bryant, B. E., Gray, K. M., Squeglia, L. M. (2021). Unconscious bias and the diagnosis of disruptive behavior disorders and ADHD in African American and Hispanic youth. *Academic Psychiatry, 44*(1), 95-102. https://doi.org/10.1007/s40596-019-01127-6

Ferguson, H. J. Brunsdon, V. E. A., & Bradford, E. F. (2021). The developmental trajectories of executive function from adolescence to old age. *Scientific Reports, 11*(1382). https://doi.org/10.1038/s41598-020-80866-1

Francis, K., Wilson, S. J., Hyra, A., Weiss, C., U& Norvell, J. (2020). *Improving programs for children and youth that address behavioral problems: recommendations for aligning programs with evidence on core components.* U.S. Department of Health and Human Services. https://aspe.hhs.gov/sites/default/files/documents/6118e6af365bf1bbc4eae731be317d4c/improving-programs-self-regulation.pdf

Franklin, P., Tsujimoto, K. C., Lewis, M. E., Tekok-Kilic, A., Frijters, J. C. (2018). Sex differences in self-regulatory executive functions are amplified by trait anxiety: The case of students at risk for academic failure. *Personality and Individual Differences, 129*(15), 131-137. https://doi.org/10.1016/j.paid.2018.03.019

Garcia, E. B., Sulik, M. J., & Obradovic, J. (2019). Teachers' perceptions of students' executive functions: Disparities by gender, ethnicity, and ELL status. *Journal of Educational Psychology*, *111*(5), 918-931. https://doi.org/10.1037/edu0000308

Gaspar, T. Cerqueira, A., Branquinho, C., & Matos, M. G. (2018). The effect of a social-emotional school-based intervention upon social and personal skills in children and adolescents. *Journal of Education and Learning, 7*(6), 57-66. https://doi.org/10.5539/jel.v7n6p57

Grande, T. (2015, September 1). *Conducting a MANCOVA in SPSS with the testing of assumptions* [Video]. YouTube. https://youtu.be/J0FeyWJgHiU

Granero-Gallegos, A., Banos, R., Baena-Extremera, A., & Martinez-Molina, M. (2020). Analysis of misbehaviors and satisfaction with school in secondary education according to student gender and teaching competence. *Frontiers in Psychology, 10,* 1-9. https://doi.org/10.3389/fpsyg.2020.00063

Gresham, F. (2001). Assessment of social skills in children and adolescents. In Jac J. W. Andrews, Donald H. Saklofske, & Henry L. Janzen (Eds.), *Handbook of Psychoeducational Assessment* (pp. 325-355). Academic Press. https://doi.org/10.1016/B978-012058570-0/50013-6

Gresham, F., & Elliott, S. (1990). *Social Skills Rating Systems.* Pearson.

Grissom, N. M., & Reyes, T. M. (2018). Let's call the whole thing off: Evaluating gender and sex differences in executive function. *Neuropsychopharmacology, 44,* 1-11. https://doi.org/10.1038/s41386-018-0179-5

Gutman, L. M., & McMaster, N. C. (2020). Gendered pathways of internalizing problems from early childhood to adolescence and associated adolescent outcomes. *Journal of Abnormal Child Psychology, 48,* 703-718. https://doi.org/10.1007/s10802-020-00623-w

Habersaat, S., Boonmann, C., Schmeck, K., Stephan, P., Francescotti, E., Fegert, J. M., Perler, C., Schmid, M., & Urben, S. (2020). Gender differences in the relationship between strain, negative emotions, and delinquent behaviors in institutionalized juveniles. *Deviant Behavior, 41*(9), 1113-1124. https://doi.org/10.1080/01639625.2019.1596549

Hajovsky, D. B., Caemmerer, J. M., & Mason, B. A. (2022). Gender differences in

children's social skills growth trajectories. *Applied Developmental Science*, *26*(3), 488-503. https://doi.org/10.1080/10888691.2021.1890592

Hayes, L. (2007). Problem behaviours in early primary school children: Australian normative data using the strengths and difficulties questionnaire. *Australian and New Zealand, Journal of Psychiatry 41*(3), 231–238. https://doi.org/10.1080/00048670601172715

