2023

Adolescent Rejection Sensitivity and Anxiety: The Moderating Effects of Problem-Solving Skills and Gender

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Walden University
2023

Abstract

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Developmental Psychology

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Abstract

Rejection sensitivity is the ongoing anxious or angry expectation of interpersonal rejection. Anxiety can potentially have a significant detrimental impact on the mental health of adolescents who are characterized as having rejection sensitivity. Although negative consequences of anxiety on mental health have been studied, there is a limited understanding regarding how rejection sensitive adolescents are at risk for anxiety. This study involved examining relations between adolescent rejection sensitivity and anxiety and whether they were moderated by problem-solving skills, an indicator of resiliency, as well as gender. Theoretical frameworks in this study were the rejection sensitivity model and resilience theory. This study involved using a quantitative nonexperimental research design with archived survey data that were collected from 642 adolescents who had just completed seventh and tenth grades. Results showed that rejection sensitivity positively correlated with anxiety and gender moderated this relationship in that the relationship was strengthened for girls as compared to boys. However, only problem-solving confidence was marginally significant in terms of moderating the relationship between angry rejection sensitivity and anxiety such that the relationship was weakened. Findings in this study advance knowledge about the relationship between adolescent rejection sensitivity and anxiety and can inform interventions aimed at lessening risks for anxiety. Implications for positive social change include improving problem-solving skills of adolescents who are characterized as having rejection sensitivity which could potentially improve their emotional wellbeing by lessening their risk for anxiety.

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Dedication

I dedicate this work to my daughter, Ashley, who demonstrated strength, courage, kindness, and passion every day of her difficult life. Memories of Ashley's warmth and smile amid consistent and continuous physical challenges were my inspiration throughout this journey.

Acknowledgments

A sincere and heartfelt thank you to Dr. Amanda Rose for guiding me through this process with kindness, respect, quality, and constructive comments. It was just lovely being able to work with a professor who was truly meant to be… a teacher. I will always be so happy that I not only asked you to serve as my committee chair, but also that you said yes!

I am also thankful to Dr. Matthew Hertenstein for his guidance, care, and concern in being such a wonderful second committee member. Your perspective was complimentary to my work and served to enhance the quality of this dissertation.

As much as this dissertation marks the end to an individual academic endeavor, I could not have completed it without the unwavering and consistent support of my family. Thank you to my husband, Richard, for being my electronic technician, my sounding board, my frustrated tears catcher, my stage-approvals celebration partner, and my steady rock throughout this entire process. You are my inspiration, and I would and could not have done this without you. I absolutely share this achievement with you!

Finally, thank you to my daughter, Renee, for always understanding when I needed to stay home to study or write or research and for bringing your bundles of joy to me for a much-needed play-filled visit… As you have always done for me, I hope I make you proud.

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Chapter 1: Introduction to the Study

Adolescence is typically a period characterized by increased independence and social opportunities. For some, this protracted period of neurodevelopment in combination with increased peer interactions can lead to a heightened sensitivity to rejection (Booth et al., 2019). Adolescents with rejection sensitivity anticipate that rejection will occur regardless of whether it does. For these adolescents who may simply be seeking a feeling of belonging, rejection sensitivity can lead to manifesting negative internal and external emotional reactions, and ultimately, more actual rejection from others (Gardner & Zimmer-Gembeck, 2018). Rejection, perceived or actual, can be a predictor of current and future psychological difficulties (Downey et al., 1998).

Ideally, adolescents should have minimal feelings of anxiety as they interact within their social environments. However, nearly one in five adolescents develop an anxiety disorder during this period of transition out of childhood and into adolescence (de la Torre-Luque et al., 2020; Williams & Prince, 2017). Anxiety symptoms in adolescents can contribute to disengagement from social activities, isolating behaviors, and depression (Orson & Larson, 2021). Importantly, adolescents have been susceptible to factors that can both increase and mitigate anxiety levels (Finklestein et al., 2020). One potential factor that could be associated with elevated anxiety is rejection sensitivity.

In addition, currently there is not a complete understanding of how variables such as personal resiliency may influence the degree to which rejection sensitivity confers risk for anxiety. Rather than considering implications of personal resiliency only during

extraordinary circumstances, personal resiliency can be explored in terms of ordinary and day-to-day experiences (Smith et al., 2016).

One index of resiliency is having adaptive problem-solving skills. Volkaert et al. (2019) stated more research is needed to explore how adaptive emotion regulation skills, such as problem-solving, can contribute to better emotion regulation among adolescents. This is important because stronger emotion regulation skills can be protective against anxiety (Aslan & Bilgin, 2020).

There is a gap in terms of knowledge about the role of gender and how it affects the relations between adolescent rejection sensitivity and anxiety. Specifically, there is a limited understanding of whether rejection sensitivity is related to anxiety in similar ways for girls and boys (Hawes et al., 2020). Higher levels of rejection sensitivity are associated with elevated negative reactions. However, the risk for anxiety among girls associated with rejection sensitivity in comparison to boys is not fully understood (Zimmer & Nesdale, 2013).

Although adolescents with increased levels of rejection sensitivity are likely to be at an increased risk for developing anxiety, some adolescents who experience rejection sensitivity may be at more risk than others (Grisanzio et al., 2022). Specifically, rejection sensitive adolescents with few problem-solving skills may be at an even greater risk for anxiety than those with greater problem-solving skills. In addition, girls in comparison to boys are more likely to not only discuss their emotions with friends but also dwell on negative effects and internalize symptoms (Miller-Slough & Dunsmore, 2021).

Therefore, the risk of developing anxiety symptoms as a result of rejection sensitivity may be stronger for girls than boys.

It is important to contribute to knowledge that can help identify this specifically vulnerable population so that parents, educators, and researchers can better understand how problem-solving skills and gender impact the relationship between rejection sensitivity and anxiety. In addition, this information could also potentially be used in developing intervention programs aimed at reducing anxiety levels of rejection sensitive adolescents. Ultimately, reduced anxiety levels for adolescents can contribute to improved wellbeing and potential outcomes both socially and academically (de la Torre-Luque et al., 2020; Spielberg et al., 2019).

There is limited knowledge in terms of understanding how problem-solving skills and gender affects the relationship between adolescent rejection sensitivity and anxiety. Because of this limited understanding, I seek to investigate whether problem-solving capabilities and gender moderate relations between adolescent rejection sensitivity and anxiety. Results of this study have the potential to contribute to positive social change by providing knowledge that can lead to teachable problem-solving skills that are targeted to those rejection sensitive adolescents who are expected to be at a higher risk for anxiety. In addition, this research could suggest that girls need such interventions to a greater degree than boys. Improved problem-solving skills may directly contribute to mitigation of anxiety levels for adolescents who have higher levels of rejection sensitivity.

In this chapter, I provide a brief overview of the current state of knowledge about adolescent rejection sensitivity and anxiety as well as a description of why reducing

anxiety levels for rejection sensitive adolescents is important. Next, I review the problem and purpose of the study that led to the development of my research questions and hypotheses. Then I describe the theoretical framework that aligns with the nature and significance of the study. This chapter also includes concise definitions of key terms and variables used in the analysis as well as assumptions, scope and delimitations, and limitations. Finally, the chapter concludes with a summary review of primary concepts addressed in this study.

Background

Rejection sensitivity has been studied by researchers who seek to understand how expectations of rejection can affect the wellbeing of adolescents (see Andrews et al., 2022; Gardner et al., 2020; Zimmer-Gembeck et al., 2021). Gardner et al. (2020) showed rejection sensitivity in adolescents was associated with increased anxious symptoms, even when accounting for emotion regulation deficits. Rejection sensitivity is also associated with related forms of emotional distress as rejection sensitivity was associated with depressive symptoms for adolescents (Andrews et al., 2022). Zimmer-Gembeck et al. (2021) found adolescents with the highest levels of self-reported rejection sensitivity at the beginning of the study reported more sustained social anxiety symptoms throughout the research period. Further research is warranted to discover variables that can interrupt persistent negative psychological outcomes for adolescents with rejection sensitivity.

In terms of process, rejection sensitivity, defined as the anticipation and expectation of rejection, is a cognitive response that is associated with an emotional

response (Gardner & Zimmer-Gembeck, 2018; Godleski et al., 2019; London et al., 2007). This, in turn, is associated with behavioral responses (Gardner & Zimmer-Gembeck, 2018). Emotional reactions involving rejection expectations are classified as either anxious or angry with respective associated behaviors of social withdrawal or aggression (Zimmer & Nesdale, 2013). Therefore, groups of individuals with rejection sensitivity will react and behave differently from one another.

A review of the literature on rejection sensitivity indicated that researchers do not yet fully understand all variables that exacerbate or mitigate negative psychological outcomes for rejection sensitive adolescents. Children who demonstrate resilience can improve their wellbeing outcomes, but there is a deficit in understanding how problem-solving skills can impact adolescents with rejection sensitivity (see Iqbal et al., 2021; Ma et al., 2020). Exploring this relationship begins to close the gap in knowledge about what characteristics or skills decrease negative outcomes for rejection sensitive youth (see London et al., 2007; Zimmer-Gembeck, 2015). A better understanding of how some adolescents with rejection sensitivity cope and manage during this pivotal developmental period can potentially contribute to the improved wellbeing of a broader population.

This study is relevant as it addressed a gap in knowledge about adolescents, characterized with rejection sensitivity, who may be at increased risk for anxiety. In addition, this study included additional information on how problem-solving skills and gender impacted anxiety levels for adolescents with rejection sensitivity. Findings of this study can inform programs which help improve problem-solving skills and reduce anxiety among rejection sensitive youth, contributing to more positive wellbeing and

future outcomes. In addition, findings may indicate that girls are at heightened risk for anxiety and may be especially in need of such interventions.

Problem Statement

Opportunities for acceptance or rejection from social interactions increase significantly during adolescence. Regardless of whether they are overtly rejected, the possibility of being rejected is deeply disturbing for adolescents with rejection sensitivity (Andrews et al., 2022). In addition, rejection sensitivity is not just a fear of being rejected but rather an expectation that rejection will occur (Gardner et al., 2020). It follows then that adolescents with rejection sensitivity can have difficulty in adjusting to the expanding complexity of their social situations (London et al., 2007).

Adolescence is also characterized as a period of high emotional vulnerability, resulting in the greatest risk for psychological pathologies (Berk, 2018; Spielberg et al., 2019). Adolescents with higher levels of rejection sensitivity in comparison to adolescents who are not considered to have rejection sensitivity, are found to have greater anxiety (Grisanzio et al., 2022). Within a population of adolescents who are characterized with rejection sensitivity, it is important to consider who are at the greatest risk for developing negative psychological outcomes, such as anxiety. Ultimately, anxiety during adolescence can lead to more psychological challenges into early adulthood (Mendle et al., 2020).

Additionally, some rejection sensitive adolescents may have characteristics that make them more susceptible to anxiety than others (de la Torre-Luque et al., 2020). First, problem-solving skills may moderate relations between rejection sensitivity and anxiety.

Yoo (2021) found that among at-risk adolescents, those with better problem-solving skills reported lower feelings of depression, anxiety, and rejection. Problem-solving skills may be especially important for buffering rejection sensitive adolescents from anxiety.

In addition, gender may also moderate the association between rejection sensitivity and anxiety. Adolescent social interactions vary across genders, and girls, in comparison to boys, are more susceptible to internalizing emotions making gender, for some, associated with anxiety (Miller-Slough & Dunsmore, 2021). For example, Zimmer-Gembeck et al. (2018) found for adolescent girls, body mass index was associated with anxiety symptoms. Therefore, there is more to understand about how variables such as problem-solving skills and gender are associated with anxiety symptoms for adolescents characterized with rejection sensitivity.

In terms of social change, researchers around the globe consistently explore solutions for increasing the wellbeing of adolescents. Resilience-oriented, problem-solving intervention programs have demonstrated success in terms of contributing to adolescent wellbeing (Ma et al., 2020). Although there are existing interventions that involve reducing anxiety levels for adolescents, none were identified that used teachable problem-solving skills and targeted rejection sensitive adolescents (Orson & Larson, 2021). Therefore, it is essential to discover the most appropriate knowledge that can contribute to the construction of effective programs for reducing anxiety symptoms for at-risk adolescents.

Although current research has shown the importance of understanding the relationship between rejection sensitivity and anxiety for adolescents, there is a lack of

understanding of which rejection sensitive adolescents are at a higher risk for anxiety. This study involved addressing this gap by testing whether problem-solving skills and gender moderated the relationship between rejection sensitivity and anxiety to better understand which rejection sensitive adolescents are at an increased risk for anxiety.

Purpose of the Study

The purpose of this quantitative study was to examine relations between adolescent rejection sensitivity and anxiety and determine if they were moderated by problem-solving skills, an indicator of resiliency, and gender. The independent variable rejection sensitivity, defined as ongoing anxious or angry expectations of being rejected, was measured using the Children's Rejection Sensitivity Questionnaire (CRSQ; Downey et al., 1998). The dependent variable anxiety, included physical and emotional symptoms of fear and worry, was measured using the Children's Manifest Anxiety Scale-Revised (CMAS-R; Reynolds & Richmond, 1978). The moderating variable of problem-solving skills, defined as the ability to find, create, or adapt to solutions involving real or perceived challenges, was measured using the Problem-Solving Inventory-Adolescent Version (PSI-AV; Heppner & Petersen, 1982). Gender also served as a moderating variable and was self-identified by participants in the sample used for this study.

Research Questions and Hypotheses

The following research questions and hypotheses were constructed from a review of the existing literature on adolescent rejection sensitivity and anxiety:

RQ1: To what extent is adolescent rejection sensitivity associated with anxiety?

$H_0$1: The relationship between adolescent rejection sensitivity and anxiety is not significant.

H_a1: Adolescent rejection sensitivity is positively correlated to greater anxiety.

RQ2: To what extent do problem-solving skills moderate the relationship between adolescent rejection sensitivity and anxiety?

