Prospective Associations of Specific Coping Behaviors with Depression and Suicide Risk among Psychiatric Emergency Patients

by

Adam Gabriel Horwitz

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Psychology)
in the University of Michigan
2017

Doctoral Committee:

Professor Cheryl A. King, Chair
Professor Edward C. Chang
Professor Joseph A. Himle
Professor Sheryl L. Olson

ACKNOWLEDGEMENTS

The completion of this dissertation would not have been possible without the contributions and support of countless individuals over many years. I would like to formally thank Ewa Czyz and Johnny Berona for working with me as co-investigators on the broader ED-Mood and Coping Study (ED-MACS), which was the basis for this dissertation project. Thank you both for being excellent colleagues during my 6 years of graduate school and I look forward to continued collaborations. I would also like to thank Alejandra Arango and Yasmin Cole-Lewis for collaborating on the ED-MACS project, as well as Kiel Opperman and Rebecca Lindsay for their administrative assistance. I would like to thank our full team of research assistants for the ED-MACS project who assisted with recruitment, data collection, and scheduling follow up interviews. I would like to thank the members of the Youth Depression and Suicide Prevention team, who have always provided great feedback and inspired new ideas. I would like to thank my friends and family for their loving support and encouragement, particularly my wife Sheri for tolerating all that is involved with being married to a graduate student, and my son Benjamin, for taking occasional naps so that I could conduct literature views for my introduction. Thank you to my dissertation committee members, Sheryl Olson, Edward Chang, and Joe Himle, for reviewing drafts, attending meetings, and helping me improve my dissertation project. Finally, I must thank Cheryl King, my dissertation chair, faculty advisor, mentor, role model, and friend. I have learned so much from you during our time together and am so grateful that you decided to say 'yes' to that e-mail in December 2008 from a random Junior psychology undergrad interested in meeting with you to discuss a potential honors thesis project. Haven't looked back since!

TABLE OF CONTENTS

LIST OF TABLES

TABLE

LIST OF FIGURES

FIGURE

ABSTRACT

Suicide is currently the second leading cause of death for adolescents and young adults ages 13-25 in the United States. Many risk factors for suicide have been identified in community and clinical samples, and there are many potential pathways and combinations of risk factors that may result in suicidal thoughts or behaviors. Although risk factors for suicide are often moderated by demographic factors such as age and sex, interventions with suicidal populations are not typically tailored to account for these differences. Coping refers to cognitive and behavioral efforts to manage stress and has been examined in relation to suicide risk. However, research on longitudinal relationships between coping and suicide risk is limited and has not included high risk clinical samples. The aims of this dissertation project are to 1) identify the cross-sectional and longitudinal associations of coping styles with suicide risk in a high risk sample of adolescents and young adults, and 2) examine how these associations may be moderated by sex and age. Participants were 286 adolescents and emerging adults, ages 13-25, recruited from a psychiatric emergency department in the Midwestern United States and completed measures of depression, suicidal ideation/behaviors, and coping. Participants were 77% Caucasian and 59% female. 4-month telephone follow-ups were completed by 79% of participants, and included an assessment of interim suicidal thoughts and behaviors. Linear and logistic regressions examined the relationships between coping styles with depression, suicidal thoughts, and suicidal behaviors. Positive reframing was the coping style most consistently associated with positive outcomes, whereas self-blame and disengagement were the coping styles most consistently associated with negative outcomes. In moderator analyses, problem-solving

coping styles (i.e., active coping, planning) were protective of suicide attempts and behaviors for males, but conveyed risk for females. Additionally, planning was protective of suicidal behaviors for younger participants, but conveyed risk for older participants. Findings suggest an intervention focused on increasing positive reframing and subsequently reducing self-blame may be particularly beneficial for suicidal patients. These findings also highlight the need to tailor interventions, particularly those with a coping emphasis, to account for developmental and sex-related differences in coping.

CHAPTER I

Introduction

Suicide Prevalence and Definitions

Suicide is defined as death from an act of self-inflicted injury that occurs with at least some intent/expectation to die (Silverman, Berman, Sanddal, O'Carroll, & Joiner, 2007). Suicide is currently the 2nd leading cause of death for adolescents and young adults ages 13-25, accounting for nearly 6,000 deaths in the United States in 2013 (Centers for Disease Control and Prevention (CDC), 2016). The rate of suicide in this age group has steadily increased by 18% from 2007 to 2013, moving from a crude rate of 8.65 per 100,000 in 2007 to a crude rate of 10.20 per 100,000 in 2013 (CDC, 2016).

In addition to the tragedy of suicide and the devastating social impact suicide can have on families and communities, there are significant social and economic costs associated with non-fatal suicide attempts, suicidal ideation, and non-suicidal self-injury. Non-fatal suicide attempts are defined as acts of self-inflicted injury, done with at least some intent/expectation to die, yet not resulting in death; suicidal ideation refers to a wide range of thoughts about suicide (e.g., passive, active, persistent) and can occur with or without intent to act on those thoughts; non-suicidal self-injury refers to self-inflicted injury (e.g., cutting, burning) done without any intent/expectation to die as a result of the act (Silverman et al., 2007).

A nationally representative survey of United States high school students indicated that in the past year 17.0% had serious thoughts of suicide, 13.6% had made a suicide plan, 8.0% had made a suicide attempt, and 2.7% made a suicide attempt requiring medical treatment (CDC,

2014). Lifetime prevalence of non-suicidal self-injury has been found to be approximately 13.0-23.2% (Jacobson & Gould, 2007). Although the rates of suicidal ideation and suicide attempts begin to decline following the late-teens, mortality rates for suicide are higher for those between ages 20-25 (13.8 per 100,000) than those ages 13-19 (6.9 per 100,000; CDC, 2016), and young adults continue to have higher rates of suicidal thoughts and attempts than middle-aged and older adults (SAMHSA, 2012). Despite these elevated rates, only .01% (10.20 per 100,000) of individuals in this 13-25 age group die by suicide in a given year, making death by suicide a relatively rare event that is very difficult to predict.

Suicide Costs

The economic costs of suicide deaths, suicide attempts, suicidal thoughts, and non-suicidal self-injury for adolescents and young adults ages 13-25 are substantial. When combining medical and work-loss costs of suicide deaths, suicides in this age group are associated with 9.98 billion dollars in costs, based on data from 2010 (CDC, 2016). Additionally, in any given year, hospitalizations from self-harm, regardless of intent to die, were associated with over 1 billion dollars of direct medical costs and another 2 billion dollars in work-loss. Emergency department visits for self-harm accounts for an additional 200 million in annual direct medical costs (CDC, 2016). In addition to costs associated with self-harm behaviors, there are also substantial health care burdens associated with depression and suicidal ideation in the form of ED visits and psychiatric hospitalizations (e.g., Sun, Abraham, Slack, & Skrepnek, 2014).

Treatment decisions for those seeking emergency services for suicidal thoughts or behaviors are complicated by a massive reduction in psychiatric beds in United States hospitals, dropping from 264 beds per 100,000 individuals in 1970 to 73 beds per 100,000 individuals in 2002 (Foley et al., 2006). The steepest decline in psychiatric beds has occurred in publicly

funded hospitals, resulting in fewer beds for economically disadvantaged individuals who may not have adequate health insurance coverage. It has been suggested that declines in available public hospital beds are associated with increases in suicide (Yoon & Bruckner, 2009), though increases in community mental health services were found to buffer this effect. However, a review by Bridge and colleagues (2006) did not find evidence suggesting psychiatric hospitalization was effective for reducing suicide risk. Taken together, there is mixed evidence as to the effectiveness of psychiatric hospitalization as an intervention. Furthermore, it is unclear what aspects of psychiatric hospitalization may or may not be influential of minimizing suicide risk. Additional research utilizing high-risk patients may help to identify target areas to be addressed in treatments provided during inpatient hospitalizations.

Suicide Risk and Protective Factors

Past Suicidal Thoughts, Suicide Attempts, and Non-suicidal Self-injury. Suicidal ideation is a primary risk factor for adolescent suicide attempts (e.g., Lewinsohn, Rohde, & Seeley, 1994) and death by suicide (e.g., Brent, Perper, Moritz, Allman, et al., 1993). Furthermore, there is an incremental association between the severity of suicidal thoughts, characterized by the absence/presence of a method, plan, or intent to act, and risk for future suicide attempts (Horwitz, Czyz, & King, 2015). However, while the vast majority of suicide attempters experience suicidal ideation, most adolescents with suicidal ideation do not go on to make suicide attempts (e.g., King, Jiang, Czyz, & Kerr, 2014; Lewinsohn, Rohde, & Seeley, 1996). In addition to suicidal thoughts, self-injurious behaviors (both suicidal and non-suicidal) are associated with an increased risk for suicide. While those with intent to die during self-injury are more likely to sustain lethal injuries and die by suicide (e.g., Nock & Kessler, 2006), even adolescents with no suicidal intent during self-injury are at an increased risk for making suicide

attempts, particularly if the self-injury occurs over a long period of time and is done with a variety of methods (Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). However, the strongest behavioral indicator of a future suicide attempt is a previous suicide attempt (e.g., Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Lewinsohn et al., 1996). Furthermore, adolescents who have made multiple past attempts are significantly more likely to make a future attempt in comparison to adolescents with one past attempt or only suicidal ideation (e.g., Miranda et al., 2008). Of particular importance, suicide attempts in adolescence carry a long term risk. In a large longitudinal birth-cohort study, those who made a suicide attempt prior to age 18 were 18-times more likely to make a suicide attempt between the ages of 18-25 (Fergusson, Horwood, Ridder, & Beautrais, 2005).

Psychiatric Disorders. Psychological autopsy studies have indicated that approximately 80-90% of adolescents who die by suicide suffer from significant psychopathology (e.g., Brent, Perper, Moritz, Allman, et al., 1993). Many studies have identified mood disorders (e.g., major depressive disorder, bipolar disorder), disruptive disorders (e.g., attention deficit hyperactivity disorder, conduct disorder), substance use disorders, and anxiety disorders (e.g., generalized anxiety disorder, panic disorder) as psychiatric diagnoses associated with an increased risk of suicide attempts (e.g., Goldston et al., 2009; Lewinsohn et al., 1996; Nock & Kessler, 2006). Shaffer and colleagues (1996) conducted a case-control psychological autopsy study with the families of 120 adolescents who died by suicide and concluded that mood disorders alone, or in combination with conduct disorder or substance abuse, characterize the majority of adolescent suicides. Similarly, studies have found that the presence of more than one disorder is associated with an even greater risk for suicide attempts (e.g., Lewinsohn et al., 1996).

Hopelessness. Hopelessness is conceptualized as a set of cognitive schemas oriented toward negative views/expectations about the future (Beck, Weissman, Lester, & Trexler, 1974). Hopelessness has consistently been associated with and predictive of suicidal thoughts and behavior (e.g., Beck, Steer, Kovacs, & Garrison, 1985; Goldston et al., 2001). There are a number of empirical and theoretical papers that suggest hopelessness is the primary mechanism by which other risk factors progress to suicidal thoughts (e.g., Abramson et al., 1998; Gibb et al., 2001). For example, in the hopelessness theory of depression, hopelessness is the mechanism by which life stressors, in the presence of cognitive vulnerabilities, lead to depression and suicidal ideation (Abramson, Metalsky, & Alloy, 1989). Additionally, according to the Interpersonal Theory of Suicide (Joiner, 2005; Van Orden et al., 2010), passive suicidal ideation transitions to active suicidal intent only when someone becomes hopeless about their own sense of social connection.

Alcohol and Other Substance Abuse. Even without a psychiatric diagnosis of a substance use disorder, use of illegal substances is associated with an increased risk for suicidal behavior. In a longitudinal study, cannabis use in adolescence was associated with later suicidal ideation and suicide attempts, with users being 3 times more likely to attempt suicide than non-users (Pedersen, 2008). The use of alcohol in adolescence is also strongly associated with suicidal ideation and attempts. Swahn and Bossarte (2007) found that adolescents who endorsed alcohol use were more likely than non-drinking teens to report suicidal ideation or a suicide attempt. Additionally, in a study by Schilling and colleagues (2009), drinking alcohol while feeling down was associated with a significantly greater risk of a future suicide attempt among adolescents not reporting suicidal ideation in the past year. The negative consequences associated with alcohol use are both long-term (e.g., depressogenic effects, promotion of adverse

life events) and immediate, as active intoxication (e.g., negative affect, impaired thinking, reduced inhibition), can serve as a precipitating influence for a suicide attempt (Brady, 2006). Past studies have also indicated that the use of substances to cope with stress is associated with increased levels of suicidal ideation (e.g., Horwitz, Hill, & King, 2011).

Social Connectedness. Durkheim (1897) first studied the relationship between suicide and social connectedness with his social integration theory, stating that individuals who are more connected through social groups and structures are less likely to die by suicide. This theory has been built upon in the Interpersonal Theory of Suicide (Joiner, 2005; Van Orden et al., 2010), which states that the desire to die by suicide results from a combination of social isolation and feeling like a burden upon loved ones. Indeed, there has been substantial research on the impacts of social and interpersonal factors on suicidal ideation and behavior (for a review, see King & Merchant, 2008). Changes in connectedness have been prospectively associated with improved outcomes for suicide risk. For example, improvements in connectedness following psychiatric hospitalization have been associated with reductions in suicidal ideation (Czyz, Liu, & King, 2012). Therefore, while the lack of connectedness has been identified as a risk factor for suicide, improvements in this domain via increased connectedness may be a modifiable protective factor.

Coping Skills. The use of effective coping skills has also been identified as a significant protective factor against suicidal ideation and behavior. For example, Khurana and Romer (2012) found that the use of problem solving, emotional regulation, support seeking, and acceptance each independently predicted a reduction in suicidal ideation over a one year period. Furthermore, a study by Gould and colleagues (2004) indicated that high school students without serious suicidal thoughts or behavior were significantly more likely to endorse help-seeking coping and were less likely to endorse drugs and alcohol as coping strategies, in comparison to

students endorsing suicidal thoughts or behavior. A number of studies examining suicidal adolescents have indicated that the development of improved coping and problem-solving skills has resulted in a reduced risk for future suicidal thoughts (e.g., Piquet & Wagner, 2003; Rudd et al., 1996). Consistent with these findings, the use of maladaptive coping strategies, such as self-blame and avoidance, have been indicators of increased risk for suicidal thoughts (e.g., Horwitz et al., 2011). The modifiability of coping strategies, through appropriate social learning or modeling, and the effectiveness of some strategies in reducing risk for suicidal ideation and behavior, has made coping/problem-solving skills training a key component in a number of psychological interventions and therapies.

Challenges in Suicide Risk Factors. There has been a breadth of research identifying and understanding the risk factors associated with suicide risk, both in community and clinical samples. However, there is no linear cause and effect relationship between these risk factors and suicidal behavior, which is most evident when considering the many potential pathways and combinations of risk factors that may result in suicidal thoughts or behaviors. While the relationships between risk factors and suicidal thoughts and behaviors are consistent in retrospective study designs, prospective studies have indicated that these risk factors offer limited specificity for future suicidal behaviors (King, 1997). Another challenge within the literature on suicide is that there has been significant difficulty delineating the risks associated with suicidal ideation versus suicide attempts. While there are many common risk factors for suicidal ideation and suicide attempts (e.g., hopelessness, depression, interpersonal problems), the specificity of these predictors are complicated by the fact that the majority of individuals with suicidal thoughts do not attempt suicide. For instance, in a population-based study in the Netherlands, only 7.4% of individuals endorsing suicidal thoughts made a suicide attempt in the

subsequent two years (ten Have et al., 2009). As such, suicide researchers have moved toward building upon an "ideation-to-action framework" (Klonsky & May, 2014), whereby particular focus is placed upon identifying risk factors associated with the progression of suicidal thoughts to suicidal behaviors.