Hens, K., & Van Goidsenhoven, L. (2023). Developmental diversity: Putting the development back into research about developmental conditions. *Frontiers in Psychiatry, 13* (986732). https://doi.org/10.3389/fpsyt.2022.986732

Hoffmann, L., Narhi, V., Savolainen, H., & Schwab, S. (2021). Classroom behavioral climate in inclusive education: A study on secondary students' perceptions. *Journal of Research in Special Educational Needs, 21*(4), 312-322. https://doi.org/10.1111/1471-3802.12529

Horn, E. P., McCormick, M. P., O'Connor, E. E., McClowry, S. G., & Hogan, F. C. (2021). Trajectories of teacher-child relationships across kindergarten and first grade: The influence of gender and disruptive behavior. *Grantee Submission, 55*, 107-118. https://doi.org/10.1016/j.ecresq.2020.10.003

IBM SPSS. (n.d.). *IBM SPSS statistics software.* https://www.ibm.com/products/spss-statistics

Ibrahim, K., Kalvin, C., Li, F., He, G., Pelphrey, K. A., McCarthy, G., & Sukhodolsky, D. G. (2021). Sex differences in medical prefrontal and parietal cortex structure in children with disruptive behavior. *Developmental Cognitive Neuroscience, 47*.

https://doi.org/10.1016/j.dcd.2020.100884

Jagers, R., Rivas-Drake, D., & Borowski, T. (2018). *Toward transformative social and emotional learning: using an equity lens.* Collaborative for Academic, Social, and Emotional Learning District Resource Center. https://drc.casel.org/uploads/sites/3/2019/02/Equity-Social-and-Emotional-Learning-A-Cultural-Analysis.pdf

Jones, D., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*(11), 2283-2290. https://doi.org/10.2105/AJPH.2015.302630

Kang, W., Hernandez, S. P., Rahman, S., Voigt, K., & Malvaso, A. (2022). Inhibitory control development: A network neuroscience perspective. *Frontiers in Psychology, 13*(651547). https://doi.org/10.3389/fpsyg.2022.651547

Kim, J., Kim, D., & Kamphaus, R. (2022). Early detection of mental health through universal screening at schools. *Georgia Educational Researcher, 19*(1), 62-78. https://doi.org/10.20429/ger.2022.190104

Koca, F. (2016). An examination of the effects of children's gender and behavioral problems on the quality of teacher-child relationships. *Journal of Human Sciences, 13*(3), 4808-4817. https://doi.org/10.14687/jhs.v13i3.4163

Koca, F. (2022). The effects of student's gender and classroom disruptive behaviors and parental income on student's mathematics achievement trajectory. *Journal of Pedagogical Research, 6*(1), 67-84. https://doi.org/10.33902/JPR.2022175516

Laerd Statistics. (n.d.). *One-way MANCOVA in SPSS statistics.* https://statistics.laerd.com/spss-tutorials/one-way-mancova-using-spss-statistics.php

Lau, T. W. I., Lim, C. G., Acharryya, S., Lim-Ashworth, N., Tan, Y. R., Fung, S. S. D. (2021). Gender differences in externalizing and internalizing problems in Singaporean children and adolescents with attention-deficit/hyperactivity disorder. *Child and Adolescent Psychiatry and Mental Health*, *15*(3), 1-11. https://doi.org/10.1186/s13034-021-00356-8

Leggio, J. C., & Terras, K. L. (2019). An investigation of the qualities, knowledge, and skills of effective teachers for students with emotional/behavioral disorders: The teacher perspective. *Journal of Special Education Apprenticeship, 8*(1).