$H_0$2: Problem-solving skills do not moderate the relationship between adolescent rejection sensitivity and anxiety.

H_a2: Problem-solving skills moderates the relationship between adolescent rejection sensitivity and anxiety such that the association is weaker for adolescents with adaptive problem-solving skills than with poorer problem-solving skills.

RQ3: To what extent does gender moderate the relationship between adolescent rejection sensitivity and anxiety?

$H_0$3: Gender does not moderate the relationship between adolescent rejection sensitivity and anxiety.

H_a3: Gender moderates the relationship between adolescent rejection sensitivity and anxiety such that the association is stronger for girls than boys.

Theoretical Framework

The primary theoretical foundation for this study was the rejection sensitivity model (RSM; Downey et al., 1998). Geraldine Downey's conceptualization of the RSM posits that individuals with a heightened awareness of social cues can have automatic defensive reactions to these cues, resulting in a hypersensitivity to rejection cues. This hypersensitivity can lead to subsequent emotional overreactions when faced with real or

potential social interactions (Downey et al., 1998). Further, Downey et al. (1998) considered anxious and angry expectations of rejection as distinct cognitive-affective vulnerabilities that can lead to differences in the internalization of rejection amongst adolescents. Anxious rejection expectations are uniquely associated with withdrawal whereas angry rejection expectations are associated with retribution (Downey et al., 1998). Downey et al. (1998) further considered rejection expectation as stemming from early attachment such that early or acute experiences of rejection from caregivers contribute to the development of rejection sensitivities. Therefore, adolescents with rejection sensitivity expect to be rejected and will automatically have feelings of anger or anxiety (Downey et al., 1998).

The RSM was developed in part to help explain why some youth demonstrate higher levels of anger or anxiety within social situations. In particular, the RSM enhances understanding of why those who experience rejection sensitivity have different responses and outcomes compared to others (London et al., 2007). Researchers continue to use an expansion of the RSM to frame studies on adolescent cognitive (expectations) and emotional (anxiety or anger) responses to potential rejection (Gardner et al., 2020; Preti et al., 2020).

Additionally, this study was shaped by Norman Garmezy's resilience theory. Garmezy (1993) posed that it is not the nature of the adversity that is most important but rather how an individual deals with the adversity. Resilience theory is used to consider both positive and risk factors associated with individuals' ability to respond to stressful situations in ways that provide opportunities for growth. Typically, it is a feeling of

vulnerability that can create an opportunity to demonstrate resilience. Environmental and social factors can significantly contribute to feeling vulnerable and trigger resilience-based coping behaviors for adolescents (Garmezy, 1993). Garmezy (1993) demonstrated that resilience is associated with upward mobility and physical and emotional wellbeing.

Recent studies have used resilience theory to help explain how personal resiliency can mitigate negative psychological outcomes for adolescents (see Iqbal et al., 2021; Smith et al., 2016). Resilience can be construed as having a growth mindset rather than as measurements for achievements and can play an essential role in helping to build emotional and social skills during adolescence (Iqbal et al., 2021). For this study, adaptive problem-solving skills served as an indicator of resilience. Resilience-based behavior can be demonstrated through problem-solving skills (Ma et al., 2020). Ma et al. (2020) found problem-solving skills mitigated feelings of emotional vulnerability for youth with depressive symptoms. Finally, resilience is not considered solely an innate characteristic, and adolescents who learn how to improve resilience-based skills can also improve their wellbeing (Schulze, 2019).

I developed the current research questions by using the RSM and resilience theory to develop further insights regarding the relationship between rejection sensitivity and anxiety for adolescents. Downey's RSM was used to address the nature of relations between rejection sensitivity and implications for anxiety while Garmezy's theory was used to consider resiliency as a factor that can mitigate associations between risk factors and psychological outcomes. Gender, a social concept which includes biological sex, is a variable that can directly or indirectly affect social and emotional differences and

outcomes between adolescents (Colineaux et al., 2022). More detailed explanations of the RSM and resilience theory follow in Chapter 2.

Nature of the Study

This study involved using a quantitative research approach. Existing measures were developed for use in quantitative research specifically for testing strengths of associations between two variables (Burkholder et al., 2020). I used a correlational method with self-reported assessments of the constructs of the variables rejection sensitivity, anxiety, problem-solving skills, and gender. These assessments derived from previously collected data taken from 642 adolescents. In this study, the independent variable is adolescent rejection sensitivity while the dependent variable is anxiety. Moderating variables are problem-solving skills and gender. A quantitative approach was appropriate for testing associations between adolescent rejection sensitivity and anxiety and whether these associations were moderated by problem-solving skills and gender. Data were analyzed using IBM SPSS software.

Definitions of Terms

Adolescence: A key period in human development characterized by significant social, cognitive, and physiological development (Booth et al., 2019).

Anxiety: A natural response to real or perceived danger or threats. Symptoms of anxiety include excessive worry, fear, restlessness, and stress (Williams & Prince, 2017).

Gender: Self-identified favored social sex, most often based on sex attributed at birth (Colineaux et al., 2022).

Problem-Solving Skills: The ability to find, create, or adapt solutions for real or perceived challenges (Kaymakci & Can, 2021). Problem-solving variables assessed include confidence, approach-avoidance style, and perceptions of personal control (Heppner & Petersen, 1982).

Rejection Sensitivity: Ongoing anxious or angry expectations involving interpersonal rejection (Preti et al., 2020).

Resilience: Internalization of real or perceived adverse events or circumstances as opportunities to withstand, adapt, and learn from (Garmezy, 1993).

Assumptions

I assumed that the original data set used for the study resulted from collection procedures that were in full compliance with ethical standards and U.S. federal regulations, including attainment of appropriate parental consent for samples of children. I also assumed participants responded honestly, to the best of their ability, and without bias. Further, I assumed that the chosen methodology measured the constructs intended.

Scope and Delimitations

This study was focused on the nature of associations between rejection sensitivity and level of anxiety as well as how problem-solving skills and gender impacted anxiety. In this study, the research addressed both anxious and angry expectations of rejection in contributing to rejection sensitivity levels for adolescents primarily in seventh and tenth grades and who attended a public school in a midsized town in the Midwestern U.S. Problem-solving skills was selected as an indicator of resilience and considered the occurrence of typical everyday-life obstacles rather than isolated or rare events.

Additional factors within the scope of this study were the associations between rejection sensitivity and levels of anxiety for school-aged adolescents. Results of this study could have potential generalizability across a broader population of adolescents, primarily in seventh and tenth grades, who are attending a public school in a midsized town in the Midwestern U.S.

Delimitations of this study excluded adolescents who lived in bigger cities and those who did not attend a public school. This study did not provide information about older (beyond tenth grade) or younger (below seventh grade) youth. I had no assumptions about the role of culture or race/ethnicity in this study.

Sources of Data

Data for the study were collected and described by Dr. Amanda Rose (see Rose et al., 2014, 2016). Rose et al. (2014) collected data from 642 participants. The sample included relatively equal numbers of adolescent girls and boys who had just completed seventh or tenth grade. The dataset was obtained in accordance with ethical protocols, standards, and approvals which apply when collecting data from adolescents. The project was approved by the University of Missouri. I sought Institutional Review Board (IRB) approval and was approved by the Walden University IRB. Dr. Rose granted permission for use of the dataset for this study.

Downey's Children's Rejection Sensitivity Questionnaire (CRSQ) was used to assess rejection sensitivity. Data points used for this study were anxious rejection expectation and angry rejection expectation calculated from responses using the CRSQ (Downey et al., 1998).

Anxiety was assessed using the Children's Manifest Anxiety Scale-Revised (CMAS-R). The CMAS-R is a 28 item self-reported scale of anxiety symptoms (Reynolds & Richmond, 1978).

The Problem-Solving Inventory-Adolescent Version (PSI-AV) scale was used to assess attitudes toward problem-solving and problem-solving behaviors. The PSI-AV was developed by Heppner and Peterson (1982) to measure the constructs of confidence, approach-avoidance style, and personal control for problem-solving skills.

Limitations and Challenges

Use of a previously collected dataset for an adolescent sample posed potential challenges. Using an existing dataset required a reliance on the original researcher having collected and stored the data in adherence with the proper ethical and legal guidelines. This is especially true when collecting data with minors. I addressed this challenge by performing a rigorous review of the original data collection procedures and ensured all local and federal research regulations were followed. In addition, I only proceeded with this dataset after receiving current IRB approval from Walden University. Finally, a potential limitation of a dataset collected from 2007-2009 is in its generalizability to a current adolescent population. This limitation is discussed in the dissertation as related to external validity.

Significance

Adolescence is a pivotal developmental period. Emotional sensitivities flourish during this time of increased interpersonal socialization (De France & Hollenstein, 2019). However, there are differences among adolescent emotional functioning and risk for

negative psychological outcomes (De France & Hollenstein, 2019). This population should continue to be explored for the purpose of understanding strategies associated with improved wellbeing.

Results of this study were used to address the gap in the understanding of the relation between rejection sensitivity and anxiety and whether this relation was moderated by problem-solving skills and gender. It was important to examine the moderating effects of problem-solving skills because adolescents with poor problem-solving skills likely experience more significant mental health challenges than others in response to rejection sensitivity (Preti et al., 2020). Examining this moderator of problem-solving skills helped determine specific factors that can explain which adolescents are more likely to experience anxiety symptoms even when they experience the same levels of rejection sensitivity as others.

Additionally, gender impacts adolescent growth and can influence social interactions (Colineaux et al., 2022). Girls report more distress than boys from rejection by peers, but how this distress is potentially manifested as anxiety is still not fully understood (Zimmer-Gembeck, 2015). More knowledge is needed about how gender differences during adolescence can contribute to emotional functioning and regulation development across rejection sensitivity (Mendle et al., 2020). I addressed this gap in knowledge by contributing to the understanding of whether gender mitigated the risk of anxiety for adolescents who are rejection sensitive for the purposes of improving their wellbeing and developmental outcomes.

This study could lead to positive social change by providing knowledge about the risks of rejection sensitivity and which adolescents are most at risk in response to rejection sensitivity. Given the potential significant detrimental impact anxiety can have on the mental health of adolescents, it is essential to fully examine and analyze variables which can potentially mitigate anxiety levels (De France & Hollenstein, 2019). Both problem-solving skills and gender are important to explore within the context of anxiety for at-risk populations (Miller-Slough & Dunsmore, 2021). This knowledge can inform clinical interventions and the development of programs that improve problem-solving skills for rejection sensitive adolescents and ultimately contribute to improvements for their emotional wellbeing by reducing their anxiety.

Summary

Current research has brought attention to the concept that adolescents within a similar at-risk category, such as those with rejection sensitivity, may also have varying risk for anxiety levels (de la Torre-Luque et al., 2020). Using the RSM and resilience theory, I addressed the current problem of the limited understanding of which rejection sensitive adolescents could be at increased risk for anxiety. Adolescents with sustained higher anxiety levels tend to have poorer psychological outcomes as young adults (De France & Hollenstein, 2019). In addition, researchers reveal the benefits to wellbeing for adolescents who demonstrate improved resiliency traits and skills (Finklestein et al., 2020). Problem-solving skills is considered an appropriate indicator of resiliency and can improve both situational and long-term outcomes for those with higher levels (Iqbal et al., 2021; Orson & Larson, 2021). Finally, there was also a gap in terms of understanding

of how gender influenced anxiety levels for similarly-aged adolescents with rejection sensitivity. This study examined the relations between adolescent rejection sensitivity and anxiety and determined if resiliency (problem-solving) skills and gender moderated these relations.

In Chapter 2, I review literature related to the concepts of adolescent rejection sensitivity and anxiety. In addition, I review and expand on the concepts of resiliency, problem-solving skills, and gender during the developmental stage of adolescence. Moreover, the following chapter provides a review of the literature on the relations of problem-solving skills and gender on rejection sensitivity and anxiety.

Chapter 2: Literature Review

The focus of this literature review was the research available within the context of the relations among rejection sensitivity, anxiety, problem-solving skills, and gender. The literature reviewed called attention to the research problem of whether increased problem-solving skills and gender were possible moderators of predicted relations between rejection sensitivity and anxiety for adolescents.

Recent researchers exploring adolescent rejection sensitivity have considered the significance rejection can play in terms of contributing to the development of mental health issues (see Gardner & Zimmer-Gembeck, 2018; Godleski et al., 2019; Kraines & Wells, 2017; Zimmer-Gembeck et al., 2021). Of interest in the current study was the association between rejection sensitivity and anxiety. In addition to the distress associated with anxiety, adolescent anxiety is also a risk factor for a decrease in other aspects of wellbeing (Aslan & Bilgin, 2020).

The review of the literature also considered variables that may moderate the predicted association between rejection sensitivity and anxiety. One possible moderator considered in the present study is an indicator of resiliency, problem-solving skills, which has been found to improve wellbeing for adolescents (Abdollahi et al., 2018; Oades-Sese et al., 2011; Schulze, 2019). A second possible moderator is gender, which also is associated with social and emotional functioning during adolescence (Lennarz et al., 2019; Miller-Slough & Dunmore, 2021; Zimmer-Gembeck, 2015).

The results of this study addressed a gap, highlighted in the literature review, by examining the relations between rejection sensitivity and anxiety and whether they were

moderated by problem-solving skills and gender. Chapter 2 begins with an explanation of literary search strategies as well as descriptions of the rejection sensitivity model and resilience theory in terms of framing the scope of the literature review. Major themes highlighted in the literature review have been organized into four primary sections: rejection sensitivity, anxiety, problem-solving skills, and gender. Chapter 2 concludes with an explanation of how I address the gap in literature involving this topic.

Literary Search Strategy

Academic databases used for the literature review were Thoreau and PsycINFO. I used the following search terms: *rejection sensitive or sensitivity*, *anxiety*, *resiliency*, and *problem-solving*, *adolescence or adolescents*, *peer or social relationships*, and *gender*. When combining the key terms of *rejection sensitivity*, *anxiety*, and *problem-solving skills*, I found very limited or no current research that primarily considered all three variables. These results supported the determination that there was a gap in the literature. Earlier seminal research was included in this literature review; however, most sources were published between 2017 and 2021. Peer-reviewed journal articles served as the primary source used for this study.