Age and Developmental Considerations for Suicide

The prevalence of suicidal thoughts and attempts increases from childhood through mid-adolescence when they peak (Lewinsohn et al., 1996). Even though these rates decline in early adulthood, young adults are still more likely to die by suicide than adolescents. Furthermore, many young adults at risk for suicide have psychiatric histories dating back to their adolescent years or earlier, highlighting the need to identify and intervene with adolescents and young adults during this transitional period. There are a number of developmental processes at play during this period that are pertinent to our understanding of suicide risk. For instance, several risk factors for suicide increase during adolescence, such as substance abuse (e.g., Harford, Grant, Yi, & Chen, 2005), depression (e.g., Reinherz, Paradis, Giaconia, Stashwick, & Fitzmaurice, 2003), and sensation seeking and risky behaviors (Ortin, Lake, Kleinman, & Gould, 2012). Furthermore, adolescents may lack control over certain stressful circumstances, particularly those in their family (e.g., parental psychopathology, marital conflicts), they have a limited future-orientation, and have not fully developed their capacity for self-regulation and problem-solving (Reynolds & Mazza, 1994). This time period is also marked by significant developmental milestones and transitional phases, such as graduating from high school and entering college or the workforce. Without the appropriate development of internal and external coping resources to handle these challenges, these difficulties can enhance suicide risk, particularly when milestones are not reached or desired expectations are not met.

Prevalence rates of suicidal ideation and behavior in adolescence are especially concerning when considering that suicidal ideation and behaviors during this time period are predictive of suicidal ideation, suicidal behaviors, and impaired overall functioning during early adulthood and beyond (e.g., Fergusson et al., 2005; Lewinsohn, Rohde, Seeley, & Baldwin, 2001; Reinherz, Tanner, Berger, Beardslee, & Fitzmaurice, 2006). A study by Goldman-Mellor et al. (2014) indicated that, even when controlling for psychiatric diagnoses, individuals who made a suicide attempt prior to age 24 were more likely than non-attempters to have pervasive impairment in young adulthood. These impairments spanned across social, emotional, and behavioral functioning, as suicide attempters were substantially more likely to report serious mental health issues (e.g., psychiatric hospitalizations, additional suicidal behavior), physical health issues (e.g., metabolic disorder, systemic inflammation), violent crime/behaviors, unemployment and/or welfare dependence, greater loneliness, and lower life satisfaction between the ages of 26-38. This persistence of suicide risk and associated impaired functioning emphasizes the need to identify and intervene with at-risk adolescents and young adults to improve long-term outcomes.

The developmental progression of psychological vulnerability to suicidal ideation and/or suicidal behaviors is transactional, dynamic, and multiply determined (King, 1997). The accumulation of risk factors and adverse events may place an individual at risk for the development of suicidal thoughts or behaviors, with stressful events, such as parent-adolescent conflicts or romantic relationship breakups (e.g., Brent, Perper, Moritz, & Baugher, 1993), serving as potential precipitants of suicidal behavior. Yet, factors such as effective coping and lack of access to lethal means may prevent this progression to suicidal behaviors in individuals otherwise at high risk for suicidal behavior (King, 1998). Predicting the progression to suicidal

behaviors is particularly challenging because even among those at risk for suicide, there is great variability within the severity of their experience. For instance, some individuals have suicidal ideation, but no plans; some individuals have suicide plans, but never make attempts; some individuals attempt suicide once and never make another attempt; some individuals are chronically suicidal and have recurrent suicidal thoughts and behaviors or attempts (e.g., Nock et al., 2013).

Another challenge is presented by the substantial variability in longitudinal trajectories of adolescents at elevated risk for suicide. Goldston and colleagues (2016) followed 180 psychiatrically hospitalized adolescents over time and identified different trajectory classes based on outcome functioning. These classes included those consistently at lower risk (44%), those who declined in risk entering adulthood (33%), those who increased in risk status into adulthood (11%), and those who were consistently at high risk (12%). It was speculated that improvement in the declining risk group may have been related to the development of greater emotional or behavioral regulation skills or a change in life circumstances where they are now living independently. Further research is needed in order to clarify factors that distinguish individuals who are on a more chronic persistent course of suicide risk from those who may be more likely to decline in suicide risk over time.

Sex differences in Suicidal Ideation, Behavior, and Suicide

There are considerable differences with regard to prevalence and risk factors for males and females in relation to suicidal ideation and suicidal behaviors. For instance, in a national survey of high school students, females were more likely to report in the past year: serious thoughts of suicide (22.4% vs. 11.6%), a suicide plan (16.9% vs. 10.3%), a suicide attempt (10.6% vs. 5.4%), a medically-treated suicide attempt (3.6% vs. 1.8%; CDC, 2014). Despite

these sex differences in ideation, plans, and attempts, adolescent males were over 3-times more likely to make a fatal suicide attempt than females (CDC, 2016). This disparity between suicidal ideation, suicide attempts, and death by suicide has been fairly stable in Western countries, and referred to by some as the gender paradox of suicidal behavior (Canetto & Sakinofsky, 1998).

There are several proposed explanations for the differences observed in male and female suicidal behavior. The greater amount of suicide deaths in males is often explained by differences in lethality of suicide attempt, as males are more likely to use lethal and violent means for suicide attempts (e.g., Hawton, 2000; Marttunen, Aro, Henriksson, & Lonnqvist, 1991) and are more likely to have intent to die during self-injury (Nock & Kessler, 2006). However, these factors do not explain why females have significantly more nonfatal suicide attempts. Some have theorized that socialization plays a role in nonfatal female suicide attempts, which are viewed as a more appropriate response to severe stress for females than males (Canetto & Sakinofsky, 1998).

Differences in risk factors for suicide, particularly higher rates of depression and internalizing disorders among females, are also an important consideration. A study by Wichstrom and Rossow (2002) examined different risk factors in relation to gender and adolescent suicide attempts and found that depressed mood accounted for a significant proportion of the variance associated with the gender difference in past suicide attempts and was completely accounted for when also controlling for eating disorders. Longitudinally, gender differences in future suicide attempts were fully accounted for when controlling for past suicide attempts, depressed mood, satisfaction with physical appearance, sex role identification, early pubertal timing, and involvement in romantic relationships. However, even though depression is more common in females, it remains a risk factor for suicide in both sexes; the suicide rate for

depressed adolescent boys is six times higher than the rate for depressed adolescent girls (Grøholt, Ekeberg, Wichstrøm, & Haldorsen, 1999).

Many studies have noted significant differences in the relationship between particular risk factors and outcomes based on sex. Lewinsohn et al. (2001) longitudinally assessed adolescents into young adulthood and found that in multivariate models, suicidal ideation in adolescence predicted suicide attempts in young adulthood for females, whereas poor coping skills predicted suicide attempts in young adulthood for males. In a study of psychiatrically hospitalized adolescents, King and colleagues (2014) similarly found that suicidal ideation predicted suicide attempts for females in the first year following discharge, but did not predict suicide attempts for males. However, other studies have found few distinctions in risk factors. For example, Thompson and Light (2011) longitudinally examined whether individual level (e.g., depression, SI, physical disability), relationship level (e.g., low family connectedness, parent/friend with suicidal behaviors), and environment level (rural, lethal means exposure) risk factors differed in the prediction of suicidal behavior for males and females in a nationally representative sample of youth with follow-ups after 1 and 7 years. They found that most risk factors were common for both males and females, such as depression, suicidal ideation, and exposure to suicide attempt of a family member or friend. The only differences between male and female risk factors were the role of somatic symptoms and younger age predicting suicide attempts for females, but not for males (Thompson & Light, 2011).

Differences in sample composition may partly explain inconsistencies in findings with regard to sex differences in suicide risk factors. Clinical samples may be better equipped to detect gender differences in suicidal behavior because the base rate for suicidal behavior is much higher. Furthermore, clinical samples avoid the potentially suppressing effect imposed by the

majority of the population of males and females not experiencing suicide-related risk factors. However, even among clinical samples there is significant variation in sex differences for risk factors predicting suicide. A study by Oquendo et al. (2007) examined suicide attempts over a two-year period in males and females who experienced a major depressive episode. While cigarette smoking was predictive of suicide attempts for both males and females, a past suicide attempt and suicidal ideation predicted suicide attempts for females, whereas borderline personality disorder and family history of suicidal acts predicted suicide attempts for males. Yet, Skogman and colleagues (2004) examined suicide deaths among those with a previous suicide attempt and found that while depression predicted suicide deaths for both males and females, violent previous suicide attempts predicted male suicides and suicidal intent scores predicted female suicides. Given these variations and replicated finding regarding suicidal ideation/intent, additional studies utilizing longitudinal designs with clinical samples are needed in order to better understand the mechanisms by which risk factors for suicide differ for males and females.

Coping Overview

The formal study of coping emerged in the 1960's and 1970's in response to studies on stress, but the ways in which an individual responds to stressful or unpleasant stimuli have been studied since early psychoanalysis, such as research on ego defense mechanisms like repression, projection, and denial (Lazarus, 1993). A major change in the study of coping occurred in the 1970's when coping came to be conceptualized as a process, as opposed to being directly implicated by trait- or style-based factors. From this perspective, Lazarus and Folkman (1984) defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (pg. 141). This definition emphasizes the transactional and dynamic relationship

between coping and the source of stress, as well as the importance of context in which it occurs. Coping is considered to be an effort that exists independent of the outcome, and can therefore be adaptive or maladaptive, successful or unsuccessful (Lazarus, 1993). Lazarus further argued that there are no inherently good or bad coping strategies in terms of adaptiveness, as outcomes are multiply determined by the individual person, the specific encounter, and types of outcomes, which may vary in adaptiveness for short-term versus long-term purposes. Nevertheless, research evidence suggests that some forms of coping may be more often associated with better or worse outcomes (Lazarus, 1993).

There has been considerable debate with regard to the definitions of coping and how wide a range of responses to stress it may encompass. While the definition of coping above by Lazarus and Folkman (1984) is the most widely used, other definitions have been proposed and differ from Lazarus and Folkman with regard to coping as being strictly intentional. Skinner and Wellborn (1994) defined coping as "how people regulate their behavior, emotion, and orientation under conditions of psychological stress" (pg. 112) and allowed for both volitional and involuntary/automatic responses to threat. Additionally, Eisenberg, Fabes, and Guthrie (1997) conceptualized coping as a subset of a greater category of self-regulation, and allowed for unconscious or unintentional responses to be considered a form of coping. A review by Compas et al. (2001) considered the different definitions of coping and developed their own, "we define coping as conscious volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (pg. 89). While Compas and colleagues were in agreement with Eisenberg et al. that coping is a subset of the self-regulatory process, they believed that coping refers specifically to regulatory efforts that are consciously and volitionally applied in response to stress. Indeed, the inclusion of involuntary responses to

stress would allow many behaviors to be considered a form of coping (e.g., a frown in response to bad news) and add to the complexity and multidimensionality of coping that already exists under the definitions by Lazarus and Folkman (1984) and Compas et al. (2001). Furthermore, volitional coping and involuntary responses to stress are experienced as subjectively distinct, differ greatly based on developmental factors, and respond differentially to interventions (e.g., Compas et al., 2001), so including them together under a broad coping category may potentially limit the specificity of coping-based interventions. Therefore, coping in the present study will be applied and understood as a volitional process and will not include involuntary processes.

Skinner and colleagues (2003) examined the structure of coping and found more than 400 distinct ways of coping reported in the literature. Many studies have sought to categorize coping into particular dimensions. For instance, a component of the theory of coping as a process states that there are at least two primary functions of coping, problem-focused and emotion-focused coping (Lazarus, 1993). Problem-focused coping strategies are thoughts and actions geared toward changing the difficult person-environment relationship by acting on the environment or on one's self, whereas emotion-focused coping strategies are thoughts and actions geared toward altering the way in which the individual attends to, or perceives the relational meaning of, the stress-producing situation. While problem-focused coping strategies have traditionally been viewed as being more adaptive, the context in which they are employed influences their adaptiveness, as past studies have indicated that problem-focused approaches to uncontrollable stressors are associated with poor adjustment (e.g., Compas et al., 2001). In addition to the problem-focused and emotion-focused categorization, coping researchers have constructed various higher order classifications, such as approach vs. avoidance coping, engagement vs. disengagement, control vs. escape, social vs. solitary, and cognitive vs. behavioral (for a review,

see Skinner et al., 2003). However, the dichotomy of coping categorizations (e.g., problem-focused vs. emotion-focused; approach vs. avoidance) has been scrutinized heavily due to inconsistencies and multiple functions that a particular coping strategy may contain, and many researchers have advised against grouping different coping categories under these classifications (e.g., Skinner et al., 2003).

There are numerous complexities to the study of coping, given the dynamic interpersonal, intrapersonal, person-environment processes and individualized responses to unique situations. For instance, individuals may use an array of different coping strategies in response to a single event. One might respond to the loss of a loved one by seeking comfort from other family members, reflecting on the positive aspects of the life that individual lived, blaming oneself for not telling that individual something while they were alive, planning the funeral, etc. There may be temporal factors that influence the sequence of these coping strategies, and perhaps more importantly, these coping strategies may be utilized to address different stressful components *within* the particular event (e.g., use of planning to deal with stress of organizing funeral, seeking comfort from others to deal with emotional pain of the loss, positive reframing to deal with internal ambivalence of loss because of a complicated relationship). There may also be individual differences that influence whether or not one is able to utilize a particular coping strategy successfully.

In addition to the previously discussed complexities, past studies have indicated that an individual's use of certain coping strategies are relatively inconsistent over time and are not applied in the same way across different situations. For example, Folkman et al. (1986) found that social support seeking was used very inconsistently, whereas planful problem-solving and positive reappraisal were modestly consistent over time. Furthermore, studies have indicated that

there are potential limitations to examining raw scores on coping inventory measures as opposed to examining the relative use of a coping strategy to one's total coping inventory. For instance, Vitaliano et al. (1987) found that differences in adaptive coping strategies were not found in raw scores comparing psychiatric outpatients to non-clinical samples, but differences were found in the relative scores because the clinical sample was utilizing a greater total of both adaptive and maladaptive coping strategies. These issues serve to highlight the challenges associated with the study of coping and some inherent limitations. Nevertheless, significant associations and implications for adaptive outcomes for particular coping strategies have been identified and utilized in interventions across multidisciplinary domains (e.g., Compas et al., 2001). Additional examination of coping in response to stress is warranted.

Age and Developmental Considerations for Coping

The development of coping is strongly influenced by, and reflective of, the different developmental stages and capacities that accompany infancy through adulthood. The earliest form of coping can be seen in the attachment process between an infant and mother (Compas, 1987), whereby the behavioral response to separation (e.g., crying) serves to alter the environment to alleviate distress. Compas (1987) posits that forming a secure attachment is the earliest form of adaptive coping, whereas an anxious-ambivalent attachment is the earliest form of maladaptive coping. Given the broader debate of whether coping can include processes considered to be automatic or involuntary, it is unclear whether the instinctual responses of infants can truly be considered coping. Among the many definitions of coping in existence, there is a general consensus that it involves the regulation of psychological and physiological processes, including behavior, cognition, attention, and emotion (Skinner & Zimmer-Gembeck, 2007). Regardless of how coping is defined, it is clear that the dynamic interactions between a

person and environment are present from a very early age and that these interactions are very influential of adaptation and development.