Little, M. H. (2016). Measuring more: Schools, teachers, and the development of kindergartners executive function skills. *AERA Open*, *2*(3), 1-14. https://doi.org/10.1177/2332858416665811

Liu, Q., Zhu, X., Ziegler, A., & Shi, J. (2015). The effects of inhibitory control training for preschoolers on reasoning ability and neural activity. *Scientific Reports*, *5*(14200), 1-10. https://doi.org/10.1038/srep14200

Loy, J. (2021, October 25). Ask the expert: Social media-spurred challenges and destructive behaviors. *Miami University.* https://www.miamioh.edu/news/top-stories/2021/10/ask-the-expert-social-media-spurred-destructive-behaviors-in-students.html#:~:text=A%20rise%20in%20destructive%20student,%2C%20vandalized%20walls%2C%20and%20more

Ma, J., Mahat, P., Brondbo, P. H., Handegard, B. H., Kvernomo, S., & Javo, A. C. (2022). Teacher reports of emotional and behavioral problems in Nepali schoolchildren: To what extent do they agree with parent reports? *BMC Psychiatry, 22*(1), 1-10. https://doi.org/10.1186/s12888-022-04215-4

Maguire, L. K., Niens, U., McCann, M., & Connolly, P. (2016). Emotional development among early school-age children: Gender differences in the role of problem behaviours. *Educational Psychology*, *36*(8), 1408-1428. https://doi.org/10.1080/01443410.2015.1034090

Matos, A. P., Salvador, M., Costa, J. J., Pinheiro, M. R., Arnarson, E. O., Craighead, W. E. (2017). The relationship between internalizing and externalizing problems in adolescence: Does gender make a difference? *Canadian International Journal of Social Science and Education, 8*, 1-16.

Merga, M. (2020). How can school libraries support student well-being? Evidence and implications for further research. *Journal of Library Administration, 60*(6), 660-673. https://doi.org/10.1080/01930826.202.1773718

Mertler, C. (2016). *Introduction to educational research* (1st ed.). SAGE Publications.

Mohamed, A. H., (2018). Gender as a moderator of the association between teacher-child relationship and social skills in preschool. *Early Child Development and Care, 188*(12), 1711-1725. https://doi.org/10.1080/03004430.2016.1278371

Morgan, P. L. Farkas, G., Hillemeier, M. M., Pun, W. H., & Maczuga, S. (2019). Kindergarten children's executive functions predict their second-grade academic achievement and behavior. *Child Development, 90*(5), 1802-1816.

https://doi.org/10.1111/cdev.13095

Moroi, T. (2020). *Quantitative and qualitative research and philosophical assumptions.* TESOL, Educational Psychology. https://www.bgu.ac.jp/library/wp-content/uploads/sites/11/2022/08/fsell-2020_127-132.pdf

Moulton, S. E., & Young, E. L. (2020). An item analysis of gender differences on the SRSS-IE in middle school. *Psychology in the Schools, 58*(5), 789-803. https://doi.org/10.1002/pits.22470

Nash, P., Schlosser, A., Scarr, T. (2016). Teachers' perceptions of disruptive behaviour in schools: A psychological perspective. *Emotional and Behavioural Difficulties, 21*(2), 167-180. https://dx.doi.org/10.1080/13632752.2015.1054670

National Center for Education Statistics. (n.d.a). *Early childhood surveys & programs.* https://nces.ed.gov/surveys/SurveyGroups.asp?group=3

National Center for Education Statistics. (n.d.b). *Kindergarten class of 2010-2011.* https://nces.ed.gov/ecls/kindergarten2011.asp

National Center for Education Statistics. (n.d.c). *Kindergarten (2011) through fifth-grade public use file.* https://nces.ed.gov/ecls/dataproducts.asp

National Center for Education Statistics. (n.d.d). *Kindergarten class of 2023-24 (ECLS-K: 2024).* https://nces.ed.gov/ecls/kindergarten2024.asp

National Center for Education Statistics. (2022, July 6). *More than 80 percent of U.S. public schools report pandemic has negatively impacted student behavior and socio-emotional development.* https://nces.ed.gov/whatsnew/press_releases/07_06_2022.asp

Nicastri, M., Giallini, I., Amicucci, M., Mariani, L., Vincentiis, M., Greco, A., Guerzoni, L., Cuda, D., Ruoppolo, G., & Mancini, P. (2020). Variables influencing executive functioning in preschool hearing-impaired children implanted within 24 months of age: An observational cohort study. *European Archives of Oto-Rhino-Laryngology, 278,* 2733-2743. https://doi.org/10.1007/s00405-020-06343-7