Theoretical Foundation

Rejection Sensitivity Model

Researchers have long considered the origins of children's maladjusted social behaviors. Downey et al. (1998) proposed and investigated the concept of rejection sensitivity. According to Downey et al. (1998), some children, particularly those who had positive and nurturing parental relationships, anticipate being accepted by their peers.

However, others expect to be rejected. These negative expectations represent a hypersensitivity to rejection cues (London et al., 2007). Downey et al. (1998) considered that these heightened sensitivities to rejection were derived from prior extended or severe rejection experiences with parents, caregivers, or significant others and labeled this phenomenon rejection sensitivity.

The rejection sensitivity model (RSM) is a conceptual model which is used to explain why children react differently to similar rejection experiences. For example, during a school dance, one adolescent who asks a friend to dance may become angry when the friend says no, while another receiving the same initial rejection response, asks if they can dance together later (Downey et al., 1998). The RSM serves as a framework for addressing how rejection expectations are manifested into detrimental behavioral responses to social rejection (London et al., 2007).

There are two types of rejection sensitivity: anxious and angry rejection expectations. Anxiety and anger are defensive emotions that contribute to anticipatory rejection predictions and their subsequent behavioral reactions. The RSM is used to consider internal emotional and cognitive roots of anxious or angry rejection expectations in order to understand rejection responses. These flight or fight responses lead to withdrawal or aggressive reactions, respectively (London et al., 2007).

The RSM has roots in Bowlby's attachment theory (Downey et al., 1998). The RSM considers the human need for early positive reassurances from caregivers (Rohner & Lansford, 2017). In addition, rejection expectations that derive from parental rejection

are associated with greater rejection sensitivity difficulties (Gardner & Zimmer-Gembeck, 2018).

The research of others on adolescent rejection sensitivity contributed significantly to the selection of the RSM as a theoretical frame for this study (see Preti et al., 2020; Zimmer-Gembeck, 2015). During adolescence, instances of peer acceptance and rejection escalate, making the RSM especially relevant in terms of understanding emotional and cognitive responses to rejection. Recent studies continue to use the RSM to frame their research on increasing understanding of adolescent rejection sensitivity (see Gardner et al., 2020; Zimmer-Gembeck et al., 2021).

Resilience Theory

Resilience theory is used to consider how risks associated with adversity can be mitigated. Garmezy (1993) postulated resilience was a construct considered within the context of vulnerability as one would not be inclined to show resilience if they were not in a position of having the need to do so. From this viewpoint, growing up in extreme poverty and then becoming academically successful by achieving an advanced degree, would be an example of resilience. Garmezy's resilience theory is used to address the vulnerabilities of the example of poverty in contributing to a significantly increased risk of academic failure for a child, and subsequently shows the nature of resiliency as upward mobility despite the disadvantages for academic achievement for those in poverty (Garmezy, 1993).

The primary construct of resilience theory is rooted in the concept of ego-resilience. Ego-resilience poses that humans can individually adapt to adversity or

changing environments by inhibiting or expressing their emotional impulses. The nature of the vulnerability is not what is most critical, but rather how individuals respond to it (Garmezy, 1993). Personal resiliency is associated with more adaptive outcomes (Smith et al., 2016). Therefore, resilience theory has been utilized to help explain how some at-risk adolescents are able to move upward amid adversity.

Resilience theory considers the internal factors that can contribute to feelings of vulnerability (Garmezy, 1993). For example, the theory can help frame explanations for how internal protective factors of self-respect, secure attachment, and coping strategies can affect feelings of loneliness among adolescents with divorced parents (Altundağ & Bulut, 2014). It follows then, that the internalized factors of consideration in resilience theory can extend to understanding interpersonal dynamics of social relationships (Yoo, 2021).

Resilience theory has also served as the framework for studies that consider the effectiveness of coping strategies for adolescents. For example, through a resilience theory lens, the type (task-, avoidance-, and emotion-oriented) of coping strategy used by an adolescent can impact anxiety levels (Smith et al., 2016). More recent research shows extended applications of a resilience theory frame by considering how adolescents cope with and manage everyday adversities. Some of these challenges arise simply from trying to manage interpersonal skills. These studies laid the groundwork for research addressing further questions about how adolescents can utilize coping skills to affect more positive peer relationships and for the benefit of their wellbeing (Yoo, 2021). Resilience theory

continues to be useful for framing studies focused on why some adolescents who face adversity are more well-adjusted compared to others (Wang et al., 2015).

Rejection Sensitivity

Defining Rejection Sensitivity

Gardner et al. (2020) defined rejection sensitivity as a cognitive-affective bias to the possibility of being rejected. This definition is appropriate as cognition refers to the appraisal of the situation and affect encompasses the emotions about an experience (Gardner et al., 2020). Godleski et al. (2019) also summarized the concept of rejection sensitivity as a cognitive-affective perceptual bias in that rejection sensitivity is the cognitive belief that the feelings of rejection are internalized as valid, regardless of whether the rejection was real. As cognitions can trigger affective responses, it follows, then, that an adolescent with a heightened sensitivity to rejection is an adolescent who is more likely to expect, perceive, and then react to social rejection with more significant feelings of emotional distress (Godleski et al., 2019).

Rejection sensitivity also considers the important difference between overt and perceived rejection. There are overt social indications of rejection, such as verbal and physical insults or aggression and being excluded from a social event, but rejection sensitivity focuses on the undifferentiated rejection (Rohner & Lansford, 2017). An adolescent with rejection sensitivity consistently feels as though their peer had a choice to either accept or reject them and, subsequently, chose rejection. Further, the child considers that their feelings of rejection are correct and can, subsequently, overreact in an ambiguous rejection situation. For example, an adolescent with rejection sensitivity may

perceive a peer simply glancing in another direction as an overt response of rejection simply because the adolescent anticipated that they would be rejected (Preti et al., 2020). Therefore, what makes rejection sensitivity especially significant for affective functioning is that it leads to an adolescent interpreting ambiguous social experiences as if they have, indeed, been rejected (Kraines & Wells, 2017).

There are potential predictors of rejection sensitivity. Rejection sensitivity often stems from earlier significant rejection experiences from caregivers (Downey et al., 1998). Adolescents rely on their memories and feelings about prior social experiences to shape their feelings about current interpersonal experiences (London et al., 2007). Therefore, these past experiences can contribute to the development of rejection sensitivity as an anxious or angry defensive reaction to feelings of anticipated rejection (Downey et al., 1998). Depending upon the extent with parental rejection, adolescents with rejection sensitivity can have varying levels of negative interpersonal responses (Gardner & Zimmer-Gembeck, 2018). For adolescents who experience higher levels of rejection expectations, rejection sensitivity has been shown to have a negative impact on not only current but also future relationships (Molinari et al., 2020).

Additionally, rejection sensitivity is rooted in circumstance rather than as a predisposed trait (London et al., 2007). Preti et al. (2020) focused their research on the separation of the cognitive and emotional components of rejection sensitivity and how each is related to psychological problems. This research indicated that adolescents with rejection sensitivity can develop different coping abilities (Preti et al., 2020). Further, Gardner and Zimmer-Gembeck (2018) showed that rejection sensitive symptom

differences derived from the associated emotional dysregulation components of rejection assessment and suppression. Subsequently, researchers consider that there is more to learn about how responses to rejection sensitivity can differ for adolescents (Bondü et al., 2020; Preti et al., 2020).

Importantly, there are negative outcomes of rejection sensitivity. Zimmer-Gembeck (2015) found that rejection sensitivity is closely associated with symptoms of depression and social anxiety for adolescents. Adolescents with higher levels of rejection sensitivity also reported increased social avoidance (Zimmer-Gembeck, 2015). Andrews et al. (2022) also found that feelings of rejection sensitivity were related to depression and anxiety across social interactions. In addition, Molinari et al. (2020) revealed that the expectation of being rejected contributed to more isolating behaviors for school-aged children.

Anxious and Angry Rejection Sensitivity

Examining the specific constructs of rejection sensitivity as a cognitive emotional processing system, rejection expectations have been classified into anxious or angry expectations. Within the processing system associated with rejection sensitivity, there are two patterns of emotions, cognitions, and behaviors: The first is an expectation of and anxiety about rejection while the second is an expectation of and anger about rejection (Zimmer & Nesdale, 2013). Anxious rejection sensitivity is associated with more obliging, compromising behaviors and greater instability within social relationships. Angry rejection sensitivity is associated with more relationship conflict and retribution (Croft & Zimmer-Gembeck, 2014). Further, anxious rejection sensitivity has been closely

linked with social withdrawal while angry rejection sensitivity is more strongly associated with aggression (Croft & Zimmer-Gembeck, 2014).

Covert rejection can lead to overt rejection, but the expectation of rejection remains consistent for both anxious and angry expectations. In considering both anxious and angry rejection sensitivity expectations in response to ambiguous rejection situations, research shows adolescent behavioral responses of anxious rejection expectations were associated with significant increases in social anxiety and social withdrawal whereas angry rejection expectations were associated with a decrease in social anxiety but an increase in retribution (Zimmer & Nesdale, 2013). Zimmer and Nesdale (2013) also found that anxious rejection expectations led to an intensification of increased withdrawal behaviors. When faced with actual rejection, an adolescent with anxious rejection sensitivity is more likely to feel anxiety and retreat (Zimmer & Nesdale, 2013). Anxious rejection sensitivity behaviors include avoiding situations where there will be people, finding ways to avoid seeing and interacting with people, and creating opportunities to be alone. Angry rejection sensitivity behaviors include arguing with and making fun of friends as well as trying to find a way to get even (Zimmer & Nesdale, 2013).

Adolescence and Rejection Sensitivity

Understanding adolescent development is essential in understanding implications of rejection sensitivity for this group. During the physical and emotional changes that accompany adolescence, children experience an increase in autonomy and decision-making independence. Any heightened intrapersonal sensitivities can have significant implications in developmental trajectories as behaviors of adolescents with rejection

sensitivity can vary (Jansen & Kiefer, 2020). Jansen and Kiefer (2020) showed that brain development during adolescence also makes them receptive to support and learning strategies for improved emotion regulation. For example, some adolescents with rejection sensitivity may be willing to join a school club of interest to them. Being characterized with rejection sensitivity, however, will make them more susceptible to feelings of social rejection by other club members. Therefore, some may consider that joining a club is a negative experience and withdraw (Preti et al., 2020).

Humans have an innate desire to belong, but adolescence is a period where this desire to belong is heightened. Adolescents are significantly consumed with refining their identity as they socially interact and behave in ways that can lead them to discover who they are and where they best fit in (Goldner et al., 2018). For adolescents, feelings of acceptance and belonging may result, simply, from not being rejected, such as not being chosen last for a group project. However, adolescents with a heightened sensitivity to rejection are more likely to feel that if they were not chosen first, they have been rejected and do not socially belong in the group at all (Gardner & Zimmer-Gembeck, 2018). Adolescent egocentrism helps to explain these feelings of rejection sensitivity in that if an adolescent is the center of their own world and all their thoughts and feelings, then they feel that others must also feel the same way they do. Should an adolescent with rejection sensitivity feel as though they do not belong, the adolescent is more likely to conclude that their feelings are the same feelings as their peers (Bester, 2019). As adolescents are more concerned about social acceptance by their peers, any individual feelings of

rejection are more likely to be internally validated and can often lead to feelings of loneliness and isolation (Altundağ & Bulut, 2014).

Social network size and number of interactions are larger in early adolescence when compared to young adults. However young adults are typically better at being able to reappraise their friendships than young adolescents who are still gaining social experiences (Godleski et al., 2019). De France and Hollenstein (2019) showed that social emotion regulation strategies can differ across adolescent stages and that these differences often mirror the style and nature of their friendships. Young adolescents typically engage with many friends and rely on memories of these somewhat benign experiences to formulate emotion regulation strategies for their next social encounter. For example, a 13-year-old boy who gets teased when walking alone by a group of 17-year-old boys may choose to, subsequently, gather a group of peers so as not to walk by alone. If the young boy in the example above has rejection sensitivity, he may consider that he has been socially rejected by the older boys and begins to adopt a maladaptive emotion regulation strategy of social avoidance (De France & Hollenstein, 2019). Therefore, these numerous peer interactions can potentially increase rejection sensitive feelings across the adolescent developmental period (Godleski et al., 2019).

Adolescents begin a path of distancing themselves from their family as the center of their social relationships as the pressure and influence from peers becomes increasingly more important. This path, however, can become labored when strained by detrimental parental relations (Godleski et al., 2019). For adolescents with rejection sensitivity, changes or chaos within a social network can heighten feelings of automatic

defensive reactions to real and perceived rejection. These internalized defensive responses contribute to increased feelings of loneliness and those with rejection sensitivity are highly susceptible to developing unhealthy adaptive attitudes toward aloneness (Goldner et al., 2018; Molinari et al., 2020). Adolescents with rejection sensitivity dismiss, rather than confront, their emotions and shut themselves off from experiencing peer social intimacy that can contribute to wellbeing (Goldner et al., 2018). As adolescents work to develop the social skills they will use throughout their lifetime, they can carry their maladjusted emotional reactions into adulthood (Preti et al., 2020).

Anxiety

Defining Anxiety

Anxiety is a physiological response to a real or perceived threatening or dangerous situation (Williams & Prince, 2017). Feeling anxious is natural for humans and is controlled cognitively through an automatic assessment of the detected danger signal followed by a physical and behavioral response the brain deems appropriate within the context of the situation. For example, a teenaged boy may feel anxious when asking someone to the prom and can have sweaty palms as a result. Detecting and responding to fear or threats is dysfunctional in those with anxiety (Williams & Prince, 2017). Should the same teenaged boy have anxiety, he may be more inclined to simply avoid asking someone to the prom altogether (Orson & Larson, 2021). Researchers consent that anxiety, whether derived from a real or perceived feeling of a threat, manifests itself in similar symptoms for the mind and body (Srivastava & Kiran, 2015; Williams & Prince, 2017).