While there is no broad theoretical framework for the development of coping (Skinner & Zimmer-Gembeck, 2007), there are clear patterns and progressions that occur in the stress-response patterns of children, adolescents, and young adults. Progressions in the sophistication of coping are largely influenced by a multitude of developing skills and capacities, such as language, intentionality, abstract thinking, and metacognition (Compas et al., 2001). In addition to the internal changes that influence the development of coping, parental/external influences also play a very large role. These influences include, but are not limited to: determining stressors a child is exposed to, being a source of stress to children, modeling effective or ineffective coping, helping children learn from challenging or stressful experiences, proactively taking steps to prevent future stressors (Skinner & Zimmer-Gembeck, 2007). Meta-analyses have indicated that the greatest transitions in use of coping occur from early adolescence to middle adolescence (i.e., 12-16 years) and from middle adolescence to late adolescence (i.e., 16-22 years; Skinner & Zimmer-Gembeck, 2007).

Although coping develops very quickly during the preadolescent period, many cognitive strategies are not successfully implemented under stress until late adolescence or early adulthood when the prefrontal cortex, which controls planful behavior, is fully developed (Skinner & Zimmer-Gembeck, 2007). With time, adolescents develop new coping strategies that allow for a greater range of flexibility to respond to different stressors (e.g., Williams & McGillicuddy-De Lisi, 1999). The greater repertoire of older adolescents can be attributed to enhanced cognitive capacities, greater autonomy in decision making and responsibilities, and having a wider range of social interactions (Hoffman, Levy-Shiff, Sohlberg, & Zarizki, 1992). Thus, it seems that with

age comes the ability to use more coping strategies, which is necessary because stressful experiences also increase during the transition into adolescence (e.g., Petersen, Compas, Brooks-Gunn, & Stemmler, 1993; Rudolph & Hammen, 1999). Additionally, the effectiveness of coping differs over time, as a study by Plancherel, Bolognini and Halfon (1998) found that coping buffered the relationship between stress and health for middle-adolescents, but had no effect on the relationship between stress and health for early-adolescents.

In terms of the specific strategies used across the age spectrum, support seeking is generally utilized at similar frequencies across all age groups (e.g., Amirkhan & Auyeung, 2007). However, there is variation in the degree of sophistication in which support seeking is utilized. For instance, there are variations in who is sought for support (e.g., parent, peer), what type of support is being sought (e.g., comfort, guidance), and how the support is sought out (e.g., throwing a tantrum, asking explicitly). There are also differences based on controllability of a situation that differentiate from whom support is sought (e.g., Skinner & Zimmer-Gembeck, 2007). These differences highlight how the use of a single coping strategy may vary in utility based on the way it is implemented.

With the increases in stress and mental/social capabilities to respond to this stress, it is not surprising that both adaptive and maladaptive coping behaviors increase with age (e.g., Al-Bahrani, Aldhafri, Alkharusi, Kazem, & Alzubiadi, 2013). Many studies have found that emotion-focused strategies increase from early childhood into adolescence and early adulthood. This has been found in a comparison of middle school students, college students, and middle-aged adults in response to terrorism (e.g., Wadsworth et al., 2004), in a sample of children ranging from age 5 to 17 (e.g., Compas, Orosan, & Grant, 1993), and when specifically examining emotion-focused strategies considered to be maladaptive (e.g., Compas, Malcarne, &

Fondacaro, 1988). Some of the more specific maladaptive emotion-focused coping mechanisms that increase from childhood to adolescence include self-blame and resignation (Donaldson, Prinstein, Danovsky, & Spirito, 2000). However, other studies have found a decline in emotion-oriented coping from mid-adolescence into young and early adulthood (e.g., Wingo, Baldessarini, & Windle, 2015).

In addition to the increase in use of emotion-focused strategies, many studies have found an increase in problem-focused coping strategies from childhood into early adulthood (e.g., Skinner & Zimmer-Gembeck, 2007). In particular, studies have found an increase in cognitive restructuring from middle to late adolescence (e.g., Seiffge-Krenke, 1993) and among college students between the ages of 19 and 29 (Monteiro, Balogun, & Oratile, 2014). Similarly, a longitudinal study found that task-oriented coping increases sharply from age 17 to age 24 and then stabilizes into adulthood (Wingo et al., 2015). While problem-focused coping is generally considered more adaptive than emotion-focused strategies, effective coping requires a degree of flexibility to respond to the particular conditions brought on by the stressor, as no specific coping strategy will be effective in all potential situations (Compas, 1987).

A number of mechanisms and processes underlie developmental changes in coping. Temperament, which is present in infancy, has been proposed by Compas (1987) to be the earliest form of vulnerability or resilience in an individual. In addition to temperament, factors such as emotion-regulation, physiological reactivity, and certain cognitive vulnerabilities have also been shown to differentiate children who do or do not go on to develop psychological or behavioral problems (e.g., Eisenberg et al., 2009; Kaslow, Adamson, & Collins, 2000). Pre-existing vulnerabilities in these domains from childhood can make it more challenging to adapt to the increase in stress associated with the transition into adolescence (Ingram & Luxton, 2005).

Despite the influence of these associated mechanisms, studies have indicated that the way an adolescent copes with stress is more impactful on psychological adjustment than exposure to the particular stressor (e.g., Seiffge-Krenke, 2000). Maladaptive coping styles are a significant risk factor for the development of psychopathology in children and adolescents (Compas et al., 2001). For example, low levels of approach coping and high levels of avoidant coping have longitudinally predicted adolescent depression (e.g., Herman-Stabl, Stemmler, & Petersen, 1995; Seiffge-Krenke & Klessinger, 2000). Compas and colleagues (2001) hypothesized that coping processes in adolescence may be the primary mechanism by which differences emerge between those are or are not adversely impacted by life events. Coping styles developed during childhood and adolescence are predictive of coping with stress later in life (Compas et al., 2001), so the development of effective coping skills during childhood and adolescence may be critical in reducing risk for impairments in social, occupational, and health domains through the lifespan.

Sex Differences in Coping

Differences in coping between males and females have long been studied and debated, with many inconsistent findings and opinions as to what explains observed differences, ranging from the types of stressors, appraisal of stress, socialization, gender roles, and 'relative' versus 'raw' coping (e.g., Matud, 2004). The general prevailing stereotype is that females are more likely to engage in emotion-focused coping strategies, whereas males are more likely to engage in problem-focused coping strategies (e.g., Tamres, Janicki, & Helgeson, 2002). Some researchers have suggested that differences in depressive symptomology between men and women may be explained by women coping less effectively by way of using more emotion-focused coping strategies (Pearlin & Schooler, 1978). A large proportion of this stereotype is explained by differences in socialization, as women are taught to be dependent, give way to the

needs of others, be emotionally expressive, and form social relationships with others, whereas males are socialized to be autonomous, confident, and achievement-oriented (e.g., Rosario, Shinn, Mørch, & Huckabee, 1988). In line with this theory, a meta-analysis review by Collins and Miller (1994) found that self-disclosures were associated with an increase in liking toward women, but a decrease in liking toward men.

The role-constraint theory (Rosario et al., 1988) argues that differences in coping do not emerge from socialization, but from differences in social roles. A study of community adults by Folkman and Lazarus (1980) found that males were more likely to have stress associated with work and finances, whereas females were more likely to endorse stress associated with health or family problems. A study by Matud (2004) similarly found that females were more likely to endorse stressful life events associated with family and health, whereas men were more likely to report life events associated with work and finances. Women were also more likely to report somatic symptoms, psychological distress, and the use of emotion-focused coping strategies. These studies illustrate differences in types of stress and life events that are consistent with the social constraint theory, in that the types of problems more commonly encountered by men (e.g., occupational) call for problem-focused approaches, whereas the types of problems more commonly encountered by women (e.g., interpersonal), which are less controllable, call for emotion-focused approaches.

The role-constraint theory further posits that differences in coping between males and females do not exist for males and females occupying similar roles. Rosario et al. (1988) tested this theory with three different samples and found that there were no differences in coping strategies used by men and women who worked in similar occupations. However, a controlled experimental study by Ptacek, Smith, and Dodge (1994) provided undergraduates with an

identical achievement-related stressor and found that while there were no differences in cognitive appraisal of the situation, female students were more likely to use emotion-focused coping strategies and male students were more likely to use problem-focused coping strategies. These results held even when controlling for masculinity and femininity traits. Ptacek et al. (1994) argued that study findings supported the socialization theory and were inconsistent with the role-constraint theory, as the identical stressor yielded different coping responses based on sex. Therefore, there seems to be mixed evidence with regard to which theory better explains differences observed in coping behaviors.

In addition to sex differences in coping strategies, investigators have examined sex differences in the experience and interpretation of stress. The literature is slightly mixed, but the general trends suggest that females are more likely to report stressful situations than men (e.g., Almeida & Kessler, 1998) and are more likely to suffer from chronic stress (e.g., McDonough & Walters, 2001). Furthermore, it has been suggested that women interpret equivalent threatening events as more stressful than men (e.g., Ptacek, Smith, & Zanas, 1992). In a study of nearly 3000 adults, Matud (2004) found that despite having a similar number of life events and changes, women rated their life events as more undesirable and less controllable than the men. This has led some to suggest that women exhibit greater rates of psychological distress due to greater vulnerability and stronger emotional responses to stress (Kessler & McLeod, 1984). However, there are also gender-specific stressors experienced by women, such as gender violence (e.g., Heim et al., 2000) and discrimination (e.g., Klonoff, Landrine, & Campbell, 2000) that may explain differences in psychiatric symptoms. Kessler and McLeod (1984) examined specific life events and associated stress between men and women and found that differences in stress by sex are explained by "network" events. Women were more likely than men to report distress

associated with negative events occurring to others who they consider to be important (e.g., family, friends) and were also more emotionally impacted by them. The authors speculated that women may consider others to be more important than men do, or that they may be more likely to be pulled into situations as helpers, which causes them to become more closely invested in the stressful situations of others (Kessler & McLeod, 1984). Thus, the evidence is mixed with regard to whether women are more vulnerable to stressful events or if differences are explained by greater exposure to stressful events due to larger interpersonal networks. Furthermore, it is unclear whether recent societal changes regarding gender roles may be accompanied by changes in coping responses.

Another important consideration to the examination of sex differences in coping processes and stress is how coping is categorized and measured. Many studies develop broad coping categories (e.g., emotion-focused, problem-focused, engagement, disengagement) that are composed of many specific coping behaviors. As such, findings related to sex that are based on broad categories may actually be influenced by one or two particular coping behaviors within a category, and not necessarily the broader categorical theme. Tamres and colleagues (2002) conducted a meta-analysis to examine the nuances of specific coping behaviors within these categories, as well as their application to different types of stress (e.g., health, relationships, achievement). Results indicated that females were more likely to endorse most forms of coping, encompassing both emotion-focused and problem-focused techniques. Women were more likely to seek social support than men, regardless of the type of stressor, lending some support to the socialization theory of coping. Furthermore, differences in the appraisal of stress severity explained a large proportion of differences in use of coping strategies, lending support to the idea that differences in coping are driven by differences in stress interpretation (Tamres et al., 2002).

In order to account for the greater amounts of stress as a potential confound to the greater use of coping strategies, Tamres and colleagues (2002) looked at 'relative' coping in addition to raw coping scores. Relative coping refers to the comparison of frequency of use of a particular coping behavior relative to another (Vitaliano et al., 1987). Tamres et al. (2002) found that while women reported more overall coping than men, when relative scores were examined, men engaged in more problem-focused coping and avoidant coping than women, and women utilized relatively more social support. The authors concluded that the mixed empirical evidence in the literature regarding sex differences in coping may be accounted for by this difference in raw versus relative coping scores.

Differences in coping by sex have also been examined in childhood and adolescent samples and results are largely consistent with those found in the adult literature. For instance, studies have found that interpersonal stress is more strongly associated with depression in girls than boys (e.g., Rudolph & Hammen, 1999). Studies have also indicated that girls are more likely to seek social support whereas boys are more likely to use avoidant strategies to cope with stress (e.g., Hampel & Petermann, 2006). Rose and Rudolph (2006) conducted a meta-analysis and found that girls experienced more interpersonal and network stress than boys. Additionally, a study by Plunkett, Radmacher, and Moll-Phanara (2000) found that high school girls report significantly more negative life events, have higher levels of stress, and use more coping strategies than boys. Higher levels of perceived stress and use of emotion-focused coping strategies by females have also been found in college samples (e.g., Brougham, Zail, Mendoza, & Miller, 2009). Compas et al. (1993) suggests that gender differences in stress exposure and coping may be especially important in understanding differences in depressive and other psychological symptomology for adolescent boys and girls. Taken together, it appears that the

many differences in stress exposure, stress appraisal, and coping strategies seen in adult samples of men and women begin to emerge and develop during the adolescent years.

In sum, there has been a great deal of research on the sex differences for stress exposures, stress appraisals, and responses to stress via coping strategies. The findings with the most consistent support suggest that females are more likely to be exposed to stress and experience stress more severely than males. In contrast to early findings suggesting that females have greater levels of psychological distress due ineffective (i.e., emotion-focused) coping relative to males (i.e., problem-focused coping), the prevailing literature suggests that greater levels of stress exposure in females is due to the greater incidence of network stressors, as females generally have larger networks and place a greater importance on them than males. In line with this difference in networks, there is strong evidence suggesting that females are more likely than males to engage in support seeking in response to stress. While there is also evidence to suggest females utilize emotion-focused coping strategies more often than males, this finding may be a function of the types of stressors that females encounter. For instance, if the stressors that females are more likely encounter (e.g., health concerns for another) are uncontrollable, emotion-focused strategies are more adaptive than problem-focused approaches, as problem-focused approaches to uncontrollable situations have been linked to poor adjustment (Compas et al., 2001). An often overlooked component of the coping literature is whether a particular strategy is matching the controllability of a situation, as this would determine whether a problem-focused or emotion-focused coping approach is adaptive or maladaptive to the situation.

Much of the literature on sex differences in coping has been masked by greater stress and subsequent greater use of coping strategies of all kinds by females, whereas studies on relative coping scores have produced more consistent results in producing differences based on sex. It

may be particularly important to examine both raw and relative scores on coping measures, as differences in raw and relative coping in relation to outcomes may help guide the development of coping skills interventions. For example, if a relative score of a particular coping behavior had a stronger association with negative outcomes than the raw score, an intervention may benefit more from teaching new coping skills to decrease the relative use of the coping behavior than attempting to reduce the raw use of the coping behavior. Additionally, there is relatively little known regarding differences in coping between males and females within clinical or psychiatric inpatient samples and how these differences are associated with psychiatric symptoms.

Coping and Mental Health Outcomes

Longitudinal studies have established clear links between stress levels and future internalizing and externalizing problems and difficulties (Compas et al., 1993). However, coping responses are key moderators of the impact of stress on psychological health. Adaptive coping responses have the potential to limit the impact of a stressful event to a minor inconvenience, whereas maladaptive coping responses have the potential to add to the impact of a stressful event and influence additional negative outcomes (Compas et al., 1993). Depressed mood and depressive disorders all increase in adolescence (e.g., Petersen et al., 1993), and there have been several longitudinal studies examining coping in relation to depression. A meta-analysis by Cairns and colleagues (2014) reported strong associations between negative coping strategies and future depression, but limited associations between positive coping strategies and (lack of) future depression. However, meta-analyses require collapsing many forms of coping into large categories that may lack the specificity required to meaningfully incorporate findings into applied interventions.