Nikstat, A., & Riemann, R. (2020). On the etiology of internalizing and externalizing problem behavior: A twin-family study. *PLoS One*, *15*(3). https://doi.org/10.1371/journal.pone.0230626

Nyroos, M., Wiklund-Hornqvist, C., & Lofgren, K. (2018). Executive function skills and their importance in education: Swedish student teachers' perceptions. *Thinking Skills and Creativity, 27,* 1-12. https://doi.org/10.1016/j.tsc.2017.11.007

Ogden, T., Olseth, A., Sorlie, M., & Hukkelberg, S. (2023). Teacher's assessment of gender differences in school performance, social skills, and externalizing behavior from fourth through seventh grade. *Journal of Education, 203*(1), 211-221. https://doi.org/10.1177/00220574211025071

Okano, L., Jeon, L., Crandall, A., Powell, T., & Riley, A. (2020). The cascading effects of externalizing behaviors and academic achievement across developmental transitions: Implications for prevention and intervention. *Prevention Science, 21,* 211-221. https://doi.org/10.1007/s11121-019-01055-9

Olivier, E., Archambault, I., & Dupere, V. (2018). Boys' and girls' latent profiles of behavior and social adjustment in school: Longitudinal links with later student behavioral engagement and academic achievement? *Journal of School*

Psychology, 69, 28-44. https://doi.org/10.1016/j.jhsp.2018.05.006

Olivier, E., Morin, A. J., Langlois, J., Tardif-Grenier, K., & Archambault. (2020). Internalizing and externalizing behavior problems and student engagement in elementary and secondary school students. *Journal of Youth and Adolescence, 49,* 2327-2346. https://doi.org/10.1007/s10964-020-01295-x

Ottenheym-Vliegen, A., van Hattum, M., Swaab, H., & Staal, W. (2023). Perspective-taking by teachers in coping with disruptive classroom behavior: A scoping review. *Social Sciences & Humanities Open, 7*(1). https://doi.org/10.1016/j.ssaho.2023.100439

Otterson, C. (2022, May 10). *What is inhibitory control? And how is it related to ADHD?* Forthills Academy. https://www.foothillsacademy.org/community/articles/inhibitory-control-adhd

Owens, J. S., Holdaway, A. S., Smith, J., Evans, S. W., Himawan, L. K., Coles, E. K., Girio-Herrera, E., Mixon, C. S., Egan, T. E., & Dawson, A. E. (2018). Rates of common classroom behavior management strategies and their associations with challenging student behavior in elementary school. *Journal of Emotional and Behavioral Disorders, 26*(3), 156-169. https://doi.org/10.1177/1063426617712501

Pascual, A. C., Munoz, N. M., & Robres, A. Q. (2019). The relationship between executive functions and academic performance in primary education: Review and meta-analysis. *Frontiers in Psychology, 10*(1582), 1-10. https://doi.org/10.3389/fpsyg.2019.01582

Pole, C. (2019, April 22). Disruptive behavior in the classroom: Teachers and admins are split. *Classcraft.* https://www.classcraft.com/blog/disruptive-behavior-in-the-classroom-teachers-and-admins-are-split/

Prothero, A. (2023, April 20). Student behavior isn't getting any better, survey shows. *EducationWeek*. https://www.edweek.org/leadership/student-behavior-isnt-getting-any-better-survey-shows/2023/04

Putnam, S. P., & Rothbart, M. K. (2006). *Children's Behavior Questionnaire.* RAND.