Approximately 5-20% of adolescents worldwide experience psychological problems (Volkaert et al., 2020). Anxiety disorders are among the most common psychological disorders afflicting adolescents aged 13-18 years and include generalized anxiety disorder (50%), post-traumatic stress disorder (30%), social anxiety (14%), and severe anxiety disorders (8.3%) (Williams & Prince, 2017). In addition, anxiety disorders have the earliest age of onset out of other psychological disorders as approximately 50% of adolescents diagnosed with anxiety report experiencing symptoms as young as the age of 6 years (Williams & Prince, 2017). The median age of onset for social anxiety disorders is typically reported to be at or before the age of 15 years (Zimmer-Gembeck et al., 2021).

Experiencing anxiety symptoms is different from being diagnosed with an anxiety disorder. Anxiety disorders are typically diagnosed for adolescents who have significant acute or prolonged anxiety symptoms that result from a difficulty in managing their anxious emotions (Woodward et al., 2018). Within community samples of adolescents, self-reported symptoms of anxiety can be both emotional and physical such as feeling worried about taking an exam and having an increased heart rate. Many adolescents experience anxiety symptoms and are not diagnosed with anxiety disorders. However, for some, repeated or heightened symptoms of anxiety can become clinically significant and lead to anxiety disorder diagnoses (O'Connor et al., 2022).

Common triggers for feelings of anxiety among adolescents can be failure to reach a goal, self-doubt in skills or abilities, and the anticipation of judgement by others (Orson & Larson, 2021). For example, a group project at school can contribute to feelings

of anxiety as they are less structured than regular class work and often require a group or team effort (Orson & Larson, 2021). Students may feel nervous when things do not go as planned or when comparing their own abilities with others. In addition, worrying about what the others may think of them and feeling accepted or included in the group, can trigger feelings of anxiety (O'Connor et al., 2022; Orson & Larson, 2021). Consequently, for those with rejection sensitivity, school can increase the risk for experiencing an escalation of social (closely related to general) anxiety (Aslan & Bilgin, 2020; Zimmer-Gembeck et al., 2021).

Heightened anxiety can disrupt motivation and engagement and contribute to behaviors that can lead to isolation and depression (Orson & Larson, 2021). Gardner et al. (2020) found that adolescents who report having higher anxious symptoms also have higher social avoidance. Children with diagnosed anxiety disorders have greater emotion dysregulation expression, feel less confident in regulating their emotions, and utilize fewer adaptive strategies (Zimmer-Gembeck et al., 2021). Woodward et al. (2018) found that children with anxiety disorders had more difficulty managing their anxious emotions over those who had not been diagnosed with an anxiety disorder. Although emotion regulation strategies can vary across the lifespan and influence wellbeing, anxiety is ultimately associated with a lesser wellbeing for adolescents (De France & Hollenstein, 2019).

As anxiety symptoms can develop into anxiety disorders, researchers consider the benefits of targeted interventions for adolescents with a purpose of anxiety disorder prevention. Research on the prevalence of anxiety within an adolescent community-based

sample can also improve the generalizability of results across broader adolescent populations in considering ways to mitigate anxiety symptoms (de la Torre-Luque et al., 2020).

Risk Factors for Anxiety Symptoms

Adolescence

Adolescence is known to be a pivotal developmental time in which the risk of anxiety feelings and symptoms can increase (Spielberg et al., 2019). Adolescence is characterized by puberty and associated as the transition period from childhood to adulthood. Puberty brings about significant changes in the brain, body, cognition, social experience, self-perception, behavior, and emotion for children (Mendle et al., 2020). As developing adolescents attempt to reconcile the changes in their bodies with the changes in their emotions, they may experience emotion dysregulation. A younger female with fully developed breasts in comparison to her classmates may feel like she is different and can subsequently experience appearance anxiety symptoms. Similarly, a boy who is late to physically develop may also feel anxiety as he considers that he is at an increased risk for being teased for his small size (Zimmer-Gembeck et al., 2018). Pubertal changes, therefore, often result in an increased prevalence of psychological problems and symptoms, including anxiety (Mendle et al., 2020).

It is typically during adolescence when children extend social relationships beyond the comfort and stability of their parents to significantly include more peer relationships (Srivastava & Kiran, 2015). This can be challenging as seeking emotional and social support from peers can contribute to changes within the family structure. Some

parents begin to demonstrate behaviors of reassurance when their adolescent children socially thrive and are engaged in lots of activities as this can validate their child's ability to adapt to other environments away from the house (Aslan & Bilgin, 2020). For some adolescents, this pressure can lead to increases in anxiety as many children try to maintain positive relationships with their parents in the wake of distancing themselves (Finklestein et al., 2020). Likewise, Jansen and Kiefer (2020) found that changes in social context during adolescence was a contributor in leading to feelings of anxiety.

Adolescents consider that their peer social relationships are an important part of their individuation process. However, for some, the dynamic nature of peer relationships experienced during adolescence, can feel like rejection (Zimmer-Gembeck et al., 2021). A close friend since early childhood may suddenly desire to become friends with a more popular group. This type of rejection has been associated with rejection sensitivity and further associated with an increase in social anxiety symptoms (Zimmer-Gembeck et al., 2021). The importance of adolescent peer relationships can contribute to adolescents being more prone than younger children to developing not only a sensitivity to being rejected but also an increase in anxiety symptoms (Mendle et al., 2020).

For most adolescents, school represents a significant social experience. Academically and socially, the expanded school experience at this stage provides for an increased frequency for adolescents to resolve problems and social conflicts. Adolescents value these interpersonal experiences with teachers and peers because they contribute to how they assess their own sense of wellbeing. For example, the teenager who gets chosen last for a school athletic exercise may begin to doubt their athletic abilities (Bester, 2019).

These rampant social evaluations are an inherent part of social development for adolescents in school and can contribute to different forms of negative affect, such as nervousness (Grisanzio et al., 2022). Therefore, the increased social experiences of school can lead to heightened feelings of anxiety, especially for those who perceive that they have been rejected by others (Mendle et al., 2020).

Anxiety symptoms evolve throughout adolescence. Although adolescents are vulnerable for increases in anxiety symptoms, Orson and Larson (2021) considered that children in this developmental stage are also highly susceptible to learning how to manage their negative emotional experiences. For example, adolescents who can reframe their understanding of anxiety as a tool that contributes to solving a problem, can reduce their feelings of anxiety (Orson & Larson, 2021). However, environment and temperamental characteristics can also influence anxiety symptoms, resulting in a diverse evolution of anxiety symptoms for adolescents (de la Torre-Luque et al., 2020).

Rejection Sensitivity

Rejection sensitivity leads to a greater internalization of negative emotions. Negative emotional regulation (emotion dysregulation) and subsequent behavioral reactions (social withdrawal) are also known components of rejection sensitivity (Gardner et al., 2020). Zimmer and Nesdale (2013) found that greater rejection expectations are associated with more negative reactions to rejection. Further, the researchers found that anxiety about rejection, in general, is specifically associated with behaviors of withdrawal from an environment (Zimmer & Nesdale, 2013). In a recent longitudinal research study, Gardner et al. (2020) found that within a sample of both

adolescents and young adults, those with higher levels of rejection sensitivity reported increased anxiousness. Given that successful emotion regulation is essential for psychological functioning and mental health, those with lower self-regulation skills can experience greater social anxiety (Lennarz et al., 2019; Zimmer-Gembeck et al., 2021).

For adolescents, peer support is essential for building positive social relationships (Bester, 2019). For those with rejection sensitivity, peer support is often absent (Bester, 2019). Bester (2019) found that positive peer relations can not only mitigate social anxiety, but they can also address the negative implications rejection sensitivity can have for those adolescents who feel isolated and without peer support. Adolescents with an increased sensitivity to peer rejection are more susceptible to feelings of social stress and will be less likely to positively manage social situations (Bester, 2019). However, Bester found that positive peer relations can not only mitigate social anxiety, but they can also address the negative implications rejection sensitivity can have for those adolescents who feel isolated and without peer support.

Problem-Solving Skills

Problem-Solving Skills as a Measure of Resilience

Defining Resilience

Researchers do not agree on a single definition of resilience (Altundağ & Bulut, 2014). Iqbal et al. (2021) considered a commonly accepted definition of resilience as an "ability to bounce back from negative emotional experiences" (p. 633). Finklestein et al. (2020) considered a slightly broader concept of resilience in that it is enduring a threat and then recovering from it. Altundağ and Bulut (2014) considered resilience to be an

active process which results in someone becoming stronger when having encountered a difficulty. In a unification of these definitions of resilience, this research study considered a meaning of resilience as being the cognitive and emotional process of competently dealing with a challenging event or experience (Smith et al., 2016).

There are two primary perspectives in considering that a person is or can be resilient; they were either born with this trait or they learned, through experiences, to demonstrate characteristics of resiliency (Wang et al., 2015). When resilience is deemed a trait that a person was born with, the responsibility to be resilient lies with the individual. Conversely, the process-oriented perspective considers the significance of the social and environmental influences in a person's ability to overcome the negative effects of a real or perceived challenge (Wang et al., 2015). If follows then that challenging or adverse experiences can contribute to creating improved resilient characteristics (Merenda, 2021).

Adolescents are often characterized as resilient when they display attributes that demonstrate their ability to, not only recognize the potential benefit from a challenging situation, but also to attempt to seek that benefit (Rohner & Lansford, 2017). For example, a 13-year-old girl who fails to make a varsity-level sport team expresses resilience in considering that the experience will only enhance her chances of making the team the following year (Rohner & Lansford, 2017). Likewise, adolescents who play golf develop resilience as they appraise ways to overcome the obstacles presented on the course (Schulze, 2019). Resiliency is the personal view that a problem is not just to be

managed but rather an opportunity that can be beneficially resolved (Rohner & Lansford, 2017).

Adolescents who demonstrate high resilience are found to have more positive emotions and a healthier emotional developmental course (Wang et al., 2015). For example, Yoo (2021) found that resilience was associated with higher life satisfaction for adolescents who lived in multicultural families in South Korea. The study used self-reported measurements of resilience that included responses and feelings of being fine when encountering a difficulty, challenge, or problem (Yoo, 2021). Resilience also serves as a protective factor for those who experience adversity and can be considered a resource that contributes to coping strategies and abilities (Smith et al., 2016). Wang et al. (2015) found that for adolescents who are at risk for internalizing problems, resilience-based approaches that focus on positive skills, can lead to a more positive course for mental health development.

Defining Problem-Solving Skills

Problem-solving is the thought process of finding, creating, or adapting to solutions of real or perceived challenges (Kaymakci & Can, 2021). The primary constructs of problem-solving are fluid reasoning, working memory, and divergent thinking (Williams & Prince, 2017). Divergent thinking is associated with problem-solving ability as the brain spontaneously explores possible and creative solutions to challenges. Rather than being considered a personal trait, divergent thinking is a teachable skill that can be improved upon when individuals are given the opportunity to develop, test, and revise their own ideas (Müller & Pietzner, 2020). Problem-solving is

considered a positive sense of curiosity for those who have an expectation that they can consciously respond to a challenge (Smith et al., 2016).

Perceived problem-solving abilities contribute to how individuals cope with challenges or difficulties. As adolescents seek solutions to their problems, they consider cognitive and emotional reframing strategies to resolve the challenge (Orson & Larson, 2021). For adolescents, the process of reframing is typically dependent upon the individual's perceived control of the stressor, availability of a coping resource, and the nature of the outcome (Ma et al., 2020). A sense of mastery, sense of relatedness, and emotional reactivity not only influence coping strategies but also problem-solving capabilities (Smith et al., 2016). Those with higher problem-solving abilities gather information to help them better understand the problem, consider multiple ways to resolve a problem, and assess what went right or wrong after attempting a solution. Those with lower problem-solving skills doubt their ability to resolve the challenge and make immediate decisions without gathering or assessing additional information (Abdollahi et al., 2018).

Higher problem-solving ability indicates resiliency. Ma et al. (2020) found that resilience is enhanced when problem-solving skills are high. An intervention program for at-risk families focused on improving family resilience by improving their problem-solving skills. As the members of the family worked and communicated together on how to resolve their problems, they improved their ability to overcome some of their social and emotional challenges (Finklestein et al., 2020). In addition, Srivastava and Kiran (2015) found a positive relation for adolescents between problem-solving ability and

coping with stress. Internal locus of control, problem-solving oriented coping strategies, and active problem-solving skills are internal factors that can indicate resilience (Altundağ & Bulut, 2014). Therefore, problem-solving skills is considered an ability that can strengthen a person's ability to be resilient.

Domains of Problem-Solving

Assessments of problem-solving have focused on different aspects. The aspects of problem-solving considered in the current study are confidence, approach-avoidance style, and personal control. Confidence in problem-solving ability considers individuals' sense of mastery over the challenge (Smith et al., 2016). In evaluating one's own problem-solving confidence, individuals first conceptualize the problem and then assess their own abilities and skills in being able to create solutions. Adolescents with low problem-solving confidence may simply feel as though the problem is too hard to try and resolve (Abdollahi et al., 2018).

Individuals also vary in their tendency to approach and avoid problems. Approaching a problem indicates a willingness to face the problem and find a possible solution whereas avoiding a problem increases the likelihood that a solution to a problem will not be found (Abdollahi et al., 2018). Whether adolescents approach or avoid problems can be considered problem-solving engagement (Smith et al., 2016). Engagement of a problem is characterized by action planning and positive reappraisal. Conversely, avoidance-oriented engagement is characterized by deliberate attempts to seek distractions and disengage altogether (Smith et al., 2016).