Fortunately, many studies have examined coping, both in conceptual categories and individual behaviors, in relation to mental health outcomes. A meta-analytic review of studies utilizing child and adolescent samples by Compas et al. (2001) concluded that engagement/approach/problem-focused strategies were consistently the best at lessening the impact of stress, primarily channeled through a reduction of physiological and emotional responses, as well as not serving to exacerbate the impact of the stressor, as a maladaptive coping strategy may have done. These coping behaviors were associated with better psychological adjustment across internalizing and externalizing problems and were most strongly driven by the individual coping behaviors of problem-solving and cognitive restructuring. The impact of cognitive restructuring and problem-solving extend beyond associations with mental health and have been associated with better physical health as well (Connor-Smith & Compas, 2004). Conversely, self-blame and disengagement were specific coping behaviors consistently associated with poor psychological adjustment (Compas et al., 2001) as well as negative physical health symptoms (Boyraz, Waits, Felix, & Wynes, 2016). The relationship between coping and psychological adjustment may be explained by a direct impact on emotional response, as problem-solving and cognitive restructuring have been found to mediate emotional responses from negative to less negative or positive, whereas maladaptive response have been associated with changes in emotion associated with greater distress (Folkman & Lazarus, 1988).

While there has been substantial research examining different coping approaches and mental health outcomes, research on differential associations based on age and gender has been lacking. Several studies have demonstrated considerable differences based on these factors. For example, Garnefski and colleagues (2002) found that positive reappraisal was more strongly predictive of depression and anxiety in adults than adolescents, whereas self-blame was more

strongly associated with adolescent depression than adult depression. Furthermore, a study by Wadsworth and colleagues (2004) found that females were more likely to use emotion-focused strategies, which were related to better functioning in females only, whereas males were more likely to use disengagement strategies, which were related to worse functioning for females only. Another study by Griffith, Dubow, and Ippolito (2000) found that while females utilized greater approach and avoidant coping strategies, males and females were equal in their satisfaction of coping outcomes, and approach and avoidant strategies were equally predictive of adjustment outcomes. These differences highlight the complexity in understanding the relationship between coping and mental health outcomes. Additional research is needed to better understand potential differences in functionality of particular coping mechanisms based on age and gender.

Coping and Suicide

Given the well-documented associations between coping and mental health, it is unsurprising that coping has been related to the development of suicidal ideation and suicidal behaviors. Coping is particularly relevant to the study of suicidal individuals because adolescents and young adults who experience suicidal ideation or attempt suicide are more likely than others to have experienced significant life stressors (e.g., Fergusson, Woodward, & Horwood, 2000; Grover et al., 2009). The impact of early life stress is long-lasting and predicts psychological difficulties across internalizing and externalizing domains throughout the lifespan (Benjet, Borges, & Medina-Mora, 2010). Several large longitudinal studies have found that suicidal thoughts and behaviors in adolescents are associated with significant negative outcomes across mental health, physical health, and general functioning into adulthood (e.g., Goldman-Mellor et al., 2014; Reinherz et al., 2006). Taken together, these findings suggest adolescent and young adult psychological difficulties are both predicted by life stressors and are strong predictors of

future stressors (e.g., loneliness, poverty, incarceration, health problems). Coping skills used in adolescence are highly influential of coping skills and functioning in adulthood (Compas et al., 2001) and are direct moderators of the impact of stress on adjustment. Therefore, there are clear implications for the role of coping in suicide prevention. Identifying and intervening with young people experiencing psychiatric distress to ensure they have the coping skills necessary to deal with their many stressors effectively has the potential to reduce suicidal thoughts, suicidal behaviors, and adjustment difficulties.

Coping skills, or the lack thereof, have been acknowledged and incorporated into several theories related to the progression of stressful life events into suicidal behaviors. For instance, dialectical behavioral therapy, which was designed for suicidal patients, states that patients attempt suicide due to inadequate coping resources, such as emotion-regulation and problem-solving, and that the act of a suicide attempt is actually a problem-solving behavior on the part of the patient in order to cope with their situation (Linehan, 1987). Additionally, a theory of suicidal behavior developed in China, known as the strain theory, identified the lack of coping skills as one of the four key strains that predicted suicide in a psychological autopsy study of adolescents and young adults (Zhang, Wieczorek, Conwell, & Tu, 2011). Furthermore, addressing inadequate coping skills has been identified as one of several pathways to the prevention of suicidal behavior (King, 1998). However, there remains a need to clarify and identify the specific coping processes or behaviors that are most protective or predictive of adverse outcomes.

There have been many studies examining the relationship between coping and suicidal thoughts and behaviors, both in broader coping categories as well as in specific coping behaviors. A study by Portzky and colleagues (2008) indicated that in a sample of nearly 9000 adolescents, the use of emotion-oriented coping significantly distinguished those with a history

of self-harm from those who had never engaged in any form of self-harm. Additionally, in a school-based study of Irish adolescents, emotion-oriented coping was associated with greater mental health difficulties such as depression and anxiety, whereas the use of problem-oriented coping was associated with better mental health (McMahon et al., 2015). In another large study utilizing a community sample of adolescents, the use of avoidant coping strategies significantly distinguished those with a history of suicide attempt from those without a history of suicide attempt (Kim & Kim, 2008). A review of coping in relation to deliberate self-harm by Guerreiro et al. (2013) concluded that emotion-focused coping, and avoidant coping strategies in particular, were consistently associated with suicidal and self-harm behaviors, and that there was mixed evidence suggesting problem-focused coping may be protective. However, the majority of studies found for this review were cross-sectional, which places strong limitations on the conclusions that can be drawn.

In lieu of the limitations associated with broad coping categories, many specific coping strategies have been examined independently and been found to be either protective of, or a risk factor for, suicidal thoughts and behaviors. In a community sample of over 1000 adolescents and young adults, those with histories of self-harm were significantly less likely to engage in problem-solving, less likely to seek social support, and more likely to withdraw from others (Stanford & Jones, 2009). In another large community sample, adolescents who engaged in self-harm behaviors were more likely to use alcohol to cope and were less likely to talk to someone about their problem (E. Evans, Hawton, & Rodham, 2005). Other studies have found specific strategies such as planning (e.g., Aldridge & Roesch, 2008; Santos, Saraiva, & De Sousa, 2009) and acceptance (e.g., Khurana & Romer, 2012) to be associated with positive outcomes, whereas specific strategies such as self-blame (e.g., De Leo & Heller, 2004; Horwitz et al., 2011),

disengagement (e.g., L. Evans et al., 2014; Wadsworth & Compas, 2002), and substance use to cope (e.g., Horwitz et al., 2011) have been associated with negative outcomes. Some studies have conceptualized acts of self-harm, such as non-suicidal self-injury, as a maladaptive emotion-focused/avoidant coping mechanism (e.g., Laye-Gindhu & Schonert-Reichl, 2005; Mikolajczak, Petrides, & Hurry, 2009). Despite these strong associations, most of the research examining specific coping behaviors, as well as broader coping categories, has been cross-sectional in nature, which prevents causal interpretations from being made.

Very few studies have examined longitudinal associations between coping and suicidal thoughts/behaviors directly. Nrugham et al. (2012) examined middle school students over a six-year period and found that those who had engaged in multiple suicidal acts were less likely to use problem-focused coping strategies over time. Khurana and Romer (2012) examined the pathways of specific coping behaviors in relation to reductions in suicidal ideation over a one-year period. Problem-solving and support-seeking were associated with reductions in suicidal ideation after one year, though not through direct pathways. Additional longitudinal studies are needed to examine the direct relationships between coping behaviors and suicidal thoughts and behaviors, as the vast majority of conclusions drawn regarding coping behaviors and suicide risk have been based on cross-sectional data.

Another limitation of most studies examining coping in relation to suicidal thoughts and behaviors is the predominant use of school or community samples. The associations between coping and suicidal thoughts and behaviors in these studies may reflect higher rates of symptomatology and may not represent differences that are specific to coping skills. For example, in a cross-sectional study of adolescents recruited from a general emergency department, Horwitz and colleagues (2011) found that seeking emotional support was linked

with depression and suicidal ideation. However, the authors concluded that this relationship may be explained by a greater need for emotional support due to greater distress or symptomatology, as opposed to any direct effect from the act of seeking emotional support. Examining coping and suicidal ideation and attempts among a more homogenous high-risk sample may better illuminate the coping behaviors most associated with suicide risk, yet only a handful of studies have examined coping in relation to suicidal ideation and attempts in clinical samples. In a study of outpatient adolescents with histories of suicidal behavior by Dinya et al. (2009), coping patterns did not differentiate the three different clusters that characteristically distinguished suicidal adolescents. Additionally, in a study of hospitalized adolescents by Piquet and Wagner (2003), while coping patterns were retrospectively able to distinguish past attempters from non-attempters, these coping patterns were not able to predict changes in suicidal ideation over a two year period following hospitalization. However, Liu et al. (2009) found that among young adults with a history of childhood-onset mood disorder, engagement in risky behavior, such as substance use, to deal with stress was associated with an increased risk for future suicide attempts. Additional research is needed in clinical and high-risk samples, as examining coping within these groups may be better at informing intervention efforts than the use of community or school samples.

Implications for Intervention

Several studies have examined coping as an intervention component for improving treatment outcomes and reducing suicide risk. For instance, cognitive therapy for suicide attempters (Berk, Henriques, Warman, Brown, & Beck, 2004) incorporates coping strategies into multiple components of therapy, such as developing coping strategies to use in a crisis situation, the use of portable "coping cards" to help trigger use of coping skills learned in therapy, as well

as specific coping strategies such as cognitive restructuring, self-distraction, and relaxation. Stanley and Brown (2012) developed one form of a crisis response or safety planning intervention, which involves developing both internal and external coping strategies with suicidal patients that they can implement during times of suicidal crises. A randomized controlled trial utilizing their specific safety planning technique indicated improved outpatient treatment engagement and a trend toward fewer suicide-related hospitalizations over a six-month follow-up period (Stanley et al., 2015). In another randomized controlled trial, adolescents with suicidal ideation who were randomized to an intervention utilizing a brief video on problem-solving/coping skills showed reductions in suicidal ideation and depression, although changes in problem-solving abilities were not indicated (Fitzpatrick, Witte, & Schmidt, 2005). It is also noteworthy that the presence of good coping skills predicted faster recovery times for depressed adolescents receiving CBT (e.g., Rohde, Seeley, Kaufman, Clarke, & Stice, 2006).

Coping skills have clear implications for intervention development, yet the research on specific strategies seems to lag behind the implementation of skills into treatments. There remains a need for additional research to identify the specific coping behaviors most relevant to reduction in symptomatology and suicide risk so that interventions can be specifically tailored to address the most pressing areas. Furthermore, findings associated with coping skills and suicide risk need to be sensitive to pre-existing challenges within the field of suicide-risk intervention. Daniel and Goldston (2009) reviewed existing suicide-risk interventions and found that interventions have generally been more successful at impacting aspects of service utilization than actually reducing the incidence of suicidal behavior. More importantly, most suicide-risk interventions failed to consider differences within suicidal adolescents (e.g., age, sex, severity of presentation) and applied interventions uniformly for males and females, 13 years olds and 18

year olds. In order to address this limitation and increase understanding of coping for different age groups and sexes, the relationships between coping and mental health outcomes in this study will be examined with sex and age as moderators.

Integration and Study Aims

Suicide is a preventable leading cause of death of young people worldwide. Furthermore, the long-term impairments and costs associated with adolescent depression, suicidal ideation, non-suicidal self-injury, and non-fatal suicide attempts require early intervention to promote adaptation and resiliency and prevent suicide deaths. Coping has been identified as a key potential mediator between stressful life events and positive or negative outcomes. As such, coping skills have been incorporated into a number of therapies and interventions geared toward suicide prevention. Many interventions have failed, however, to consider the nuances of both coping and suicide risk with regard to sex and developmental differences. This one-size-fits-all approach to interventions has resulted in limited support for randomized controlled trials directly reducing instances of suicidal behavior.

An improved understanding of the ways in which specific coping behaviors, age, and sex relate to suicidal ideation and behaviors would greatly inform prevention and intervention efforts geared toward reducing suicidal behavior by allowing for a more personally-tailored approach. The present study will examine coping in relation to suicide risk factors and suicidal behavior in a sample of adolescents and young adults assessed at a psychiatric emergency department and over the phone four months later. The results of this study may enhance our understanding of the relationships between specific coping behaviors and depression, suicidal ideation, and suicidal behaviors. This understanding would inform prevention and intervention efforts seeking to reduce suicidal behavior among at-risk adolescents and young adults.

Aim #1. Identify cross-sectional and 4-month longitudinal associations of specific coping behaviors with suicide risk factors and suicidal behaviors in a sample of adolescents and young adults, ages 13-25, seeking psychiatric emergency services.

Hypotheses. Active coping, planning, positive reframing, and support seeking will be negatively associated with suicide-related outcomes; self-blame, disengagement, and substance use coping will be positively associated with suicide-related outcomes.

Aim #2. Examine whether the relationships of specific coping behaviors with suicide risk factors and suicidal behaviors vary based on sex.

Hypotheses. Substance use coping will be more positively associated with suicide-related outcomes for males; Disengagement will be more positively associated with suicide-related outcomes for females.

Aim #3. Examine whether the relationships of specific coping behaviors with suicide risk factors and suicidal behaviors vary based on age.

Hypotheses. Positive reframing will be more negatively associated with suicide-related outcomes for older participants; Disengagement will be more negatively associated with suicide-related outcomes for older participants; Self-blame will be more negatively associated with suicide-related outcomes for younger participants.

CHAPTER II

Method

Participants

Participants were 291 adolescents and emerging adults, ages 13-25, recruited from a psychiatric emergency department in the Midwestern United States to participate in the ED Mood and Coping Study. Exclusion criteria included severe cognitive impairment, active psychosis, and severe aggression or agitation while in the emergency department (ED). 79.7% of eligible participants consented to take part of the study. Four participants who consented decided they did not wish to continue the study before completing the baseline measures and were not contacted for the follow-up interview or included in the analyses. Additionally, one participant consented to participate but was disorganized and intoxicated, so his data were considered invalid and he was not included in the analyses. This resulted in a final study sample of 286 participants.

The most common reasons for emergency visit included suicidal ideation or attempt (71%), depression/anxiety symptoms (14%). Other reasons for visit with lower frequency included altered mental status, non-suicidal self-injury, homicidal ideation, and substance-use related problems. Participants had a mean age of 18.0 years (*SD* 3.5) and were 59% female. The ethnic/racial distribution was as follows: 77% Caucasian, 10% African-American/Black, 4% Asian, 3% Hispanic, and 6% Multi-racial. One hundred and three (36%) participants had a lifetime history of suicide attempt, including 65 (23%) with a suicide attempt in the past year. Two or more episodes of past non-suicidal self-injury were reported by 61.3% of participants.

Additionally, 36% of participants had been previously psychiatrically hospitalized and 38% of participants were psychiatrically hospitalized from the index ED visit. Sixty-four participants (22%) had either no insurance or publicly supported health insurance and five participants (2%) were homeless. Diagnostic impressions given by the MDs for participants in the sample included: 60.8% depressive disorder, 26.2% mood disorder, 28% anxiety disorder, 14% substance use disorder, 14% cluster B or borderline traits, 9% ADHD; 49% of the sample was given more than one diagnosis.