Quistberg, K. A., & Mueller, U. (2020). Prospective relations between kindergarteners' executive function skills and their externalizing and internalizing behaviors. *The Clinical Neuropsychologist, 34*(4), 845-862. https://doi.org/10.1080/13854046.2019.1591510

Rahman, M. S. (2017). The advantages and disadvantages of using qualitative and quantitative approaches and methods in language "testing and assessment" research: A literature review. *Journal of Education and Learning, 6*(1), 102-112. https://doi.org/10.5539/jel.v6n1p102

RAND Corporation. (n.d.). Children's behavior questionnaire short form. https://www.rand.org/education-and-labor/projects/assessments/tool/2006/childrens-behavior-questionnaire-short-form-cbq-sf.html#:~:text=The%20CBQ%2DSF%20uses%20caregiver,be%20used%20for%20research%20purposes.

Raday, R. (2003. Culture, religion, and gender. *Icon-International Journal of*

Constitutional Law, 1(4), 663–715.

Raver, C. C., & Blair, C. (2016). Neuroscientific insights: Attention, working memory, and inhibitory control. *The Future of Children, 26*(2), 95-118.

Reinke, W. M., Herman, K. C., Huang, F., McCall, C., Holmes, S., Thompson, A., & Owens, S. (2019). Examining the validity of the early identification system: Student version for screening in an elementary school sample. *Journal of School Psychology, 90,* 114-134. https://doi.org/10.1016/j.jsp.2021.10.001

Rosenfield, S., & Smith, D. (2012). Gender and mental health: Do men and women have different amounts or types of problems? In T. Scheid & T. Brown (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 256-267). Cambridge University Press. https://doi.org/10.1017/CBO9780511984945.017

Sabol, T. J., Kessler, C. L., Rogers, L. O., Petitclerc, A., Silver, J., Briggs-Gowan, M., & Wakschlag, L. S. (2022). A window into racial and socioeconomic status disparities in preschool disciplinary action using developmental methodology. *New York Academy of Sciences, 1508*(1), 123-136. https://doi.org/10.1111/nyas.14687

Sadeghi, S., Shalani, B., & Nejati, V. (2020). Sex and age-related differences in inhibitory control in typically developing children. *Early Child Development and Care, 192*(2), 292-301. https://doi.org/10.1080/03004430.2020.1755668

Saied, B., (2022). Executive functions, gender, and personality traits in students with and without specific learning disabilities. *Educational Research and Reviews, 17*(11),

273-287.

Salavera, C., Usan, P., & Teruel, P. (2019). The relationship of internalizing problems with emotional intelligence and social skills in secondary education students: Gender differences. *Psicologia: Reflexao e Critica*, *32*(1), 1-9. https://doi.org/10.1186/s41155-018-0115-y

Sheaffer, A. W., Majeika, C. E., Gilmour, A. F., & Wehby, J. H. (2021). Classroom behavior of students with or at risk of EBD: Student gender affects teacher ratings but not direct observations. *Behavioral Disorders*, *4*(2), 96-107.

Shi, Q., & Ettekal, I. (2021). Co-occurring trajectories of internalizing and externalizing problems from grades 1 to 12: Longitudinal associations with teacher-child relationship quality and academic performance. *Journal of Educational Psychology*, *113*(4), 808-829. https://doi.org/10.1037/edu0000525.supp

Skalicka, V., Stenseng, F., & Wichstrom, L. (2015). Reciprocal relations between student-teacher conflict, children's social skills, and externalizing behavior: A three-wave longitudinal study from preschool to third grade. *International Journal of Behavioral Development*, *39*(5), 413-425. https://doi.org/10.1177/0165025415584187

Son, S. C., Choi, J, Y., & Kwon, K. (2019). Reciprocal associations between inhibitory control and early academic skills: Evidence from a nationally representative sample of head start children. *Early Education and Development*, *30*(4), 456-477. https://doi.org/10.1080/10409289.2019.1572382

Starr, C. R., & Zurbriggen, E. L. (2017). Sandra Bem's gender schema theory after 34

years: A review of its reach and impact. *Sex Roles: A Journal of Research, 76*(9-10), 566-578. https://doi.org/10.1007/s11199-016-0591-4

Steed, E. A., & Kranski, T. A. (2020). Participant characteristics in research on interventions for young children with challenging behavior: A systematic review. *Topics in Early Childhood Special Education, 40*(2), 110-123. https://doi.org/10.1177/0271121419832969