Perceptions of personal control is an individual's belief that they can alter an event. Perceptions of control reflect individuals' perceptions of their resources and abilities for coping with and resolving the problem (Srivastava & Kiran, 2015). Perceptions of personal control are related to the controllability of the problem and availability of coping resources (Smith et al., 2016). For example, when facing a problem, an individual may feel upset and unable to control their emotions. These feelings can lead to a reduced ability to solve a problem (Srivastava & Kiran, 2015).

Problem-Solving Skills and Adolescence

For many, adolescence is an opportunity for flourishing and developing problem-solving skills (Booth et al., 2019). Adolescents are subjected to increased learning experiences in school and can use the classroom environment to develop, refine, and ultimately, improve their problem-solving abilities. In addition, adolescents have more opportunities to choose programs or activities of interest to them and, as a result, may be more responsive to the adult leaders. Adolescents who see a program leader or teacher in a role of support, will be more likely to work harder to emulate them or learn their skills (Orson & Larson, 2021). Adolescence is, therefore, also a period of opportunity for heightened positive emotional responses (Booth et al., 2019).

In considering the development of adolescent problem-solving skills, it is appropriate to consider the aspect of divergent thinking and the role of educators (Williams & Prince, 2017). Applications of divergent thinking include the ability to adapt solutions to a perceived problem (Müller & Pietzner, 2020). Cognitive flexibility improves during adolescence (Jansen & Kiefer, 2020). This flexibility allows for an

enhanced ability to not only adapt knowledge from prior experiences but also to willingly engage in new experiences and learn from exploration. Teachers who increase their understanding of the positive aspects of adolescent brain development can be more responsive in teaching divergent thinking skills (Jansen & Kiefer, 2020).

Adolescent social and emotional development also influences perceived problem-solving ability. Adolescence is a period characterized by an oversensitive reactiveness and a slower activation of the regulatory process (Volkaert et al., 2020). Heightened emotions of frustration or anxiety can impede an adolescent's perceived ability to try and resolve a problem or challenge (Lennarz et al., 2019). Therefore, problem-solving may be inhibited for those who are already susceptible to maladaptive emotional responses, such as those characterized with rejection sensitivity.

The increased opportunities for social experiences during adolescence can also contribute to increases in social conflict and in social problem-solving. For example, who to include (and exclude) in a small group outing and competing with a friend for an elected position of leadership (Croft & Zimmer-Gembeck, 2014). Two negative social problem-solving aspects are the tendency to view problems as threats and taking an avoidant rather than proactive approach to dealing with problems (Kraines & Wells, 2017). Adolescents with rejection sensitivity may consider that a problem is a threat as it is too hard to solve and may avoid resolving it altogether (Kraines & Wells, 2017).

Finally, adolescence is typically filled with social and academic pressures (Orson & Larson, 2021). These pressures can create feelings of stress that interfere with concentration and problem-solving abilities (Orson & Larson, 2021). When adolescents

feel that they are unable to resolve a problem, they feel less confident in their overall problem-solving capabilities resulting, for some, in feelings of anxiety when presented with a problem (Abdollahi et al., 2018). As problem-solving is dependent on an individual's conception of their ability to be able to resolve the challenge, capabilities can be reduced due to associations with feelings of anxiety (Orson & Larson, 2021). In addition, when adolescents face additional family stressors and anxieties, such as those deriving from divorce, feelings of anxiety can increase and can further contribute to reductions in problem-solving skills (Altundağ & Bulut, 2014).

Gender

Defining Gender

Gender assignment at birth is based on the biological and reproductive sex of the infant and is categorized as either male or female. Gender identity is how a person consciously or subconsciously sees themselves. However, the biological gender assigned at birth is typically significantly related to social and personal development and contributes to the gender identity of the individual (Colineaux et al., 2022). Gender expectations can have a significant impact on how adolescents feel about themselves. Although gender is a complex concept, an accepted definition of gender should also include the set of norms imposed upon an individual based on their gender sex assignment at birth (Colineaux et al., 2022).

Gender and Social Experiences

Gender differences associated with reactions to interpersonal experiences can emerge during adolescence. Spielberg et al. (2019) found that as children approached

adolescence, the physical changes brought on by puberty can influence youths' interpersonal experiences (Grisanzio et al., 2022). For example, girls who physically mature earlier are subject to peer teasing, resulting in a lower appearance esteem in comparison to boys (Zimmer-Gembeck et al., 2018). Therefore, puberty is a disproportionately vulnerable time for girls over boys as girls report a greater severity and variety of psychological problems (Mendle et al., 2020).

Gender social norms also influence peer social relationship expectations (Miller-Slough & Dunsmore, 2021). Rather than just biological sex, social gender stereotyping contributes to the socializing of emotions for adolescents. Based solely on biological sex, the gender normative pressures imposed within a culture create social emotional differences between boys and girls (Colineaux et al., 2022). Both genders learn to regulate their emotions and interpersonal expectations during adolescence, but the influence of peers on socializing emotions and shaping relationships is different for girls and boys (Colineaux et al., 2022; Lennarz et al., 2019; Miller-Slough & Dunsmore, 2021).

Adolescents interact and communicate with others to develop their emotion socialization skills. The internalization of symptoms during adolescent emotion socialization, such as stress, contributes to interpersonal reaction gender differences (Miller-Slough & Dunsmore, 2021). Emotional focused coping, rumination, and co-rumination are examples of responses to stress that are more common for girls and are vulnerabilities to internalizing symptoms (Miller-Slough & Dunsmore, 2021; Rose et al., 2016). Although Rose et al. (2016) found that both males and females engaged in co-

rumination, females demonstrated more empathy with one another. However, higher empathetic feelings can potentially influence feelings of worry as girls, in comparison to boys, worry not only about themselves, but also about their friends (Rose et al., 2016). Finally, although talking about problems with friends can contribute to feelings of social support, dwelling on negative affect is associated with internalizing problems and may contribute to, for example, increased anxiety symptoms for girls (Rose et al., 2014).

Current Study

The result of the review of the literature on adolescent rejection sensitivity, anxiety, problem-solving skills, and gender, laid the groundwork for the significance of addressing the following research questions of (a) To what extent is adolescent rejection sensitivity associated with anxiety, (b) To what extent do problem-solving skills moderate the relationship between adolescent rejection sensitivity and anxiety, and (c) To what extent does gender moderate the relationship between adolescent rejection sensitivity and anxiety?

The first research question tested the association between rejection sensitivity and anxiety. Anxiety is an important problem to examine as anxiety disorders are not only a common psychological disorder for adolescents, but they can also be a catalyst for poorer psychological outcomes throughout adulthood (Williams & Prince, 2017). Gardner et al. (2020) found that negative emotional regulation is associated with rejection sensitivity and contributes to a greater internalization of negative emotions. In addition, anxious rejection sensitivity is positively associated with social withdrawal and social anxiety (Croft & Zimmer-Gembeck, 2014). Given that social anxiety is closely related to general

anxiety (Grisanzio et al., 2022), I expected that for adolescents, there would be a positive association between rejection sensitivity and anxiety. Testing the association between adolescent rejection sensitivity and anxiety in this study was expected to be a purposeful replication of this previous research.

The second research question tested problem-solving as a moderator of the association between adolescent rejection sensitivity and anxiety. Although there was an expected relation between rejection sensitivity and anxiety, there was more to explore about those adolescents characterized with rejection sensitivity, who were most at risk for developing anxiety. Considering the impact of problem-solving skills provided this information. In general, the association between rejection sensitivity and anxiety was expected to be mitigated for adolescents with positive problem-solving skills because those with higher problem-solving skills rely on the process of (adaptive) emotional reframing to resolve challenges (Orson & Larson, 2021). Conversely, the association between rejection sensitivity and anxiety was expected to be stronger for adolescents with poorer problem-solving abilities. Anxiety is associated with a reduction in problem-solving (Abdollahi et al., 2018). When an adolescent cannot resolve a challenge, they feel more anxiety in perceiving that they will also not be able to solve future problems (Abdollahi et al., 2018). This maladaptive emotional response reduces perceived problem-solving ability (Lennarz et al., 2019). Given that adolescents with rejection sensitivity have maladaptive emotional responses, I expected that the relationship between rejection sensitivity and anxiety would be stronger for those with poorer problem-solving skills.

The third research question tested gender as a moderator of the association between adolescent rejection sensitivity and anxiety. During adolescence, a period associated with physical changes of puberty, girls are especially reactive emotionally to social stress and report more psychological problems (Grisanzio et al., 2022; Mendle et al., 2020). Girls are vulnerable to internalizing symptoms as they utilize emotional focused coping, rumination, and co-rumination as responses to stress (Miller-Slough & Dunsmore, 2021). In addition, adolescent girls, in comparison to boys, show greater empathy. Increased empathy contributes to increased feelings of worry (Rose et al., 2016). Therefore, the association between rejection sensitivity and anxiety was expected to be stronger for girls.

For this study, gender was assessed dichotomously. Most youth do identify as cisgender; however, a stronger assessment would have included more options for gender (Colineaux et al., 2022). This limitation was considered in subsequent chapters.

Summary and Conclusions

This literature review included a significant number of studies involving adolescent rejection sensitivity, anxiety, problem-solving skills as a measure of resilience, and gender implications. The review revealed that for some, rejection sensitivity can develop during adolescence and potentially contribute to increased anxiety symptoms. The review also indicated that anxiety can be detrimental to adolescent social and emotional development and have negative long-term implications into early adulthood. Positive problem-solving skills have been found to be associated with lower rejection sensitivity and anxiety. What was missing from the literature, however, was

how perceived problem-solving ability impacted relations between rejection sensitivity and anxiety symptoms for adolescents. In addition, although gender is also known to be associated with rejection sensitivity and anxiety, whether gender moderated associations between rejection sensitivity and anxiety symptoms for adolescents was not known.

Chapter 3 includes a rationale and description of the research design and methodology used to conduct this research. Also included is a description of and rationale for the secondary data set used in this study. This includes information about approval and data collection methods and analyses. Chapter 3 concludes with a discussion of limitations, delimitations, and assumptions of this research.

Chapter 3: Research Method

As noted in Chapter 1, the purpose of this study was to examine relations between adolescent rejection sensitivity and anxiety and determine if they were moderated by problem-solving skills and gender. I used data collected by Rose between 2007 and 2009 to address the gap in literature regarding which rejection sensitive adolescents are at a higher risk for anxiety symptoms. I used quantitative analyses with previously collected data to test relations between adolescent rejection sensitivity (anxious and angry rejection expectations) and anxiety and whether problem-solving skills and gender moderated these relations. SPSS was used for statistical analyses of data.

This chapter includes a thorough explanation of the research design and methodology used in this study. Data includes participant responses to survey measures. This chapter includes descriptions of population sampling procedures, procedures for data collection, and instruments. Finally, threats to validity as well as ethical procedures are explained.

Research Design and Rationale

To address the research questions, I used a quantitative nonexperimental research design. A quantitative design is most appropriate to use when analyzing data which are collected through survey instruments for the purpose of exploring and explaining relations between variables (Burkholder et al., 2020). The independent variables were anxious rejection expectation and angry rejection expectation. The dependent variable was anxiety. Moderating variables were problem-solving skills and gender.

The use of a quantitative nonexperimental research design for this study was consistent with research designs that rely on data generated from questionnaire instruments. Surveys are appropriate for research use in capturing descriptions of the sample. The nonexperimental approach did not provide information about causation but did provide information about relations between variables (Burkholder et al., 2020). This design contributed to advancing knowledge about anxiety symptom risks for adolescents who are rejection sensitive.

Methodology

Population

The target population for this study was adolescents residing in the U.S. Adolescence is the transition period between childhood and adulthood and marked by the ages of about 11 to 18 years. According to the 2020 U.S. Census, the population of males and females between the ages of 10 to 19 years was approximately 41,491,000 (U.S. Census Bureau, 2020).

Sampling and Sampling Procedures

Data were collected by Rose in 2007 and 2009. Adolescents recruited for the study had just completed seventh or 10th grade in a midsized university town in the midwestern U.S. Adolescents who attended the local public school were recruited for the study from a roster with contact information which was provided by the school. Names were randomly selected with constraints of recruiting similar numbers of boys and girls and oversampling of African American youth in order to comprise 25% of the sample.

Serving as the initial contact, letters that described the nature of the study were mailed to the families of 1,771 children (see Rose et al., 2914, 2016). Via followup telephone calls, 937 families were successfully reached. Of these families, 616 did not participate (362 declined; 254 expressed interest but did not commit to an appointment). Because the larger study focused on friendships, adolescents participated with a close or best friend of their choosing. However, I focused on single adolescents (not the friend dyad) as the unit of analysis. The final sample included 642 adolescents.

The final sample of 642 consisted of 322 participants from seventh grade and 320 from 10th grade. The sample consisted of 330 girls and 312 boys with a mean age of 13.01 years for seventh graders and 16.03 years for 10th graders. The sample demographic was 62.76% European American, 29.21% African American, and less than 2% each of American Indian, Pacific Islander, and Asian American; 5.78% reported more than one race. Of the sample, 3.73% was Latino/a (see Rose et al., 2014, 2016).

Procedures for Recruitment, Participation, and Data Collection

Use of a previously collected data set for the study meant that recruiting new participants was not necessary. Dr. Rose shared the data set after Institutional Review Board approvals from Walden University were received. I complied with all requirements necessary to gain access to the deidentified dataset, which included completing the Collaborative Institutional Training Initiative (CITI) training sessions on research ethics (see Appendix A).

Instrumentation and Operationalization of Constructs

Children's Rejection Sensitivity Questionnaire

The CRSQ is designed to assess anxious and angry rejection sensitivity. To do this, participants responded to hypothetical situations in which rejection by others was possible (Preti et al., 2020). The CRSQ operationalizes rejection sensitivity to the degree that children anxiously or angrily expect rejection, feel disliked or rejected following ambiguous rejection, and overreact to rejection.