A total of 226 (79%) participants completed the 4-month follow-up assessment [M(SD) = 110.6(15.6) days to follow-up] and were included in the longitudinal analyses. Of those 226 participants, 67 (30%) reported suicidal ideation in the past month, 40 (18%) reported engaging in suicidal behavior since the index psychiatric emergency visit, and 21 (9%) reported making a suicide attempt since the index visit. A retention analysis indicated that those who completed the follow-up interview did not differ from those who did not complete the follow-up interview on any demographic (e.g., age, sex, race, insurance, etc.) or clinical (e.g., history of suicide attempt, suicidal ideation severity, depressive symptoms, history of non-suicidal self-injury, etc.) variables.

Measures (Baseline)

Medical Chart Coding Form. Patient data from the emergency visit were collected from electronic medical records. Race/ethnicity, insurance, reason for visit, disposition, number of past visits, number of past hospitalizations, current diagnoses, and suicide attempt histories were coded.

Depression. The Patient Health Questionnaire-2 (Kroenke, Spitzer, & Williams, 2003) was used to assess depression, specifically depressed mood and anhedonia. While originally

developed as a screening tool, it has also been validated as an indicator of varying levels of depression severity (Löwe, Kroenke, & Gräfe, 2005). This measure has strong internal consistency and has psychometric properties similar to the full-length PHQ-9 depression scale and other depression scales (Löwe et al., 2005). Symptoms are assessed for the last two weeks and are rated on a 4 point likert scale ranging from "not at all" to "nearly every day". Internal consistency for the PHQ-2 scale in this sample was $\alpha = .63$.

Coping Styles. The BriefCOPE (Carver, 1997) is a 28-item measure of coping styles derived from the larger COPE inventory (Carver, Scheier, & Weintraub, 1989). This measure is composed of 14 two-item subscales of specific coping behaviors and participants were instructed to indicate what they usually do in response to dealing with stressful events. Sample items include, "I blame myself for things that happened" (self-blame), "I get help and advice from other people" (instrumental support). These items are rated on a 4-point likert scale ranging from "I don't do this at all" to "I do this a lot". The BriefCOPE has a strong psychometric properties and a factor structure similar to the full COPE inventory (Phelps & Jarvis, 1994), and has been used in adolescent samples (e.g., Horwitz et al., 2011). The specific coping behaviors of distraction, acceptance, venting, and denial demonstrated poor internal consistency and were not included in this study. Denial, acceptance, and venting also had low internal consistency ($\alpha <$ .60) in the original Carver (1997) study. The remaining ten coping strategies (i.e., active coping, substance-use coping, seeking emotional support, planning, use of religion, use of humor, seeking instrumental support, self-blame, behavioral disengagement, positive reframing) demonstrated adequate to very strong internal consistency ($\alpha = .63$-$.96$) in this sample.

Suicidal Ideation and Behavior. The Columbia-Suicide Severity Rating Scale (Posner et al., 2011) is a semi-structured interview that assesses a range of suicidal thoughts and

behaviors. Suicidal ideation severity is rated on a 6-point ordinal scale ranging from a wish to be dead to suicidal intent with a specific plan. Suicidal ideation intensity is rated on 5-items (frequency, duration, controllability, deterrents, reasons for ideation), each ranked on a 5-point likert scale. Suicidal behavior is assessed dichotomously (yes/no) for past suicide attempts, interrupted attempts, aborted attempts, suicide preparations (e.g., writing a note, collecting pills), and non-suicidal self-injury. The C-SSRS demonstrated strong reliability and validity when assessed across three different sites, which included both adolescent and adult clinical samples (Posner et al., 2011). Studies of this measure with psychiatric emergency patients have demonstrated predictive validity for future suicide attempts (Gipson, Agarwala, Opperman, Horwitz, & King, 2015; Horwitz et al., 2015).

Measures (Follow-up)

Depression. The Patient Health Questionnaire-2 (Kroenke et al., 2003) was used to assess symptoms of depression in the past two weeks.

Suicidal Ideation and Behavior. The Columbia-Suicide Severity Rating Scale (Posner et al., 2011) was used to assess suicidal ideation in the past week and month, suicidal behaviors since baseline assessment, and non-suicidal self-injury since baseline assessment.

Service Utilization. Participants were asked whether they had any emergency department visits or hospitalizations since the baseline assessment and the reasons and lengths of stay for hospitalization or emergency service.

Medical Chart Coding Form. Relevant data regarding interval suicidal thoughts, suicidal behaviors, and service utilization were collected from electronic medical records for patients returning to the psychiatric emergency department during the follow-up period.

Procedures

IRB approval was obtained for this study (HUM00086840). Consecutively presenting eligible participants were approached for assent/consent (consent if 18 or older, assent and parental consent for minors) during recruitment, which took place 3-5 days per week during 2-10pm shifts between June 2014 and January 2015. Those who consented to participation and completed the baseline self-report measures received $20 as remuneration for their time. The C-SSRS was administered as a part of the clinical protocol at the participating emergency site, and were accessed via medical record review, along with visit data (e.g., disposition, diagnoses).

Participants provided a minimum of two verifiable telephone numbers, as well as mailing and e-mail addresses, to be reached for follow-up interviews. Follow-up measures, including the C-SSRS, were conducted by master's level clinicians over the telephone. The study team followed a detailed risk management protocol for participants who met criteria as "high risk" (e.g., suicidal thoughts with method or intent in the past week, actual/aborted/interrupted suicide attempt in the past month) at follow-up. Those completing the follow-up assessment over the telephone received a $25 gift card in the mail. A second medical record chart review was conducted at the end of the follow-up period for additional psychiatric emergency visits, hospitalizations, and suicidal behaviors for all participants, regardless of whether the participant completed a telephone follow-up assessment.

Data Analytic Plan

Data were entered and stored using RedCap (Harris et al., 2009) and analyzed in SPSS version 21. Suicidal ideation at follow-up was measured dichotomously as scores of 2+ on the C-SSRS suicidal ideation severity scale, which excludes passive morbid ideation. Since suicide

attempts were of relatively low frequency (n = 21), a broader category, "suicidal behaviors", which consists of suicide attempts, aborted suicide attempts, interrupted suicide attempts, and preparatory behavior (n = 40) were also used to examine outcomes. Adequate internal consistency was confirmed for all utilized coping and clinical variables. Means and standard deviations were reported for primary study variables. Correlations, t-tests, and chi-square analyses were used to examine differences in descriptive data by age and sex. The coping variables of humor and religion were not examined in analyses due to limited implications for coping skills interventions. All coping variables were centered to reduce issues of multicollinearity in the analyses consisting of interaction terms. The tests indicated that multicollinearity was not a concern and that collinearity assumptions were met (VIF < 2.5 for all covariates in regression analyses). Hosmer-Lemeshow goodness of fit tests were conducted for all logistic regressions and indicated that the data fit the models well.

Aim 1. To address research questions specified in Aim #1, correlations and t-tests examined associations of coping with concurrent depression, suicidal ideation severity, and history of suicide attempt. Correlations and t-tests were also used to examine longitudinal associations with depression, suicidal ideation, suicide attempts, and suicidal behavior. A multivariate analysis of covariance examined the associations between history of suicide attempt with coping styles, controlling age, sex, and suicidal ideation severity. Multivariate analyses for additional outcome variables consisted of hierarchical linear and logistic regressions. In the regression predicting baseline depression scores, the first step included age, sex, and history of suicide attempt, with the eight coping variables of interest (active coping, planning, positive reframing, seeking instrumental support, seeking emotional support, self-blame, disengagement, substance use coping) in the second step. The regression predicting suicidal ideation severity

contained the same variables and sequence, but also included baseline depression as a covariate in step 1. The longitudinal linear regression predicting depression controlled for age, sex, baseline depression, and history of suicide attempt in step 1, and contained all eight coping variables in step 2. This model was reduced utilizing a backward selection procedure to remove non-significant coping variables from the model in order to determine the coping behaviors most strongly associated with outcomes and maximize model strength. Due to power considerations, the logistic regressions predicting suicidal ideation, suicide attempts, and suicidal behavior controlled for age, sex, and the baseline indicator of the outcome variable of interest (e.g., baseline suicidal ideation in the regression predicting suicidal ideation, baseline suicide attempt history in the regression predicting suicidal behavior). Additionally, since the models were underpowered to include all eight coping variables, only coping variables with significant univariate relationships with the outcome variable were included in the main effect coping blocks in Step 2 of the respective regressions. Backward selection procedures were then utilized to remove non-significant coping variables from the model in order to determine the coping behaviors most strongly associated with outcomes and maximize model strength.

Aim #2. Relative coping scores were used, rather than raw coping scores, in order to better account for sex differences in total coping, as has been demonstrated in the literature. Correlational analyses examined sex-related differences in the associations of substance use coping and disengagement with concurrent depression and suicidal ideation severity, as well as longitudinal associations with depression, suicidal ideation, suicide attempts, and suicidal behavior by utilizing r-to-z transformation computations. Hierarchical linear and logistic regressions examined interaction effects for coping variables that had statistically significant differences in correlations with outcomes by sex. The first step of the regression models

controlled for the same variables as those utilized for Aim #1, but also included the main effect of the coping variable of interest. Step 2 included the interaction term of the coping variable by sex. Since there is limited existing data regarding sex differences in the associations between specific coping variables and outcomes, exploratory correlational analyses were conducted for the remaining six coping variables and r-to-z transformations were computed. To control for error rates associated with multiple testing, only those r-to-z transformations with a $p < .01$ were examined in the regression analyses. Regression analyses examined coping variables with significant r-to-z transformations in a two-step model mirroring the regressions examining interactions for disengagement and substance use coping.

Aim #3. Relative coping scores were used, rather than raw coping scores, in order to better account for age differences in total coping, as has been demonstrated in the literature. Correlational analyses examined age-related differences in the associations of positive reframing, disengagement, and self-blame with concurrent depression and suicidal ideation severity, as well as longitudinal associations with depression, suicidal ideation, suicide attempts, and suicidal behavior. Coping variables with significant differences based on age group were examined in hierarchical linear and logistic regressions in a fashion similar to Aim #2, with the age by coping interaction term added in the second step of the model. Since there is limited existing data regarding age differences in the associations between specific coping variables and outcomes, exploratory correlational analyses were conducted for the remaining five coping variables with suicide-related outcomes. To control for error rates associated with multiple testing, only correlations with a $p < .01$ were examined in the regression analyses.

CHAPTER III

Results

Sample Descriptives, Sex and Age Differences

The sample means of raw coping scores, depression scores, and suicidal ideation severity scores for males, females, and the total sample are reported in Table 1. The table also includes percentages of endorsement for history of suicide attempt and follow-up suicidal ideation, suicide attempts, and suicidal behavior. The most frequently endorsed coping behaviors were self-blame, disengagement, and seeking emotional support. Finally, Table 1 includes correlation coefficients based on age.

Sex differences. Females reported significantly greater self-blame, $t(214.26) = 3.77$, $p < .001$, and disengagement $t(281) = 2.35$, $p = .019$, whereas males reported significantly greater active coping, $t(282) = 2.06$, $p = .041$. There were no significant differences in use of planning, positive reframing, seeking instrumental support, seeking emotional support, or substance use coping. Females had significantly higher depression scores at baseline, $t(284) = 3.16$, $p = .002$, and at 4-month follow-up, $t(224) = 3.14$, $p = .002$.

Age differences. Age was significantly correlated with planning ($r = .270$, $p < .001$), self-blame ($r = .135$, $p = .023$), and substance use coping ($r = .281$, $p < .001$), but did not differentiate other forms of coping. Age was correlated with baseline depression ($r = .19$, $p = .002$), but not with depression at 4-month follow-up ($r = -.01$). There were no significant differences with regard to age or sex for baseline suicidal ideation severity, history of lifetime

suicide attempt, or endorsements of suicidal ideation, suicide attempts, or suicidal behaviors during the follow-up period.

Associations between Coping Styles and Clinical Variables at Baseline

Bivariate correlations examined relationships between coping styles and clinical variables and can be seen in Table 2. Active coping, planning, positive reframing, seeking instrumental support, and seeking emotional support all had significant negative correlations with baseline depression and suicidal ideation severity, whereas self-blame and disengagement had significant positive correlations with baseline depression and suicidal ideation severity. Substance use coping did not have a significant relationship with either depression or suicidal ideation severity. Planning, positive reframing, and seeking instrumental support were negatively correlated with a history of suicide attempt, whereas self-blame, disengagement, and substance use were positively correlated with a history of suicide attempt.

Depression. The first step of the hierarchical linear regression predicting depression, which contained age, sex, and history of suicide attempt was significant, $F(3,269) = 9.06$, $p < .001$, $R^2 = .082$. The second step containing the eight coping variables contributed an additional 16.6% of the variance in depression scores and this change to R^2 was significant, $F(8,261) = 8.46$, $p < .001$, $R^2 = .248$. Age, positive reframing, self-blame, and disengagement were significant independent predictors in the final model; positive reframing was negatively related to depression (see Table 3).

Suicidal Ideation Severity. The first step of the hierarchical linear regression predicting suicidal ideation, which contained age, sex, history of suicide attempt, and baseline depression was significant, $F(4,268) = 21.30$, $p < .001$, $R^2 = .230$. The second step containing the eight coping variables contributed an additional 4.5% of the variance in suicidal ideation severity

scores and this change to R^2 was significant, $F(8, 260) = 3.09$, $p = .002$, $R^2 = .275$. Baseline depression, history of suicide attempt, positive reframing, and self-blame were significant independent predictors in the final model; positive reframing was negatively related to suicidal ideation severity (see Table 3).

History of Suicide Attempt. In a MANCOVA of coping styles controlling for age, sex, and suicidal ideation severity, only self-blame ($F(1,272) = 5.05$, $p = .025$), disengagement ($F(1,272) = 9.82$, $p = .002$), and substance use coping ($F(1,272) = 5.68$, $p = .018$) were significantly influenced by a history of suicide attempt.

Longitudinal Associations between Coping Styles and Clinical Outcomes

Depression. The first step of the linear regression predicting depression at 4-month follow-up, which contained age, sex, history of suicide attempt, and baseline depression was significant, $F(4,219) = 6.28$, $p < .001$, $R^2 = .087$. The second step was reduced to include active coping, which contributed an additional 2.2% of the variance in follow-up depression scores and this change to R^2 was significant, $F(1,218) = 6.50$, $p = .011$, $R^2 = .109$. Sex (female), history of suicide attempt, baseline depression scores, and active coping were each significant independent predictors in this model; active coping was negatively related to depression (see Table 4).

Suicidal Ideation. The first step of the logistic regression predicting suicidal ideation within the past month of the 4-month follow-up, which contained age, sex, history of suicide attempt, and baseline suicidal ideation severity was significant, $\chi^2(4) = 13.42$, $p = .009$, Nagelkerke $R^2 = .083$. The second step included disengagement and was significant, $\chi^2(1) = 4.48$, $p = .034$, contributing an additional 2.7% of the variance to the Nagelkerke R^2. Baseline use of disengagement predicted suicidal ideation at 4-month follow-up in the final model, whereas

age, sex, baseline suicidal ideation severity and history of suicide attempt were not significant independent predictors (see Table 5).

Suicide Attempt. The first step of the logistic regression predicting suicide attempts during the 4-month follow-up period, which contained age, sex, and history of suicide attempt, was not significant, $\chi^2(3) = 3.14$, $p = .370$, Nagelkerke $R^2 = .031$. The second step included self-blame and was significant, $\chi^2(1) = 4.05$, $p = .044$, contributing an additional 3.9% of the variance to the Nagelkerke R^2. None of the variables were significant independent predictors in the final model (See Table 5).