Stewart, R., Wright, B., Smith, L., Roverts, S. & Russell, N. (2021). Gendered stereotypes and norms: A systematic review of interventions designed to shift attitudes and behaviour. *Heliyon, 7*(4). https://doi.org/10.1016/j.heliyon.2021.e06660

Taylor, R. (2023, January 24). *One-way MANOVA and MANCOVA* [Webinar]. Walden University Office of Research and Doctoral Services https://zoom.us/rec/play/2qNnM9MO5HGOTUmUKRCI9qYC7AgG2IVP_QzsugzadYsrR_QV_yRILpeH8SM3Y0Bc9-jYLBTBZn10OJ3i.6-8Zq-PRs9mZT7PO

te Brinke, L. W., Menting, A. T. A., Schuiringa, H. D., Zeman, J., & Dekovic, M. (2021). The structure of emotion regulation strategies in adolescence: Differential links to internalizing and externalizing problems. *Social Development, 30*(2), 536-553. http://doi.org/10.1111/sode.12496

Teglasi, H., Schussler, L., Gifford, K., Annotti, L. A., Sanders, C., Liu, H. (2015). Child behavior questionnaire-short form for teachers: Informant correspondences and divergences. *Sage Journals, 22*(6), 730-748. https://doi.org.10.1177/1073191114562828

Tourangeau, K., Nord, C., Le, T., Wallner-Allen, K., Vaden-Kiernan, N., Blaker, L., & Najarian, M. (2019). *Early childhood longitudinal study, kindergarten class of 2010-11*. U.S. Department of Education. https://nces.ed.gov/ecls/dataproducts.asp#K-5

United Nations Educational, Scientific, and Cultural Organization (2021, September 10). *United States inclusion*. https://education-profiles.org/europe-and-northern-america/united-states-of-america/~inclusion

U.S. Department of Education. (2020, May 6). *OSEP fast facts: Children identified with emotional disturbance*. https://sites.ed.gov/osers/2020/05/osep-releases-fast-facts-children-identified-with-emotional-disturbance/#:~:text=Data%20showed%20that%205.45%25%20of,disabilities%20identified%20with%20emotional%20disturbance.

United States Department of Homeland Security. (n.d.). *Kindergarten to grade 12 students.* https://studyinthestates.dhs.gov/students/get-started/kindergarten-to-grade-12-students

Walden University Library. (n.d.a). *Library databases.* https://academicguides.waldenu.edu/library

Walden University Library. (n.d.b). *Statistics and data: Statistics and data by topic.* https://academicguides.waldenu.edu/library/statistics/statisticsbytopic

Walden University Office of Research and Doctoral Services. (n.d.). *Institute review board (IRB): Research ethics*. https://academicguides.waldenu.edu/research-center/research-ethics

Warner, R. M. (2013). *Applied statistics: From bivariate through multivariate techniques* (2nd ed.). SAGE Publications.

Watson, A. J., & Bell, M. A. (2013). Individual differences in inhibitory control skills at three years of age. *Developmental Neuropsychology, 38*(1), 1-21. https://doi.org/10.1080/87565641.2012.718818

Welsh, M. E., Miller, F. G., Kooken, J., Chafouleas, S. M., & McCoach, D. B. (2016). The kindergarten transition: behavioral trajectories in the first formal year of school. *Journal of Research in Childhood Education, 30*(4), 456-473. https://doi.org/10.1080/02568543.2016.1214935

Zach, S., Yazdi-Ugav, O., Zeev, A. (2016). Academic achievements, behavioral problems, and loneliness as predictors of social skills among students with and without learning disorders. *School Psychology International, 37*(4), 378-396. https://doi.org/10.1177/0143034316649231

Zen, Y., Chiyonobu, T., Yuge, M., Yokota, I., Morimoto, M., Teramukai, S., & Hosoi, H. (2019). Gender differences in occurrence of behavioral and emotional problems in the lower grades of elementary school: Association with developmental and behavioral characteristics at 5 years. *Brain & Development, 41*(9), 760-768. https://doi.org/10.1016/j.braindev.2019.06.001