In considering the effects of rejection sensitivity on children's interpersonal relationships, Downey et al. (1998) conducted an initial study with the CRSQ using a target population of 382 children in fifth through seventh grade. The original CRSQ had 12 ambiguous social situations that were rated on three subscales of (a) how nervous (anxious) the child would be, (b) how mad (angry) the child would be, and (c) the extent of the child's expectation of being rejected. This study used data from a CRSQ with six scenarios (Downey et al., 1998). An example of a scenario included respondents imagining that a famous person was coming to visit their school and wondering if their teacher would choose them to be one of five children to meet the person. Response 1 involved assessing anxious rejection (*How nervous would you feel, right then, about whether or not the teacher will choose you?*) and was measured from *Not nervous* (1) to *Very, very nervous* (6). Response 2 was used to assess angry rejection (*How mad would you feel right then about whether or not the teacher will choose you?*) and was measured from *Not mad* (1) to *Very, very mad* (6). Response 3 was used to assess rejection

expectation (*Do you think the teacher will choose you to meet the special guest?*) and was measured from *Yes* (1) to *No* (6).

Scores were calculated separately for anxious and angry rejection expectations (each anxious/angry score multiplied by the expectation score, summed across all six scenario responses, and then divided by 6). The CRSQ had good internal reliability with Cronbach's alpha ranging from .79 to .82. The CRSQ demonstrates consistency for assessing self-reported measurements of social cognition in terms of anxious and angry rejection expectations (Downey et al., 1998).

Children's Manifest Anxiety Scale-Revised

The CMAS-R is designed to measure anxiety symptoms in children by capturing their feelings about hypothetical questions or situations (Reynolds & Richmond, 1978). The CMAS-R includes a 33% reduction in the length of the original CMAS and has good internal consistency (Reynolds & Richmond, 1978). This study used data from the revised version which included anxiety statements intended to embody a feeling or action that reflects an aspect of anxiety.

In this study, anxiety was measured with responses to 28 items that were rated on a 5-point scale ranging from *Not at all true* (1) to *Really true* (5). An example of an item is *I worry a lot of the time*. Mean scores were calculated and used with lower scores indicating less anxiety and higher scores indicating higher anxiety. The CMAS-R is frequently used in research to measure treatment effects and assess anxiety symptoms (Reynolds & Richmond, 1978; Woodward et al., 2018). For this study, the CMAS-R yielded strong reliability with an alpha of .93.

Problem-Solving Inventory-Adolescent Version

The PSI-AV, originally developed as the PSI, was used to assess perceptions of problem-solving skills (Heppner & Petersen, 1982). To assess adolescent's perceptions of their problem-solving abilities, the PSI-AV operationalizes three constructs of problem-solving: confidence, approach-avoidance style, and personal control.

The PSI-AV consisted of 34 items. An example of these items to measure the problem-solving construct of confidence included the statement *I trust my ability to solve new and different problems*. An example of these items to measure the problem-solving construct of approach-avoidance style included the statement *When I have a problem, one of the first things I do is try to learn exactly what the problem is.* Lastly, an example of these items to measure the problem-solving construct of personal control included the statement *Sometimes I get so upset, I can't think of ways to solve my problem.* Respondents rated each item on a Likert scale from *Really disagree* (0) to *Really agree* (5). Mean scores were calculated. The subscales of the PSI-AV were internally consistent for each subscale with Cronbach alphas of .85 for confidence, .87 for approach-avoidance style, and .85 for personal control. Re-testing reliability was stable with Cronbach alphas for each subscale resulting in .85 for confidence, .88 for approach-avoidance style, and .88 for personal control (see Heppner & Petersen, 1982).

Research Questions and Hypotheses

RQ1: To what extent is adolescent rejection sensitivity (anxious and angry rejection expectations) associated with anxiety?

$H_0$1: Adolescent rejection sensitivity (anxious and angry rejection expectations) measured by the Children's Rejection Sensitivity Questionnaire (CRSQ; Downey et. al., 1998) is not correlated to anxiety measured by the Children's Manifest Anxiety Scale-Revised (CMAS-R; Reynolds & Richmond, 1978).

H_a1: Adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ positively is correlated to greater anxiety as measured by the CMAS-R.

RQ2: To what extent do problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) moderate the relationship between adolescent rejection sensitivity (anxious and angry expectations) and anxiety?

$H_0$2: Problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) measured by the Problem-Solving Inventory-Adolescent Version (PSI-AV; Heppner & Petersen, 1982) do not moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R.

H_a2: Problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) measured by the PSI-AV moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R such that the association is weaker for adolescents with adaptive problem-solving skills than adolescents with poorer problem-solving skills.

RQ3: To what extent does gender moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) and anxiety?

$H_0$3: Gender does not moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R.

H_a3: Gender moderates the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R such that the association is stronger for girls over boys.

Data Analysis Plan

The deidentified data were compiled in an Excel file by Rose and converted to the IBM SPSS 28 data file to perform the statistical analyses.

Psychometric Properties

Cronbach alphas were computed to test the internal reliability of each measure and subscale of measures.

Descriptive Statistics

Descriptive statistics, including means, standard deviations, and ranges for the variables were computed. Correlations among all the research study variables were computed as well.

Adolescent Rejection Sensitivity as Predictor of Anxiety

To answer RQ1, the relationships between the two indicators of rejection sensitivity (anxious and angry rejection expectations) and anxiety were tested using correlations.

Moderating Roles of Problem-Solving Skills and Gender

To answer RQ2, multiple regression analyses were conducted to test whether problem-solving skills moderated the relations between rejection sensitivity and anxiety. Separate analyses were conducted for anxious rejection sensitivity and angry rejection sensitivity. In addition, for anxious rejection sensitivity and angry rejection sensitivity, separate analyses were conducted for each of the subscales of problem-solving skills (confidence, approach-avoidance style, and personal control). This resulted in a total of six regression analyses conducted to test whether problem-solving skills moderated the relations between rejection sensitivity and anxiety. For each regression analyses, anxiety served as the dependent variable. The rejection sensitivity variable, the problem-solving variable, and their interaction served as the independent variable. The *F* and *p* values were reported and used to determine whether the effects were significant.

To answer RQ3, multiple regression analyses were conducted to test whether gender moderated the relations between rejection sensitivity and anxiety. Separate analyses were conducted for anxious rejection sensitivity and angry rejection sensitivity. This resulted in a total of two regression analyses conducted to test whether gender moderated the relations between rejection sensitivity and anxiety. For each regression analyses, anxiety served as the dependent variable. The rejection sensitivity variable, gender, and their interaction served as the independent variable. The *F* and *p* values were reported and used to determine whether the effects were significant.

Power Analysis

Power analyses are conducted to determine the necessary minimum sample size for detecting a given effect based on the expected effect size, a specific probability level, and a specific power level. The power of a study increases with an increase in sample size as the greater the sample size, the greater likelihood that the result is not due to chance. Effect size quantifies the strength of the result as either small, medium, or large (Burkholder et al., 2020).

Because previously collected data were used, the sample size was predetermined at 642 participants. Analyses included correlations and multiple regression analyses. Power analyses were conducted for the multiple regression analyses because if there is sufficient power for the regressions, there will be sufficient power for the correlations. This is because the regressions involve more variables than the correlations. For each of the regression analyses anxiety was the dependent variable and was predicted by the rejection sensitivity variable, the problem-solving variable, and the interaction between the rejection sensitivity and problem-solving variables. The analysis was tested with a power of .80 for a small effect and resulted in a minimum sample size calculation of 395 (Faul et al., 2007). Therefore, the predetermined sample size of 642 participants was sufficient to detect small effects.

Threats to Validity

Threats to internal and external validity were taken into consideration so that appropriate conclusions could be drawn. Threats to internal validity involve instrumentation in terms of assessing the construct intended to be measured. For this research study, threats to internal validity are responses which do not accurately measure

the constructs of rejection sensitivity (anxious and angry rejection expectations), anxiety, and problem-solving skills (confidence, approach-avoidance style, and personal control) (Burkholder et al., 2020). The measures chosen for this study have demonstrated good internal reliability as well as consistency in replicability as measured by Cronbach alphas. Nonetheless, internal reliability was assessed in the current study for each measure and issues related to internal validity were considered when interpreting the results.

Threats to external validity consider whether the findings for a study are specific to the group of individuals who participated in the study or can be generalized to a broader population (Burkholder et al., 2020). External validity cannot be proven, meaning results should not be overgeneralized. For this research study, results should not be generalized to populations that are not consistent with the characteristics of the current sample. Generalizability of the results for this study include adolescents attending a public school in a midsized town in the Midwest of the U.S. and who are in or have just completed seventh or tenth grades. Examples of threats to external validity, which should be considered when generalizing the results of this study, include populations of young children or adolescents from different cultures.

Ethical Procedures

Use of previously collected data meant that recruitment and the consent process did not need to be repeated for this dissertation. Because I used archival data, I reviewed the original IRB application to ensure that ethical standards for data collection procedures were adhered to. The original research required attaining signed parental consent and youth assent forms that appropriately described the confidentiality procedures for

collecting and storing the data. Hard copies of the surveys were labeled with identification numbers and not names. Documents linking the names to the identification numbers were stored separately from the data. The data used in this study were deidentified and only included identification numbers and not participant names. In addition, upon receiving approvals for use of this data, I ensured that it was kept confidential on a password protected computer.

Summary

This chapter included an explanation of the research design of the nonexperimental correlation and moderation analyses used to address the research questions posed in this study. Further, a detailed explanation of each instrument was given as well as information regarding their appropriateness in terms of measuring rejection sensitivity, anxiety, and problem-solving. Each instrument was also appropriate for use with adolescents and had good to high reliability. A description of the data analysis plan was provided. Finally, threats to internal and external validity were discussed as well as ethical procedure considerations.

Chapter 4 includes a detailed summary of the secondary data used for this study as well as the results of statistical analyses.

Chapter 4: Results

The purpose of this study was to examine the relations between adolescent rejection sensitivity and anxiety and to determine if the relation was moderated by problem-solving skills, an indicator of resiliency, and gender. This purpose led to the development of three research questions of (a) To what extent is adolescent rejection sensitivity associated with anxiety, (b) To what extent do problem-solving skills moderate the relationship between adolescent rejection sensitivity and anxiety, and (c) To what extent does gender moderate the relationship between adolescent rejection sensitivity and anxiety? For each research question, the relations were examined for both anxious rejection sensitivity and angry rejection sensitivity.

A review of the literature on the concepts of adolescent rejection sensitivity, anxiety, problem-solving skills (confidence, approach-avoidance style, and personal control), and gender generated corresponding hypotheses for each of the research questions. The first hypothesis corresponded to the first research question: Adolescent rejection sensitivity will be positively correlated to greater anxiety. The second hypothesis corresponded to the second research question: Problem-solving skills will moderate the relationship between adolescent rejection sensitivity and anxiety such that the association is weaker for adolescents with adaptive problem-solving skills than adolescents with poorer problem-solving skills. This hypothesis considers that each of the constructs of problem-solving skills (confidence, approach-avoidance style, and personal control) will weaken the relationship for those with adaptive skills. The third hypothesis corresponded to the third research question: Gender will moderate the relationship

between adolescent rejection sensitivity and anxiety such that the relationship is stronger for girls than boys.

Chapter 4 includes an expansion and descriptions of the data collection for the data set collected by Rose in 2007 and 2009. In this chapter, demographics, characteristics, and descriptive statistics are presented. In addition, I report appropriate statistical analyses and findings in testing the three hypotheses.

Data Collection

Data were collected across a period between 2007 and 2009 by Rose wherein participants completed questionnaires (demographics, CRSQ, CMAS-R, PSI-AV). As described in Chapter 3, adolescents who attended the local public school were randomly chosen for the study from the school-provided roster. Letters were mailed to families inviting 1,771 children to participate. The final sample included 642 adolescents, with 330 girls and 312 boys. A power analysis, also described in Chapter 3, indicated that the sample size is large enough to detect small effect sizes.

Results

Internal Reliability and Psychometric Properties of Measures

The CRSQ was reviewed for reliability and showed consistency in assessing self-reported measurements of social cognition for anxious and angry rejection expectations. The CMAS-R was reviewed for reliability and demonstrated consistency in measuring feelings or actions of aspects of anxiety. Finally, subscales of the PSI-AV (confidence, approach-avoidance style, personal control) were reviewed for reliability and

demonstrated good internal consistency. Table 1 provides Cronbach's α for each measure with all measures indicating good internal reliability (at or greater than .80).

Table 1

Cronbach's α

Measure	Cronbach's *α*
CRSQ (Downey et al., 1998)	
Anxious rejection expectation	.82
Angry rejection expectation	.79
CMAS-R (Reynolds & Richmond, 1978)	.93
PSI-AV (Heppner & Peterson, 1982)	
Confidence	.85
Approach-avoidance style	.87
Personal control	.85

Descriptive Statistics

Table 2 shows the demographic characteristics of the 642 participants. The percentage of girls and boys and racial and ethnic groups are mostly consistent with the area from where they were recruited (Census Reporter, 2021). Three exceptions are noteworthy; the sample included a higher percentage of African American participants and lower percentage of both Asian American and Latino/a participants when compared to the larger area.

Table 2

Characteristics of Sample

Characteristic	%
Grade	
Seventh	50.15
10th	49.85
Gender	
Female	51.40
Male	48.60
Race	
European American	62.76
African American	29.21
American Indian	< 2.0
Pacific Islander	< 2.0
Asian American	< 2.0
More than one race	5.78
Ethnicity	
Latino/a	3.73
Not Latino/a	96.27

Table 3 displays the means, standard deviations, and ranges for the variables. For the rejection sensitivity variables, the mean score for both anxious and angry rejection expectations were well below the midpoint of the range for the point scales. For anxiety, the mean score was somewhat below the midpoint of the 5-point scale. For the problem-solving variables of confidence, approach-avoidance style, and personal control, all were above the midpoint range of the point scales.