Suicidal Behavior. The first step of the logistic regression predicting suicidal behavior, broadly defined, during the 4-month follow-up period also contained age, sex, and history of suicide attempt. This was significant, $\chi^2(3) = 8.94$, $p = .030$, Nagelkerke $R^2 = .065$. The second step included self-blame and positive reframing and was significant, $\chi^2(2) = 6.33$, $p = .042$, contributing an additional 4.5% of the variance to the Nagelkerke R^2. None of the variables were significant independent predictors in the final model (See Table 5).

Differences in Associations of Coping Styles by Sex

Correlation analyses examined associations between disengagement and substance use coping separately for males and females; r to z transformations were computed to assess for significant differences. Disengagement had a significantly stronger association with baseline depression for females as compared to males ($r = .45$ vs. $r = .11$, $Z = 3.00$, $p = .003$). Substance use coping had a significantly stronger association with suicidal ideation at follow-up for males as compared to females ($r = .20$ vs. $r = -.09$, $Z = 2.12$, $p = .034$). There were no additional significant differences in clinical associations (e.g., baseline suicidal ideation severity, follow-up suicide attempt or suicidal behavior) for these coping styles based on sex.

Disengagement by Sex with Depression. Linear and logistic regressions examined the moderation effects of sex on coping. The first step of the linear regression predicting baseline depression, which contained age, sex, history of suicide attempt, and disengagement coping was significant, $F(4,277) = 14.24$, $p < .001$, $R^2 = .159$. The second step containing the interaction between disengagement and sex contributed an additional 1.9% of the variance in depression scores and this change to R^2 was significant, $F(1, 276) = 7.42$, $p = .007$, $R^2 = .178$. Age, sex (female), and the interaction between disengagement and sex were significant independent predictors in the final model (see Table 6).

Substance Use Coping by Sex with Suicidal Ideation. The first step of the logistic regression predicting suicidal ideation within the past month of the 4-month follow-up, which contained age, sex, baseline suicidal ideation severity, and substance use coping was not significant, $\chi^2(4) = 8.08$, $p = .089$, Nagelkerke $R^2 = .050$. The second step included the interaction between substance use coping and sex and was not significant, $\chi^2(1) = 3.34$, $p = .068$, contributing an additional 2.1% of the variance to the Nagelkerke R^2. Baseline suicidal ideation severity was the only significant independent predictor of suicidal ideation at 4-month follow-up in the final model.

Exploratory. R to z transformations were computed in exploratory analyses examining correlations between additional coping variables and clinical variables. Self-blame in females was more strongly correlated with depression ($r = .41$ vs. $r = .11$, $Z = 2.72$, $p = .006$) and suicidal ideation severity ($r = .43$ vs. $r = .14$, $Z = 2.60$, $p = .009$). Planning in males was more strongly protective of suicide attempts ($r = -.22$ vs. $r = .08$, $Z = 2.26$, $p = .024$) and active coping in males was more strongly protective of suicidal behavior ($r = -.23$ vs. $r = .17$, $Z = 2.99$, $p = .003$). There were no additional significant differences in outcomes for coping behaviors based on sex. Linear

and logistic regressions examined the moderation effects of gender on coping for variables with significant *Z* scores.

Self-Blame by Sex with Depression. The first step of the linear regression predicting baseline depression, which contained age, sex, history of suicide attempt, and self-blame was significant, $F(4,278) = 12.46$, $p < .001$, $R^2 = .140$. The second step containing the interaction between self-blame and sex contributed an additional 3.2% of the variance in depression scores and this change to R^2 was significant, $F(1, 277) = 11.81$, $p = .001$, $R^2 = .172$. Age, sex (female), and the interaction between self-blame and sex were significant independent predictors in the final model (see Table 6).

Self-Blame by Sex with Suicidal Ideation Severity. The first step of the linear regression predicting baseline suicidal ideation severity, which contained age, sex, history of suicide attempt, baseline depression, and self-blame was significant, $F(5,277) = 20.62$, $p < .001$, $R^2 = .258$. The second step containing the interaction between self-blame and sex contributed an additional 0.9% of the variance in suicidal ideation severity scores and this change to R^2 was significant, $F(1, 276) = 4.27$, $p = .040$, $R^2 = .267$. History of suicide attempt, baseline depression, and the interaction between self-blame and sex were significant independent predictors in the final model (see Table 6).

Planning by Sex with Suicide Attempts. The first step of the logistic regression predicting suicide attempts during the 4-month follow-up period, which contained age, sex, history of suicide attempt, and planning was not significant, $\chi^2(4) = 4.62$, $p = .331$, Nagelkerke $R^2 = .044$. The second step included the interaction between planning and sex and was significant, $\chi^2(1) = 5.84$, $p = .016$, contributing an additional 5.5% of the variance to the Nagelkerke R^2. The interaction between planning and sex was the only significant independent

predictor of suicide attempts over the 4-month follow-up period in the final model (See Table 7; Figure 1).

Active Coping by Sex with Suicidal Behavior. The first step of the logistic regression predicting suicidal behavior during the 4-month follow-up period, which contained age, sex, history of suicide attempt, and active coping was significant, $\chi^2(4) = 10.42$, $p = .034$, Nagelkerke $R^2 = .075$. The second step included the interaction between active coping and sex and was significant, $\chi^2(1) = 8.69$, $p = .003$, contributing an additional 5.9% of the variance to the Nagelkerke R^2. History of suicide attempt, active coping, and the interaction between active coping and sex were significant independent predictors of suicidal behaviors over the 4-month follow-up period in the final model; active coping was negatively related to suicidal behavior (See Table 7; Figure 2).

Differences in Associations of Coping Styles by Age

There were no significant relationships between the interactions of age by positive reframing or age by self-blame with clinical variables. However, there was a significant interaction for disengagement by age with suicidal ideation severity.

Disengagement by Age with Suicidal Ideation Severity. The first step of the linear regression predicting baseline suicidal ideation severity, which contained age, sex, history of suicide attempt, baseline depression, and disengagement was significant, $F(5,276) = 18.47$, $p < .001$, $R^2 = .237$. The second step containing the interaction between disengagement and age contributed an additional 1.8% of the variance in suicidal ideation severity scores and this change to R^2 was significant, $F(1, 275) = 7.70$, $p = .006$, $R^2 = .255$. History of suicide attempt, baseline depression, and the interaction between disengagement and age were significant independent predictors in the final model (see Table 8).

Exploratory. Correlational analyses examined the remaining interactions between coping styles and age with clinical variables. There was a significant interaction of age by use of planning in relation to suicidal behavior.

Planning by Age with Suicidal Behavior. The first step of the logistic regression predicting suicidal behavior during the 4-month follow-up period, which contained age, sex, history of suicide attempt, and planning was not significant, $\chi^2(4) = 7.59$, $p = .108$, Nagelkerke $R^2 = .056$. The second step included the interaction between planning and age and was significant, $\chi^2(1) = 7.56$, $p = .006$, contributing an additional 5.4% of the variance to the Nagelkerke R^2. History of suicide attempt, planning, and the interaction between planning and age were significant independent predictors of suicidal behaviors over the 4-month follow-up period in the final model (See Table 9; Figure 3); planning was negatively related to suicidal behavior.

Post-Hoc Exploratory Examination by Age Group

Additional analyses explored age categorically, with those ages 13-15 (young adolescent), 16-18 (mid-adolescent), and 19-25 (emerging adulthood) separated into distinct groups. This was done to examine differential associations between coping with depression and suicidal ideation with age in a non-linear fashion. Positive reframing and self-blame had significantly smaller relationships with clinical variables in the mid-adolescent group relative to the young adolescent and emerging adult groups. Complete correlational analyses and r-to-z transformation scores can be seen in Table 10.

CHAPTER IV

Discussion

This study examined concurrent and longitudinal relationships between coping styles and suicide risk within a sample of patients seeking emergency services for a psychiatric problem. To our knowledge, no other studies have examined longitudinal associations between coping styles and suicide-related outcomes within a high risk clinical sample. The findings from this study may help to clarify the particular coping behaviors most closely associated with mental health and suicide-related outcomes, and also illuminate differential influences of coping on outcomes based on sex and age. These findings may be especially relevant for intervention development focused on teaching or changing coping behaviors for suicide prevention.

Associations of Coping Styles with Baseline Clinical Variables

While nearly all of the specific coping behaviors had significant concurrent relationships with baseline depression, suicidal ideation severity, and suicide attempt history, multivariate analyses indicated that self-blame was the sole coping behavior significantly associated with depression, suicidal ideation, and history of suicide attempt even after accounting for other forms of coping and clinical variables. Positive reframing had a negative association with depression and suicidal ideation, whereas disengagement was positively associated with depression and history of attempt, and substance use coping was positively associated with suicide attempt history only. These results are consistent with past studies linking self-blame and disengagement with negative outcomes (e.g., Compas et al., 2001; Horwitz et al., 2011) and studies linking positive reframing with more positive outcomes (e.g., Connor-Smith & Compas, 2004).

It was somewhat surprising that the problem-solving coping styles(i.e., active coping, planning) did not predict depression or suicidal ideation in multivariate analyses. Since this sample is one in which all participants were experiencing a psychiatric emergency, it may be that problem-solving coping abilities were not effective at that particular time and thus unrelated to concurrent symptoms. Alternatively, positive reframing may have simply been more influential among the more adaptive coping behaviors, as it may be difficult to implement problem-solving strategies if the problem is not first reframed in a way that they can be approached effectively. It was also noteworthy that none of the 'adaptive' coping strategies were significantly associated with history of suicide attempt in the multivariate analyses. These finding are consistent with studies indicating that adaptive strategies are less indicative than avoidant strategies in distinguishing those with histories of suicide attempt (e.g., Kim & Kim, 2008) or deliberate self-harm (e.g., Guerreiro et al., 2013). We were also surprised that substance use coping had non-significant relationships with suicidal ideation and depression, although this may be explained by the relatively low endorsement of this item, given the age of the sample. Furthermore, substance-use coping was strongly endorsed by a minority of patients seeking psychiatric services for an addiction problem without any suicide-related concerns.

Longitudinal Associations of Coping Styles with Clinical Outcomes

Despite a non-significant relationship with baseline depression in the multivariate analyses, active coping had a negative association and was the only coping variable independently associated with depression at follow-up. This finding contrasts with past research suggesting maladaptive coping behaviors are better predictors of future depression than use of adaptive coping behaviors (e.g., Cairns et al., 2014). It may be that adaptive coping behaviors, such as active coping, can better distinguish longitudinal outcomes for depression among clinical

or high risk samples, when there is a higher prevalence of maladaptive coping behaviors across the sample.

While self-blame and positive reframing were significantly correlated with follow-up suicidal ideation, the use of disengagement was the only coping variable with a significant association with suicidal ideation at the follow-up in multivariate analyses. In fact, the use of disengagement was the only significant predictor of follow-up suicidal ideation in a model that included baseline suicidal ideation severity and history of suicide attempt. However, disengagement was not a significant predictor of future suicide attempts or suicidal behavior. It may be that the use of disengagement, which involves giving up the attempt to cope, is a more passive form of maladaptive coping, and may not necessarily be tied to taking action and engaging in maladaptive behaviors, but facilitates negative and maladaptive thinking patterns.

None of the coping variables were significant independent predictors of suicide attempts or suicidal behaviors in the multivariate models. However, history of suicide attempt also did not predict future suicide attempts or behavior, despite being the best known predictor of future suicide attempts (e.g., Brent et al., 1999). It may be that due to the relatively short follow-up period, the high risk status of the full sample, and relatively low incidence rates that suicide attempts and behaviors were especially difficult to predict in this study. Despite not being significant independent predictors, the hierarchical step of self-blame predicting suicide attempts and the hierarchical step of self-blame and positive reframing predicting suicidal behavior were significant and contributed additional variance to the model. It may be that these coping styles would have had a stronger relationship if the sample was larger or had a higher incidence rate of suicide attempts and behaviors.

These findings suggest that coping styles do have significant implications and are able to distinguish risk associated with depression, suicidal ideation, and suicide attempts and behaviors, even among a high risk clinical sample. The more modest relationships between coping and the longitudinal variables, relative to the concurrent variables, is consistent with studies noting a lack of stability/consistency for coping (e.g., Folkman et al., 1986). Coping may both influence and be influenced by concurrent factors such as depression or suicidal thoughts and potentially look different during a period leading up to a psychiatric crisis than during the months that follow. Future studies may benefit from assessing coping at multiple time points in relation to depression and suicidal ideation, as it may potentially elucidate sequential patterns between changes in coping and changes in mood or suicide-related symptoms.

Sex as a Moderator between Coping Styles and Clinical Variables

Study findings contribute to our understanding the differential relationship between coping with suicide-related outcomes for males and females. For instance, the relationships between self-blame and disengagement with concurrent depression were significantly stronger for females than for males, as was the relationship between self-blame and concurrent suicidal ideation severity. The finding regarding disengagement is consistent with past studies indicating that its use is more functionally impairing for females (e.g., Wadsworth et al., 2004). However, past studies have not indicated sex differences for self-blame. Our results may be explained by different types of stress experienced by sex (e.g., females more likely to experience network/interpersonal stress) or the degree to which the individual is actually responsible for the stressful situation, which may vary based on type of stress (e.g., getting a poor grade vs. domestic violence in the home). It may be that self-blame for situations in which there is some personal responsibility (e.g., poor grade on a test) is less impairing than use of self-blame for

situations with little to no personal responsibility (e.g., parental conflict, experiencing abuse). Further research that addresses the specific context in which self-blame is applied is needed to better understand sex differences and associations with suicide risk.

Perhaps the most clinically relevant findings from this study were the differential associations between problem-solving coping styles (i.e., active coping, planning) and suicide attempts and suicidal behavior based on sex. While these strategies were relatively protective of future suicidal behavior for males, they were indicative of risk for suicidal behaviors in females. This finding highlights the importance of understanding *how* specific coping behaviors are used. For instance, if being alive is viewed as a problem, as it may be for suicidal individuals, engaging in suicidal behavior may be the outcome of problem-focused approaches. While the sources of stress for coping were not captured in this study, past studies have suggested that females typically encounter greater amounts of interpersonal/network stress (e.g., Kessler & McLeod, 1984; Rose & Rudolph, 2006), which are typically less controllable. The rates of sexual abuse, while not measured in this study, also tend to be higher in females at elevated risk for suicide. If females are using problem-focused approaches to cope with uncontrollable situations (e.g., network stress, past victimization), then they are likely going to experience greater difficulties in functioning (e.g., Compas et al., 2001), which may help to explain study findings. Additionally, it is important to acknowledge that within a psychiatric emergency sample, all of the participants are to an extent 'failing to cope' with their current circumstances. Therefore, even though adaptive strategies may be endorsed, it may be that they are not being utilized appropriately or effectively by females.

Age as a Moderator between Coping Styles and Clinical Variables

Consistent with study hypotheses, the use of planning and substance use coping increased with age in the sample. Self-blame also increased with age, which was not hypothesized, but this finding may be partially explained by increases in depressive symptoms with age. Despite past evidence suggesting self-blame is more harmful for adolescents than adults and positive reframing as being more protective for adults than adolescents (e.g., Garnefski et al., 2002), study results indicated very few significant differences in associations between coping and clinical variables based on age in this sample. Among the significant findings was the moderation effect of age on the associations between disengagement and suicidal ideation severity. Past studies indicated that coping was generally more influential on functioning for older adolescents (e.g., Plancherel et al., 1998). Therefore, it was hypothesized that disengagement would be more impairing for older adolescents and young adults, as there is a greater degree of responsibility (e.g., occupational, academic) for this age group that would be impacted by disengagement and fewer supports (e.g., living with family) to encourage re-engagement. Findings supported this hypothesis, as disengagement scores were significantly higher among older participants with the highest levels of suicidal ideation severity.