Table 3

Means, Standard Deviations, and Ranges of Variables

Variable	*Range*	*Minimum*	*Maximum*	*Mean*	*Standard deviation*
Rejection sensitivity					
Anxious expectations	35.00	1.00	36.00	8.09	4.56
Angry expectations	35.00	1.00	36.00	6.56	3.97
Anxiety	3.44	1.00	4.44	2.09	.66
Problem-Solving					
Confidence	5.00	.00	5.00	3.39	.76
Approach-Avoidance style	4.67	.25	4.92	3.12	.68
Personal control	4.00	1.00	5.00	3.34	1.10

Table 4 displays the correlations of the moderating variables with rejection sensitivity and anxiety. The problem-solving variables of confidence and personal control were both significantly negatively correlated with anxious rejection expectations, angry rejection expectations, and anxiety. A significant negative correlation for approach-avoidance style was found only with angry rejection expectations. Gender was found to have a significant negative correlation with anxious rejection expectations and anxiety such that both anxious rejection expectations and anxiety were lower for boys.

Table 4

Correlations Between Problem-Solving Skills, Gender, Rejection Sensitivity, and Anxiety

	Anxious rejection sensitivity	Angry rejection sensitivity	Anxiety
Problem-Solving			
Confidence	$-.30^{***}$	$-.31^{***}$	$-.29^{***}$
Approach-Avoidance style	-.02	$-.09^{*}$	-.03
Personal control	$-.17^{***}$	$-.17^{***}$	$-.39^{***}$
Gender	$-.17^{***}$	-.01	$-.22^{***}$

$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$

Research Questions and Hypotheses

Rejection Sensitivity and Anxiety

RQ1: To what extent is adolescent rejection sensitivity (anxious and angry rejection expectations) associated with anxiety?

$H_0$1: Adolescent rejection sensitivity (anxious and angry rejection expectations) measured by the Children's Rejection Sensitivity Questionnaire (CRSQ; Downey et. al., 1998) is not correlated to anxiety measured by the Children's Manifest Anxiety Scale-Revised (CMAS-R; Reynolds & Richmond, 1978).

H_a1: Adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ positively is correlated to greater anxiety as measured by the CMAS-R.

Pearson's correlation analyses were performed to analyze the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R. A correlation analysis was performed for anxious rejection expectations and angry rejection expectations with anxiety. Statistical significance was set at $p < .05$. There was a moderate positive relationship between anxious rejection expectations and anxiety, $r = .41$, $n = 639$, $p < .001$, with higher levels of anxious rejection expectations associated with higher levels of anxiety. Anxious rejection expectations explained 16.4% of the variance in respondents scores of anxiety scales. There was also a moderate positive relationship between angry rejection expectations and anxiety, $r = .36$, $n = 639$, $p < .001$, with higher levels of angry rejection expectations associated with higher levels of anxiety. Angry rejection

expectations explained 12.8% of the variance in respondents scores of anxieties. Therefore, both anxious and angry rejection expectations had a positive correlation with anxiety in that those adolescents with higher levels of rejection sensitivity have higher symptoms of anxiety.

Problem-Solving Skills as a Moderator

RQ2: To what extent do problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) and anxiety?

$H_0$2: Problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) measured by the Problem-Solving Inventory-Adolescent Version (PSI-AV; Heppner & Petersen, 1982) do not moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R.

H_a2: Problem-solving skills (i.e., confidence, approach-avoidance style, and personal control) measured by the PSI-AV moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R such that the association is weaker for adolescents with adaptive problem-solving skills than adolescents with poorer problem-solving skills.

To answer RQ2, regression analyses were performed for each variable assessing problem-solving skills (confidence, approach-avoidance style, and personal control) and specifically, whether each of the problem-solving variables moderated the relationships

of anxious rejection expectations and angry rejection expectations with anxiety. This resulted in a total of 6 separate tests. Tables 5-7 present the β, t, and p values for each of these tests.

The main effects of rejection sensitivity and the problem-solving variables are presented in the tables; however, the effects of primary interest were the interactions. The interactions between anxious and angry rejection sensitivity and an approach-avoidance problem-solving style were not significant predictors of anxiety. The interactions of personal control with anxious rejection sensitivity and with angry rejection sensitivity also were not significant. The interaction between confidence and anxious rejection sensitivity was not a significant predictor of anxiety; however, the p value for the interaction between confidence and angry rejection sensitivity was exactly .05. Given that the effect was so close to the specified p value, the interaction was further probed. Still, the results of this analysis should be interpreted with caution.

Simple slope analyses were performed to further test the interactions of both high and low problem-solving confidence abilities on the relationship between angry rejection sensitivity and anxiety. The effect for those who reported high levels of problem-solving confidence (+1 *SD*) was significant, $\beta = .39$, $t = 6.28$, $p < .001$. Although weaker, the effect for those who reported low levels of problem-solving confidence (-1 *SD*) was also significant, $\beta = .25$, $t = 5.89$, $p < .001$. This finding was unexpected in that the relation between rejection sensitivity and anxiety was expected to be stronger for adolescents who had low levels of problem-solving confidence. However, the figure depicting the interaction helps to explain the effect.

Figure 1 presents the graph of the relations between angry rejection sensitivity at +1 *SD* and -1 *SD* and anxiety for those who are low on problem-solving confidence abilities and for those who are high on problem-solving confidence abilities. As can be seen, the interaction is driven by the especially low levels of anxiety among adolescents who have low levels of rejection sensitivity and high levels of problem-solving confidence.

Table 5

Summary of Regression Analyses Examining Confidence as a Moderator of Relationships Between Rejection Sensitivity and Anxiety

	Anxious RS			Angry RS		
	DV = Anxiety			DV = Anxiety		
	β	*t*	*p*	*B*	*t*	*p*
RS	.22	1.55	.122	.01	.10	.92
Confidence	-.24	-3.58	<.001	-.31	-4.65	<.001
RS x Conf	.13	.98	.328	.28	1.96	.05*

*p =.05 of interaction variable

Table 6

Summary of Regression Analyses Examining Approach-Avoidance Style as a Moderator of Relationships Between Rejection Sensitivity and Anxiety

	Anxious RS			Angry RS		
	DV = Anxiety			DV = Anxiety		
	β	*t*	*P*	*β*	*t*	*p*
RS	.53	3.00	.003	.36	1.86	.06
App Style	.03	.35	.728	.01	.09	.93
RS x App Style	-.14	-.73	.468	-.00	-.03	.98

Table 7

Summary of Regression Analyses Examining Personal Control as a Moderator of Relationships Between Rejection Sensitivity and Anxiety

	Anxious RS DV = Anxiety			Angry RS DV = Anxiety		
	β	*t*	*p*	*B*	*t*	*p*
RS	.49	4.70	<.001	.36	3.30	.001
Control	-.24	-3.43	<.001	-.30	-4.37	<.001
RS x Control	-.17	-1.51	.130	-.07	-.62	.54

Figure 1

Angry Rejection Sensitivity and Anxiety by Confidence

Gender as a Moderator

RQ3: To what extent does gender moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) and anxiety?

$H_0$3: Gender does not moderate the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R.

H_a3: Gender moderates the relationship between adolescent rejection sensitivity (anxious and angry rejection expectations) as measured by the CRSQ and anxiety as measured by the CMAS-R such that the association is stronger for girls over boys.

To answer RQ3, regression analyses were performed for the variable assessing gender (girls and boys) and specifically, whether the gender variable moderated the relationships of anxious rejection expectations and angry rejection expectations with anxiety. This resulted in a total of 2 separate tests. Table 8 presents the β, t, and p values for these tests. The interaction between gender and anxious rejection expectations was significant. The interaction between gender and angry rejection expectations was also significant such that the relationships were weaker for boys in comparison to girls.

Correlation analyses were used to further probe the relationships between rejection sensitivities and anxiety for girls and boys. Anxious rejection sensitivity and anxiety for girls was positive, r = .44, while for boys, although still positive, it was lower, r = .31. The relationships between angry rejection sensitivity and anxiety were similar, as for girls, r = .41 while for boys, it was, again, lower, r = .32. Figures 2 and 3 present the graphs of the relations between rejection sensitivity expectations at +1 *SD* and -1 *SD* and

anxiety for girls and boys. As can be seen for both forms of rejection sensitivity, the interactions are driven by the higher levels of anxiety for girls who have higher levels of rejection sensitivity.

Table 8

Summary of Regression Analyses Examining Gender as a Moderator of Relationships Between Rejection Sensitivity and Anxiety

	Anxious RS			Angry RS		
	DV = Anxiety			DV = Anxiety		
	B	*t*	*P*	*β*	*t*	*p*
RS	.44	9.15	<.001	.43	8.40	<.001
Gender	-.03	-.43	.666	-.10	-1.44	.150
RS x Gender	-.15	-1.97	.049*	-.15	-1.98	.048*

*$p < .05$ of interaction variable

Figure 2

Anxious Rejection Sensitivity and Anxiety by Gender

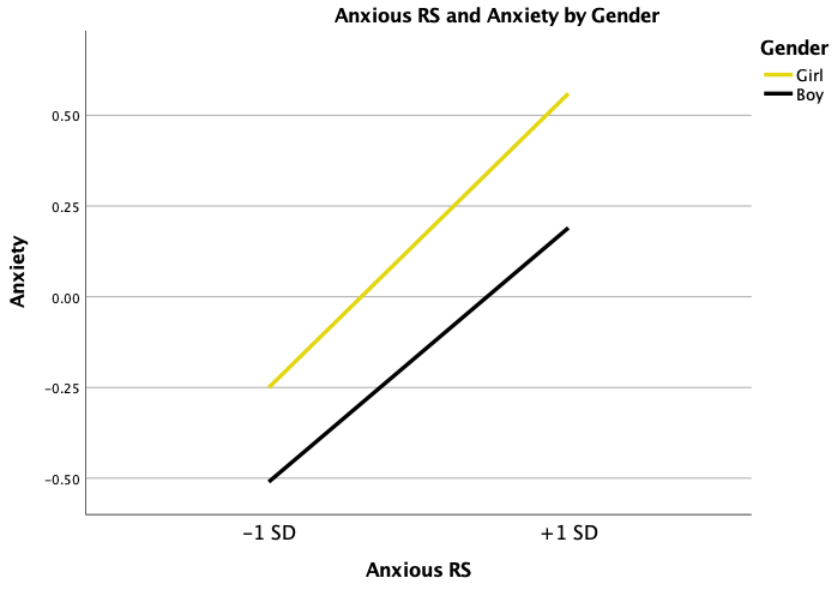
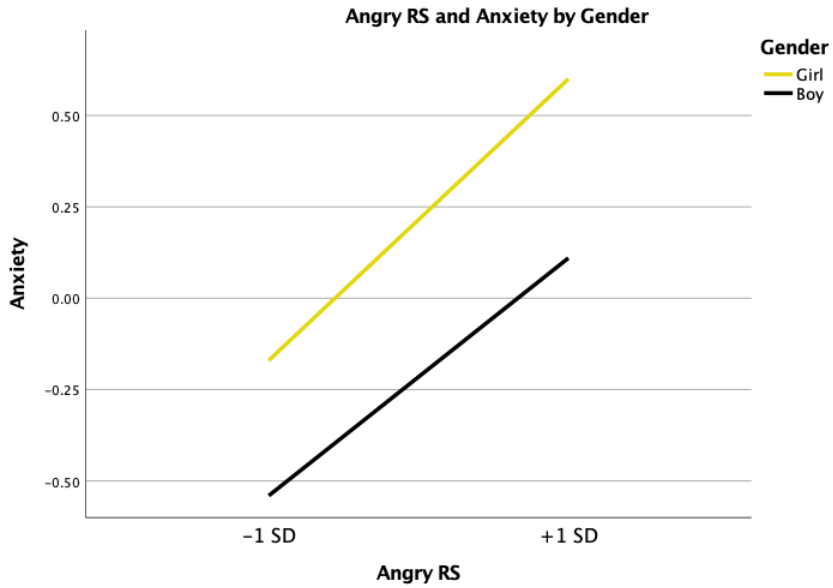


Figure 3

Angry Rejection Sensitivity and Anxiety by Gender



Summary

This study involved examining relations between adolescent rejection sensitivity and anxiety and testing if they were moderated by problem-solving skills and gender. I analyzed data that were collected by Rose in 2007 and 2009. Adolescents responded to demographic questions as well as the CRSQ (Downey et al., 1998), CMAS-R (Reynolds & Richmond, 1978), and PSI-AV (Heppner & Peterson, 1982).

Rejection sensitivity was examined as two independent components of anxious and angry rejection expectations. There were significant positive relationships between both anxious and angry rejection expectations and anxiety. The effects of problem-solving skills on relations between rejection sensitivity and anxiety were measured as three separate variables of confidence, approach-avoidance style, and personal control.

Only the effect of confidence showed near statistical significance between angry rejection expectations and anxiety such that the relationship was weakened for adolescents with higher problem-solving confidence abilities. The effect was most predominate in especially low anxiety scores for those adolescents with high problem-solving confidence and low angry rejection sensitivity. The effect for approach-avoidance style and personal control on the relationships as well as the effect for confidence on anxious rejection sensitivity, were not statistically significant. The effect of gender was statistically significant on the relations between both anxious and angry rejection expectations such that the relationships were stronger for girls in comparison to boys.

Through analysis and interpretations within the context of the theoretical frameworks of this study, Chapter 5 includes information about ways in which these findings extend knowledge regarding relations between adolescent rejection sensitivity and anxiety. Limitations of the study are also discussed as well as recommendations for future research. Finally, implications for positive social change are discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

In this study, I examined the relations between each of the components of rejection sensitivity (anxious rejection expectations and angry rejection expectations) and anxiety. Further, I examined if the relationship changed when moderated by the variables of problem-solving skills (confidence, approach-avoidance style, and personal control), an indicator of resiliency, and gender. Among adolescents, anxiety symptoms can lead to developing an anxiety disorder and contribute to their reduced wellbeing (de la Torre-Luque et al., 2020). Therefore, it is important to know more about the variables that may help predict those who may be at greater risk for anxiety symptoms so that interventions can help reduce anxiety levels for these adolescents.