While age had not been hypothesized to moderate the effect of planning on outcomes, there was a significant interaction effect on suicidal behavior, whereby use of planning was a protective factor for suicidal behavior in younger participants. There are several potential explanations for why planning may be more protective of suicidal behavior for younger adolescents. For one, greater use of planning may indicate lower levels of trait-impulsivity, which is related to younger age of death by suicide (e.g., McGirr et al., 2008). Furthermore, planning requires use of a pre-frontal cortex higher-order cognitive function, so it may be that the emergence of planning as a coping behavior at an early age indicates a greater degree of

cognitive maturity and potentially other associated protective strengths. Since the older individuals are at an age when they should be more cognitively able to utilize higher-order coping skills, planning may no longer have held protective value.

There are several possible explanations for why very few age differences emerged in this study, despite theoretical support from the developmental literature suggesting significant changes in coping during the adolescent and early adult years (e.g., Compas et al., 2001; Skinner & Zimmer-Gembeck, 2007). The first explanation is that despite changes in endorsement of particular coping behaviors over time, the associations between coping strategies with depression and suicide are relatively consistent. However, given the relative homogeneity of risk in the sample (i.e., all were experiencing psychiatric emergency), it is possible that there was insufficient variability to detect potential age differences in associations between coping and clinical variables. Additionally, the age range for this study spanned from 13-25 and may have been too constricted to detect significant differences in associations. Another important consideration and an area that requires additional examination is whether or not there may have been non-linear associations that were undetected by our interaction term. For example, if there were particular differences between coping and suicidal behavior for participants ages 13-15, but those 16 and up were relatively similar to each other, a linear interaction test may not pick-up this potential. Indeed, studies have indicated that coping can increase and stabilize based on different age groups (e.g., Wingo et al., 2015) and it is possible certain non-linear effects were suppressed in our analyses.

In order to explore potential non-linear effects of age on coping in relation to depression and suicidal ideation severity, post-hoc exploratory analyses examined three distinct age groups. Study findings generally suggested that the 16-18 year-old age group had weaker associations

between coping styles and symptom severity as compared to the 13-15 and 19-25 age groups. There may be important qualitative differences for this age group that make it unique from the other groups. It may be that suicide risk functions similarly to the developmental taxonomy developed by Moffitt (1993) for antisocial behavior, in that there are individuals who follow a 'life-course-persistent' chronic pattern of suicide risk. In line with this theory, there are others who are at suicide risk for a brief period in adolescence when the rates of suicidal thoughts and behaviors are greatest, similar to anti-social behaviors, and represent an 'adolescence-limited' period of elevated suicide risk. Thus, despite representing greater suicide risk at the population level, 16-18 years olds in a high risk sample may be capturing both life-course-persistent (LCP) and adolescence-limited individuals, whereas the 13-15 year-old group is exhibiting risk symptoms early (LCP) and the 19-25 years olds are continuing to exhibit symptoms following the high risk period (LCP). It may be that coping styles have a stronger impact on functioning for individuals in the LCP track than those on the adolescence-limited track, although future research would need to test this supposition directly.

Integration and Clinical Implications

Study findings, taken together, highlight the significance of coping in relation to mental health and suicide risk. Even among a sample comprised of individuals experiencing a psychiatric emergency, self-reported coping behaviors were able to distinguish severity of presentation at baseline and accounted for variation in suicidal ideation, suicide attempts, and suicidal behaviors at follow-up. Furthermore, significant moderation effects between specific coping behaviors and outcomes were found for sex and age. These moderation effects lend support to the recommendations suggested by Daniel and Goldston (2009) that interventions for

adolescents and young adults at risk for suicide would benefit from an approach that was differentially applied based on sex and age.

Findings from this study may help to inform intervention efforts incorporating coping skills into suicide prevention strategies. While a number of interventions geared toward reducing suicide risk have incorporated coping skills (e.g., Berk et al., 2004; Fitzpatrick et al., 2005; Stanley et al., 2015), there have been very few longitudinal studies linking coping styles with suicidal thoughts or behaviors. Furthermore, this study is the first to our knowledge to longitudinally examine coping styles within a high risk clinical sample. Thus, interventions have incorporated coping skills without a full understanding of how coping styles may relate to outcomes. Our findings suggest that the use of disengagement is predictive of future suicidal ideation and that self-blame and positive reframing may be implicated in future suicidal behavior among those at elevated risk for suicide. Furthermore, some problem-solving strategies may be more adaptive for males than females, but further investigation into this finding is warranted to explain potential contextual influences. Our study did not find use of emotional or instrumental support to be associated with suicide-related outcomes, yet reaching out to others is an important external coping resource for safety-planning interventions (e.g., Stanley & Brown, 2012; Stanley et al., 2015). However, there may have been potential moderators that differentiate effective from ineffective support seeking that we were unable to account for in this study.

Positive reframing emerged in our study as the coping behavior most consistently associated with positive outcomes. Of particular importance, despite significant correlations for both positive reframing and the problem-solving coping skills (active coping, planning) with baseline depression and suicidal ideation, positive reframing remained a significant independent protective factors in the multivariate analyses whereas the problem-solving coping styles were

not significant. There may be important implications for sequencing of coping skills and an underlying need to adequately be able to utilize positive reframing in order to effectively problem-solve. This has important implications for problem-solving interventions and suggests that teaching how to frame the problem before acting to solve it may be a particularly important step for adolescents and young adults at risk for suicide.

While cognitive restructuring is a core component of CBT, there may be potential benefits to developing short-term interventions focused on this skill specifically for suicide-risk populations. Not only would this help to increase the use of positive reframing as a coping skill, but it may also help to reduce the use of the coping behavior most strongly associated with suicide risk in this study, self-blame. We were unable to ascertain the circumstances for which self-blame was applied by participants, but given the elevated rates of physical and sexual abuse in psychiatric samples (e.g., Brown & Anderson, 1991; Read & Fraser, 1998) and associations between self-blame and psychiatric symptoms among victims of abuse (e.g., Wolfe, Sas, & Wekerle, 1994), it is likely that self-blame was often applied disproportionately for circumstances or events that the participant held little to no responsibility. Thus, a cognitive restructuring intervention that both reduces self-blame and increases positive reframing could potentially make a very large impact in reducing suicide risk with this population.

In addition to the clinical implications, study findings have implications for research seeking to distinguish those with suicidal ideation only from those who engage in suicide attempts or behavior (e.g., Klonsky & May, 2014). The most unique contribution to this area of research was the finding that disengagement longitudinally predicted suicidal ideation above and beyond baseline suicidal ideation, suicide attempt history, and other coping styles. However, disengagement was not associated with engaging in suicidal behavior or suicide attempts. It may

be that the passive and inactive nature of disengagement allows for continued thoughts of suicide without taking action, which is in contrast to the risk associated with suicidal behavior for active coping in females. The high risk composition of our sample must be taken into consideration with these findings and with it, recognition that because an adaptive coping behavior is applied toward a maladaptive solution does not mean the coping behavior itself is maladaptive. Nonetheless, it seems that within a high risk sample, a disengaged attitude toward coping may be less risky than using problem-solving techniques to "solve" suicidal ideation via suicide attempt.

Limitations

While this study had many strengths, there were also a number of limitations that should be taken into consideration. One primary study limitation concerns the measurement of coping. Coping behaviors were determined by self-report and based on 2-item subscales. Furthermore, our measure asked in a broad fashion to report the ways in which the participant typically copes, and thus does not allow for inferences as to the 'matching' process of specific coping behavior to type of stressor that may be particularly important for inferring functionality. The way in which the participant reported how they 'typically' cope may also have been influenced by the current mood/psychiatric state at the time of assessment and may not have been truly representative of their typical coping behaviors. Limitations of coping measurement, however, are quite common across studies attempting to measure coping, as coping is a context-dependent transactional process that is heavily influenced by individual differences. Thus, self-reported measures of coping may only be capturing a component of the full coping picture.

A strength of this study was its longitudinal design, but a limitation within this strength was that we had only one follow-up assessment and it occurred after a relatively short period of time. Furthermore, coping was not assessed at the follow-up assessment, which would have

allowed for a closer examination into stability factors and changes in coping that may have contributed to differences in outcomes. While the four-month follow-up time point allowed for an assessment of acute risk for suicidal behavior, the relatively short time period may have limited our ability to detect variability in outcomes over time. Since there were only 21 suicide attempts during the follow-up period, suicidal behaviors (actual/aborted/interrupted attempts, preparatory behavior) were also examined as an outcome variable. Either a larger total sample or longer follow-up period may have provided greater power to predict suicide attempts in statistical models. Another potential confound for detecting outcome variables was that participants were either psychiatrically hospitalized or referred for outpatient services following their psychiatric emergency department visit. This study did not specifically assess treatment engagement following the index visit, which may have been a significant contributor to changes in coping and symptoms. Quantifying treatment engagement and impact can be challenging given differences in quality of care and type of treatments in community settings, though this remains an important area for further research.

While a study strength was a relatively large sample of high-risk adolescents and young adults, there are limitations related to generalizability of findings. Our study sample was recruited from one large psychiatric emergency department in a Midwestern university city. It is unclear whether the participants in our study are representative of patients seen in other psychiatric emergency departments. In particular, our participants were predominantly Caucasian, and we were underpowered to test for any potential differences based on race or ethnicity. Furthermore, because our participants were recruited from a university hospital, there may have been a greater proportion of college students in the 18-25 subset of participants relative to 18-25 year olds seen in community based emergency departments. This is an

important limitation because the rate of suicide is twice as high among college-age persons not attending school than those enrolled in college/university (Silverman, Meyer, Sloane, Raffel, & Pratt, 1997).

Directions for Future Research

Future studies would benefit from a longitudinal design with multiple time-points across an extended period of time, including measurements of coping at each assessment in order to assess for stability and change in coping. This would be especially valuable within a high risk clinical sample and allow for potential mediational analyses to examine pathways by which changes in coping and/or mood symptoms occur. It would also be valuable to examine whether suicidal thoughts and behaviors are more strongly influenced by 'state' coping behaviors (i.e., coping that may emerge during mood episodes or psychiatric distress) versus 'trait' coping behaviors (i.e., coping behaviors used consistently regardless of mood/stress). Utilizing multiple recruitment sites would allow for greater confidence in generalizability and potential moderator analyses concerning race and ethnicity, and a longer study period would increase power by having a larger number of suicide attempts to predict.

Another area for future research concerns the measurement of coping. Since coping is defined as "constantly changing cognitive and behavioral efforts" (Lazarus & Folkman, 1984), there are clear limitations in measuring coping statically. Furthermore, most studies have only been able to gather a limited amount of information with regard to how a particular coping behavior is applied to a particular situation. This is further complicated by the fact that a single situation (e.g., death in family) may contain multiple sources of stress that fall under different categories (e.g., interpersonal, financial), and that some individuals may respond to relatively similar situations with different coping behaviors depending on state-based factors (e.g., mood,

fatigue). The coping field may benefit from intensive research that examines day-to-day applications of specific coping behaviors to specific problems and assessing the effectiveness of these strategies, which may be attainable through the use of daily electronic monitoring techniques. However, even with advanced technologies, there are likely unmeasurable internal processes associated with coping that an individual may not be fully aware of or able to report.

Future studies should also examine non-linear associations between age and coping styles. Given that there are a number of significant developmental milestones, challenges, and transitions that occur between early adolescence and young adulthood, it may be that particular forms of coping are more impactful, either positively or negatively, for discrete periods of time. Furthermore, additional research is needed to test a potential life-course-persistent vs. adolescence-limited model of suicidal behavior. Given that a number of the risky behaviors linked to anti-social behavior are also associated with increased suicide risk (e.g., substance use, risky sexual behavior, self-injurious behavior), it is plausible that a similar pattern may exist for suicide risk. As such, there may be important implications for research studies examining samples that range from early adolescence through adulthood, as some individuals in the mid-adolescence group may be characteristically different from others who follow a more life-course-persistent trajectory.

Findings from this study have implications for intervention development that should be considered for future research. While several coping styles were found to have associations only for males or females, positive reframing and self-blame were somewhat consistent in associations for both males and females. Given the noteworthy associations between these coping behaviors and outcomes, an intervention that focuses on positive reframing, with particular attention to reducing self-blame, could have significant positive effects within

populations at risk for suicide. This may be appropriate for implementation within the therapeutic programming that occurs during an inpatient hospitalization in order to reduce risk of suicidal behavior following discharge. Future studies may wish to consider this area for a randomized-controlled trial and examine outcomes for discharged patients relative to those who receive treatment as usual in the inpatient setting.

Summary/Conclusions

Specific coping behaviors were longitudinally examined in relation to depression, suicidal ideation, and suicide attempts/behaviors among adolescents and young adults seeking psychiatric emergency services. The use of positive reframing was generally associated with positive outcomes whereas the use of self-blame and disengagement were generally associated with negative outcomes. Several significant sex differences emerged in the association between specific coping behaviors and suicide risk. Most notably, the use of problem-solving coping behaviors (i.e., active coping, planning) were protective against suicide attempts and behaviors for males, but conveyed risk for females. This may be due to females utilizing problem-focused approaches to stressors that may be uncontrollable (e.g., interpersonal problems). These findings highlight the need to tailor interventions, particularly those with a coping emphasis, to account for developmental and sex-related differences in coping.

APPENDIX

Table 1. Descriptives with Age and Sex Comparisons

	Full Sample Mean (SD) N = 286	Age (*r*)	Females Mean (SD) n = 168	Males Mean (SD) n = 118	*t*-test
Coping Behaviors					
Active Coping	4.71 (1.6)	.12	4.55 (1.6)	4.95 (1.6)	2.05*
Planning	4.56 (1.8)	.27***	4.43 (1.7)	4.74 (1.7)	1.46
Positive Reframing	4.14 (1.8)	.11	4.00 (1.7)	4.30 (1.8)	1.63
Seek Instrumental Support	4.91 (1.7)	.02	4.93 (1.8)	4.89 (1.7)	0.19
Seek Emotional Support	5.15 (1.7)	-.09	5.16 (1.7)	5.15 (1.8)	0.07
Self-Blame	6.68 (1.6)	.14*	6.98 (1.4)	6.26 (1.7)	3.77***
Disengagement	5.22 (1.8)	.06	5.43 (1.9)	4.91 (1.8)	2.35*
Substance Use Coping	3.58 (2.2)	.28***	3.49 (2.0)	3.71 (2.4)	0.84
Baseline clinical variables					
Depression	3.87 (1.7)	.19**	4.13 (1.6)	3.50 (1.7)	3.16**
SI Severity	2.66 (1.7)	-.01	2.82 (1.7)	2.44 (1.7)	1.82
Hx of Attempt (% Yes)	36.0%	-.03	40.5%	29.5%	[a]3.52
4M clinical variables[b]					
Depression	2.08 (1.7)	-.01	2.39 (1.7)	1.67 (1.6)	3.14**
Suicidal Ideation (% Yes)	29.6%	-.01	30.2%	28.9%	[a]0.05
Suicide Attempt (% Yes)	9.3%	-.02	11.5%	6.2%	[a]1.90

Suicidal Behavior (% Yes)	17.6%	-.09	20.0%	14.4%	[a]1.19

Note. * p < .05 ** p < .01 *** p < .001
[a]Chi-square test [b]n at follow-up was 226 total (129 female, 97 male)
Ranges: Coping behaviors (2-8), Depression (0-6), SI Severity (0-5).