Correlation analyses were performed to test whether anxious and angry rejection expectations were each associated with anxiety. As expected, higher levels of both anxious rejection expectations and angry rejection expectations predicted higher levels of anxiety. Regression moderation analyses were performed to test whether problem-solving skills (confidence, approach-avoidance style, and personal control) and gender changed the nature of this relationship. Confidence was the only marginally significant problem-solving variable to impact the relationship between angry rejection expectations and anxiety such that it weakened the relationship for those with more adaptive problem-solving confidence. Driving this effect were the particularly low levels of anxiety for adolescents with high problem-solving confidence skills and low angry rejection expectations. However, the interaction effect of confidence on the relationship between angry rejection sensitivity and anxiety remained positive. Finally, gender was found to

weaken the relationship between both anxious and angry rejection expectations and anxiety such that the relationship was weaker for boys over girls or, as predicted, stronger for girls than it was for boys.

Interpretation of the Findings

In this study, I hypothesized that, among adolescents, higher levels of rejection sensitivity were positively related with higher levels of anxiety, and this relationship would be weakened by adaptive problem-solving skills and stronger for girls compared to boys. My interpretations of the findings are presented within the context of what has been found in the literature review as previously described in Chapter 2 as well as within the scope of the theoretical frameworks of the rejection sensitive model (RSM) and resilience theory. These findings extend knowledge about the relations between rejection sensitivity and anxiety and how this relationship is impacted by problem-solving skills and gender.

Rejection Sensitivity Model

The RSM serves as an explanation for differences in children's maladjusted reactions to rejection as the model considers rejection sensitivity to be a hypersensitivity to rejection cues that are manifested as anxious or angry rejection expectations (Downey et al., 1998; London et al., 2007). Research shows that rejection sensitivity can contribute to emotional and behavioral difficulties for children (Gardner & Zimmer-Gembeck, 2018). Accordingly, this study found that both components of rejection sensitivity (anxious and angry rejection expectations) correlated to increased feelings of anxiety. In addition, this study is consistent in nature with research from Kraines and Wells (2017) which considered that problem-solving deficits possibly contributed to the relationship

between rejection sensitivity and depression. Therefore, these findings were congruent with prior research within the framework of the RSM.

Resilience Theory

Resilience theory focuses on reducing risk that is associated with adversity. The theory considers that the adversity is not the primary concern but rather how an individual copes with it. Resilience theory helps explain differences in outcomes for those who are at-risk. Those who demonstrate more adaptive coping strategies, such as problem-solving capabilities, can have more adaptive outcomes (Garmezy, 1993; Smith et al., 2016; Yoo, 2021). Research from Preti et al. (2020) found that coping abilities differed amongst adolescents with rejection sensitivity. With marginally significant results, the findings of this study are consistent with resilience theory research related to mitigating risk and maladaptive outcomes, such as anxiety.

Rejection Sensitivity and Anxiety

For adolescents, both anxious and angry rejection expectations were found to have a positive relationship with anxiety. As rejection sensitivity considers the valid internalization of feelings of rejection for both overt and perceived rejection, the results are congruent with the research of Godleski et al. (2019) in showing a positive association between heightened feelings of rejection expectations with heightened feelings of emotional distress. In the present study, anxiety was likened to emotional distress. The positive association was just slightly stronger between anxious rejection expectations and anxiety in comparison to angry rejection expectations and anxiety. This may be because although the cognition (expectation) of rejection is similar for each

variable, the internalized emotions differ such that anxious expectations are associated with social withdrawal while angry expectations are associated with aggression (Croft & Zimmer-Gembeck, 2014). However, the associations were so similar that the results of this study support the hypothesis that rejection sensitivity, among adolescents, is positively associated with anxiety.

The findings in the present study mean that adolescents who are characterized with rejection sensitivity will also be more likely to have higher levels of anxiety. This is consistent with research about adolescent anxiety in that feelings of being accepted or included can trigger feelings of anxiety (O'Connor et al., 2022). In addition, research showed that sustained heightened feelings of anxiety were associated with a lesser wellbeing for adolescents (De France & Hollenstein, 2019; Spielberg et al., 2019). These findings expand the research about rejection sensitivity in showing that adolescents with higher feelings of rejection sensitivity, in comparison to those with lower levels, are potentially, therefore, also at an increased risk for a lesser wellbeing.

Moderating Effects of Problem-Solving Skills

In this study, I considered the role of the three constructs of problem-solving skills (confidence, approach-avoidance style, and personal control) as moderators of the associations between rejection sensitivity (anxious and angry rejection expectations) and anxiety. The expectation for this study was that each of the problem-solving variables of confidence, approach-avoidance style, and personal control would moderate the association between rejection sensitivity (either anxious or angry expectations) and anxiety such that the relationship would be weakened for adolescents with more adaptive

problem-solving skills. This hypothesis was based in part on research indicating that problem-solving capabilities contribute to individual resilience, which, in turn, can protect adolescents from anxiety.

The research of Finklestein et al. (2020) considered problem-solving skills as an indicator of resilience and explored the association between individual resilience and anxiety, revealing that individual resilience was negatively associated with anxiety for adolescents. A primary difference between the Finklestein et al. (2020) and the current study, however, is that the former study considered a sample of adolescents who lived in an area where they had consistently experienced security threats.

Lennarz et al. (2019) also showed that problem-solving was an emotion regulation strategy that demonstrated success in down-regulating negative emotions for adolescents. However, the study did not specifically consider the effects of problem-solving skills in down-regulating anxiety.

Finally, Abdollahi et al. (2018) showed that lower abilities of problem-solving confidence, approach-avoidance style, and personal control resulted in more perceived stress. However, Abdollahi's study significantly differed from the current study in that the sample consisted of undergraduate students rather than adolescents.

Of the six regression analyses testing problem-solving skills as a moderator, only problem-solving confidence was shown to have marginal significance in changing the association between angry rejection sensitivity and anxiety. Of importance is that although the effect of confidence weakened the relationship between angry rejection sensitivity and anxiety for adolescents who reported high levels of problem-solving

confidence as compared to adolescents who reported low levels of problem-solving confidence, it did not weaken the relationship such that it became non-significant or negative. The present study results are consistent with the Volkaert et al. (2020) study in that the effects of problem-solving skills, although beneficial to adolescent emotion regulation strategies, were not able to outperform the negative affect of reduced emotion regulation capabilities.

In this study, I also expected angry rejection sensitivity to be related to anxiety more strongly for adolescents who had lower problem-solving confidence. Yet, the stronger association was between angry rejection sensitivity and anxiety levels such that anxiety levels were especially low for those who were high on problem-solving confidence and low on angry rejection sensitivity. Still, it is important to note that the effect of confidence was only marginally significant for angry expectations and anxiety, and this interpretation should be taken within this context. The results of the present study contribute to and expand the knowledge about how problem-solving confidence effects anxiety for adolescents who are characterized with higher levels of angry rejection expectations.

Moderating Effects of Gender

The present study extended the knowledge of adolescent rejection sensitivity by identifying a moderating effect of gender on the association between rejection sensitivity and anxiety. These results were expected as Zimmer-Gembeck et al. (2021) showed that adolescent girls, in comparison to boys, were associated with higher symptoms of both

rejection sensitivity and anxiety. As expected, the effect was driven by especially high levels of anxiety for girls with higher levels of rejection sensitivity.

The effect of gender on anxiety was nearly the same for both anxious and angry rejection sensitivity such that both forms of rejection sensitivity were related to anxiety more strongly for girls in comparison to boys. These findings were somewhat unexpected as Zimmer-Gembeck and Nesdale (2013) showed that there were differences in emotional and behavioral responses to ambiguous anxious (withdrawal) and angry (retribution) rejection expectations. Further, Hawes et al. (2020) showed that there were gender differences between appearance-related rejection sensitivity and social anxiety. Therefore, I expected that the effect of gender on the relationship between rejection sensitivity and anxiety might have varied between rejection expectation. Still, the results of the present study expand the knowledge about how gender is associated with risk for anxiety for adolescents characterized with rejection sensitivity.

Limitations of the Study

There were several limitations of this study. The use of data previously collected between the years of 2007 and 2009 presented two limitations. The first was that the time frame of the data collection may impact the generalizability of the results to adolescents of the current time. Although the data were collected on variables that assess feelings associated with deep structure emotions such as anger and anxiety (Touroutoglou et al., 2015), world or cultural circumstances can impact the associated levels of these emotions within a population. For example, the impact of a multi-years long pandemic on anxiety

levels of adolescents was not considered in this dataset and is a potential limitation in generalizing these results to a current population.

The use of archival data also meant that, as a researcher, I did not have the ability to control data collection oversight or give input regarding the sample. Oversight of data collection includes obtaining appropriate consent and assent forms. In addition, the sample used for this study included an oversampling of African American students. Race differences were considered beyond the scope of this study, and, therefore, not examined. The oversampling of African American students of the original study could potentially limit the generalizability of the results of the present study.

The third limitation of this study was a binary approach to gender. Current research acknowledges that an appropriate definition of gender also considers a non-binary male or female label as gender is also an identity concept (Colineaux et al., 2022). This concept of gender was not considered in the present study and could also potentially limit the generalizability of the results.

Recommendations

In this study, rejection sensitivity was associated with higher levels of anxiety. However, the strength of this association was only marginally changed for the variable of problem-solving confidence. Further, this effect was only on the relationship between angry rejection expectations and anxiety. Future studies could explore the impact of problem-solving skills on the relationship between rejection sensitivity and anxiety more effectively. For example, reduced in-person academic and social experiences created by the COVID-19 pandemic may have contributed to increases in the prevalence of on-line

socialization. Social media engagement often involves appearance comparisons and possible rejection evaluations. These evaluations can potentially increase the risk for developing or enhancing rejection sensitivity as well as anxiety and could be further explored with an adolescent sample from a post-pandemic population. In addition, future research could consider studying different age groups (young adults) or adolescents from varying educational institutions (private schools) or academic achievements (honors classes) as this could provide more information about the impact of problem-solving skills on anxiety levels for those characterized with rejection sensitivity.

In this study, girls were associated with higher levels of both rejection sensitivity and anxiety. Further, the positive association between rejection sensitivity and anxiety was strengthened for girls. Future research on rejection sensitivity and anxiety with samples that include a non-binary male or female label, could provide additional insight about the effect of gender. Finally, to improve the generalizability of the results of this study, future studies could also include larger and more racially, ethnically, and gender diverse samples.

Implications

This study examined the risk of anxiety for adolescents characterized with rejection sensitivity with the intent to promote social change by considering how problem-solving abilities could potentially mitigate anxiety levels. There are a variety of stakeholders for promoting social change with this knowledge. As rejection sensitivity was positively associated with anxiety, interventions that focus on improving problem-solving confidence capabilities may be especially beneficial in mitigating anxiety when

targeted at adolescent girls who are characterized with rejection sensitivity. Improved understanding of the heterogeneity of anxiety symptoms can potentially improve long-term outcomes for these at-risk adolescents (Shen & Wang, 2023). Lower anxiety levels can also potentially lead to improved academic and social outcomes for girls. Further, mitigating anxiety levels for adolescents characterized with rejection sensitivity can potentially lead to better social and emotional trajectories as young adults. In addition, an indirect benefit of reducing anxiety for rejection sensitive adolescents is in contributing to better-functioning family structures.

The present study also has positive implications for academic institutions. Academic administrators could adapt professional development policies to include enhancing student problem-solving capabilities. Teaching adaptable problem-solving skills to students is both cost-efficient and effective in potentially reducing anxiety levels for adolescents characterized with rejection sensitivity. An indirect benefit of this type of school-centered intervention may be that anxiety levels are mitigated for students who are not yet known to be characterized with rejection sensitivity.

Mitigating anxiety levels for adolescents characterized with rejection sensitivity can also improve mental health outcomes for their future. Specifically, targeting interventions toward adolescent development, potentially lowers future emotional health care needs and costs. This study was not designed to directly consider the role of parents in influencing anxiety levels of children (Peris et al., 2021). However, through the lens of the rejection sensitivity model, reducing anxiety levels for rejection sensitive adolescents could also have indirect positive implications for their future children.

Conclusion

This study considered that adolescents who experience higher levels of rejection sensitivity have the potential for more negative social and emotional outcomes. Through quantitative analyses, this study revealed that adolescents who are characterized with higher levels of rejection sensitivity are associated with higher levels of anxiety. Moreso, the present study also showed that girls characterized with rejection sensitivity, in comparison to boys, are associated with even more risk for anxiety. Likewise, this study also considered that resilience, indicated by problem-solving skills, could potentially mitigate the level of anxiety experienced by adolescents with rejection sensitivities. Although with marginal significance, adaptive problem-solving confidence can be considered an indicator of resilience that could have potential in reducing anxiety levels for this at-risk population.

Real-world applications of this study include incorporating problem-solving skills into academic curriculums. This study revealed that adolescent girls with rejection sensitivity, in comparison to boys, are associated with greater risk for higher levels of anxiety symptoms. Interventions, such as improving problem-solving skills for this vulnerable population, should continue to be explored. For example, in considering ways to improve the problem-solving confidence skills of adolescents, teachers could promote that problems could be viewed as opportunities for learning and growth rather than as challenges for inducing anxiety. Further, targeting these skills to girls could impact those who are associated with the greatest risk. Ultimately, reducing anxiety levels for adolescent girls with rejection sensitivities could be beneficial to their wellbeing and,

perhaps, lead to improved social and emotional outcomes throughout the rest of their lives.

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Appendix: CITI Training Certificate

CITI PROGRAM

Completion Date 07-Mar-2023
Expiration Date N/A
Record ID 54785543

This is to certify that:

Kathleen Naumann

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University

CITI
Collaborative Institutional Training Initiative

101 NE 3rd Avenue, Suite 320
Fort Lauderdale, FL 33301 US
www.citiprogram.org

Verify at www.citiprogram.org/verify/?wfaddf6e3-5447-4340-8bd3-ff6a541d6b3f-54785543