Table 2. Correlations of Coping Styles with Clinical Variables

	B Depression	B SI Severity	B Hx SA	4M Depression	4M SI	4M SA	4M SB
Active	-.26***	-.18**	-.10	-.25***	-.11	-.05	-.05
Planning	-.12*	-.24***	-.16**	-.01	-.06	-.04	-.09
Reframe	-.31***	-.32***	-.16**	-.20**	-.14*	-.06	-.15*
Instrumental S	-.20**	-.14*	-.12*	-.13*	-.01	-.06	-.09
Emotional S	-.21***	-.12*	-.05	-.12	.06	-.05	-.02
Self-Blame	.36***	.36***	.27***	.14*	.18**	.14*	.15*
Disengage	.36***	.29***	.28***	.18**	.20**	.04	.12
Substances	.08	.10	.16**	.04	.03	.00	.04
B Depression	---	.37***	.17**	.23**	.17**	.11	.11
B SI Severity	---	---	.38***	.12	.19**	.18**	.21**
B HX SA	---	---	---	.19**	.19**	.11	.19**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Baseline N = 284, 4M follow-up N = 224. B = Baseline; SI = Suicidal Ideation; Hx = History; 4M = 4-month follow-up; SA = Suicide Attempt; SB = Suicidal Behavior; S = Support.

Table 3. Linear Regressions of Coping Styles with Depression, Suicidal Ideation

Variables	Step 1				Step 2			
	B	SE(B)	β	R^2	B	SE(B)	β	ΔR^2
B Depression				.082				+ .166
Age	.092	.028	.192**		.079	.028	.166**	
Sex (0-M;1-F)	.558	.202	.161**		.268	.191	.077	
Hx of Attempt	.551	.208	.155**		.129	.202	.036	
Active	---	---	---		-.094	.086	-.087	
Planning	---	---	---		.096	.073	.099	
Reframing	---	---	---		-.192	.069	-.200**	
Instrumental S	---	---	---		-.052	.077	-.054	
Emotional S	---	---	---		-.038	.074	-.038	
Self-Blame	---	---	---		.241	.070	.219**	
Disengage	---	---	---		.148	.060	.160*	
Substances	---	---	---		-.033	.046	-.042	
B SI Severity				.230				+ .045
Age	-.026	.027	-.053		-.015	.029	-.031	
Sex (0-M;1-F)	.083	.192	.023		-.047	.192	-.013	
Hx of Attempt	1.16	.197	.317***		.916	.203	.252***	
Depression	.331	.057	.324***		.223	.062	.219***	
Active	---	---	---		.070	.087	.063	
Planning	---	---	---		-.112	.073	-.113	
Reframing	---	---	---		-.148	.070	-.151*	

Instrumental S	---	---	---	.032	.078	.032
Emotional S	---	---	---	-.029	.074	-.029
Self-Blame	---	---	---	.203	.071	.181**
Disengage	---	---	---	.015	.061	.016
Substances	---	---	---	.020	.046	.024

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.
B = Baseline; SI = Suicidal Ideation; Hx = History; S = Support.
R^2 = Adjusted R^2

Table 4. Linear Regression Predicting Depression at 4-Month Follow-up

Variables	Step 1				Step 2			
	B	SE(B)	β	R^2	B	SE(B)	β	ΔR^2
4M Depression				.087				+ .022
Age	-.025	.032	.052		-.012	.032	-.024	
Sex (0-M;1-F)	.511	.231	.146*		.466	.229	.133*	
Hx of Attempt	.561	.237	.154*		.510	.235	.140*	
B Depression	.186	.068	.184**		.141	.069	.140*	
Active	---	---	---		-.191	.075	-.171*	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.
Hx = History; B = Baseline; 4M = 4-month; R^2 = Adjusted R-Squared

Table 5. Logistic Regressions with Suicide-Related 4-Month Outcomes

Variables	Step 1				Step 2				
	B	SE(B)	Wald χ^2	R^2	B	SE(B)	Wald χ^2	OR (95% CI)	ΔR^2
4M SI				.083					+ .027
Age	.000	.043	0.00		-.011	.044	0.06	0.99 (.91, 1.08)	
Sex (0-M;1-F)	-.082	.311	0.07		-.128	.315	0.17	0.88 (.47, 1.63)	
Hx of Attempt	.710	.324	4.80*		.588	.331	3.15	1.80 (.94, 3.45)	
B SI Severity	.196	.098	4.03*		.164	.101	2.67	1.18 (.97, 1.43)	
Disengage	---	---	---		.194	.093	4.37*	1.21 (1.01, 1.46)	
4M SA				.031					+ .039
Age	-.009	.067	.018		-.028	.069	0.16	0.97 (.85, 1.11)	
Sex (0-M;1-F)	.531	.512	1.07		.376	.519	0.53	1.46 (.53, 4.03)	
Hx of Attempt	.616	.475	1.68		.376	.488	0.59	1.46 (.56, 3.80)	
Self-Blame	---	---	---		.417	.234	3.18	1.52 (.96, 2.40)	
4M SB				.065					+ .045
Age	-.060	.053	1.32		-.068	.055	1.54	0.93 (.84, 1.04)	
Sex (0-M;1-F)	.263	.374	0.50		.073	.387	0.04	1.08 (.50, 2.30)	

Hx of Attempt	.917	.362	6.40*	.673	.377	3.19	1.96 (.94, 4.10)
Reframe	---	---	---	-.179	.120	2.23	.84 (.66, 1.06)
Self-Blame	---	---	---	.259	.153	2.88	1.30 (.96, 1.75)

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.
Hx = History; SI = Suicidal Ideation; SA = Suicide Attempt; SB = Suicidal Behavior; B = Baseline; 4M = 4-month; Wald χ^2 values are degrees of freedom (1)
R^2 = Nagelkerke R-Squared

Table 6. Linear Regressions with Coping by Sex Interaction Effects

Variables	Step 1				Step 2			
	B	SE(B)	β	R^2	B	SE(B)	β	ΔR^2
B Depression				.159				+ .019
Age	.098	.026	.205***		.098	.026	.205***	
Sex (0-M;1-F)	.441	.190	.128*		.466	.188	.136*	
Hx of Attempt	.339	.198	.097		.286	.196	.082	
Disengage	.084	.016	.295***		.035	.024	.121	
Disengage*Sex	---	---	---		.087	.032	.231**	
B Depression				.140				+ .032
Age	.095	.026	.199***		.103	.026	.217***	
Sex (0-M;1-F)	.404	.193	.118*		.421	.189	.123*	
Hx of Attempt	.414	.198	.118*		.363	.195	.103	
Self-Blame	.084	.016	.295***		.023	.021	.084	
Self-Blame*Sex	---	---	---		.104	.030	.259**	
B SI Severity				.258				+ .009
Age	-.017	.026	-.034		-.009	.026	-.019	
Sex (0-M;1-F)	-.013	.185	-.004		.006	.184	.002	
Hx of Attempt	1.09	.189	.303***		1.07	.189	.298***	
B Depression	.281	.057	.275***		.257	.058	.251***	
Self-Blame	.050	.015	.178**		.023	.020	.082	
Self-Blame*Sex	---	---	---		.062	.030	.150*	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.
B = Baseline; SI = Suicidal Ideation; Hx = History; S = Support. R^2 = Adjusted R^2

Table 7. Logistic Regressions with Coping by Sex Interaction Effects

Variables	Step 1				Step 2				
	B	SE(B)	Wald χ^2	R^2	B	SE(B)	Wald χ^2	OR (95% CI)	ΔR^2
4M SA				.044					+ .055
Age	-.024	.068	0.13		-.021	.067	0.10	.98 (.86, 1.12)	
Sex (0-M;1-F)	.615	.509	1.46		1.07	.653	2.66	2.90 (.81, 10.43)	
Hx of Attempt	.738	.478	2.38		.743	.478	2.41	2.10 (.82, 5.37)	
Planning	.003	.061	0.00		-.249	.132	3.57	.78 (.60, 1.01)	
Planning*Sex	---	---	---		.335	.147	5.19*	1.40 (1.05, 1.87)	
4M SB				.075					+ .059
Age	-.066	.053	1.58		-.068	.054	1.59	.93 (.84, 1.04)	
Sex (0-M;1-F)	.274	.375	0.53		.366	.400	0.84	1.44 (.66, 3.16)	
Hx of Attempt	.988	.365	7.32**		.933	.369	6.40*	2.54 (1.23, 5.24)	
Active	.026	.048	0.28		-.202	.099	4.14*	.82 (.67, .99)	
Active*Sex	---	---	---		.326	.117	7.80**	1.39 (1.10, 1.74)	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$; Wald χ^2 values are degrees of freedom (1); R^2 = Nagelkerke R-Squared
Hx = History; SA = Suicide Attempt; SB = Suicidal Behavior; 4M = 4-month;

Table 8. Linear Regression with Coping by Age Interaction Effect

Variables	Step 1				Step 2			
	B	SE(B)	β	R^2	B	SE(B)	β	ΔR^2
B SI Severity				.237				+ .018
Age	-.024	.026	-.049		-.023	.026	-.047	
Sex (0-M;1-F)	.064	.187	.018		.060	.184	.017	
Hx of Attempt	1.10	.193	.307***		1.08	.191	.301***	
B Depression	.311	.059	.304***		.296	.058	.290***	
Disengage	.022	.016	.076		.033	.017	.113*	
Disengage*Age	---	---	---		.013	.005	.147**	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.
B = Baseline; SI = Suicidal Ideation; Hx = History; S = Support. R^2 = Adjusted R^2

Table 9. Logistic Regression with Coping by Age Interaction Effect

Variables	Step 1				Step 2				
	B	SE(B)	Wald χ^2	R^2	B	SE(B)	Wald χ^2	OR (95% CI)	ΔR^2
4M SB				.056					+ .054
Age	-.050	.054	0.85		-.066	.060	1.19	.94 (.83, 1.05)	
Sex (0-M;1-F)	.213	.376	0.32		.204	.383	0.28	1.23 (.58, 2.60)	
Hx of Attempt	.826	.374	4.88*		.909	.389	5.46*	2.48 (1.16, 5.32)	
Planning	-.019	.048	0.16		-.643	.235	7.49**	.53 (.33, .83)	
Planning*Age	---	---	---		.037	.013	7.51**	1.04 (1.01, 1.07)	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$; Wald χ^2 values are degrees of freedom (1); R^2 = Nagelkerke R-Squared
Hx = History; SB = Suicidal Behavior; 4M = 4-month;

Table 10. Post-Hoc Exploratory Examination of Age by Depression and SI Severity

		B Depression	B SI Severity
Active Coping	13-15[a] (Y)	-.377***	-.148
	16-18[b] (M)	-.108	-.104
	19-25[c] (O)	-.366***	-.254*
	r-to-z	n.s.	n.s.
Planning	13-15	-.176	-.202*
	16-18	-.231*	-.306**
	19-25	-.117	-.211*
	r-to-z	n.s.	n.s.
Reframing	13-15	-.425***	-.408***
	16-18	-.194	-.089
	19-25	-.427***	-.477***
	r-to-z	n.s.	2.31 (Y>M); 2.88 (O>M)
Instrumental S	13-15	-.204*	-.074
	16-18	-.021	.075
	19-25	-.314**	-.217*
	r-to-z	2.04 (O>M)	1.98 (O>M)
Emotional S	13-15	-.149	-.116
	16-18	-.130	.063
	19-25	-.203*	-.101
	r-to-z	n.s.	n.s.
Self-Blame	13-15	.430***	.378***
	16-18	.088	.208*
	19-25	.398***	.353***
	r-to-z	2.50 (Y>M); 2.23 (O>M)	n.s.
Disengage	13-15	.278**	.123
	16-18	.244*	.155
	19-25	.457***	.489***
	r-to-z	n.s.	2.78 (O>Y); 2.54 (O>M)
Substances	13-15	.086	.129
	16-18	.105	.174
	19-25	.036	.111
	r-to-z	n.s.	n.s.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. [a]n = 98; [b]n=89; [c]n=97
B = Baseline; SI = Suicidal Ideation; S = Support.

Figure 1. Planful Coping by Sex with 4M Suicide Attempts

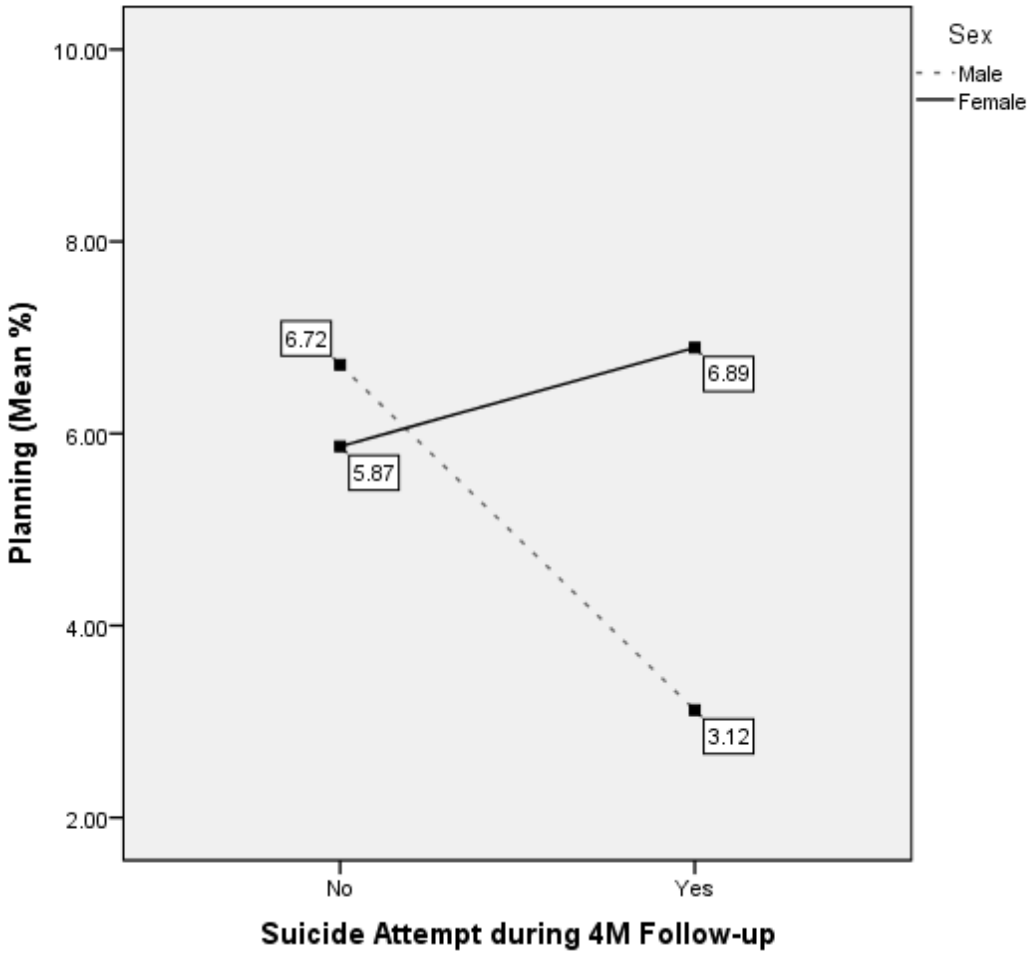


Figure 2. Active Coping by Sex with 4M Suicidal Behavior

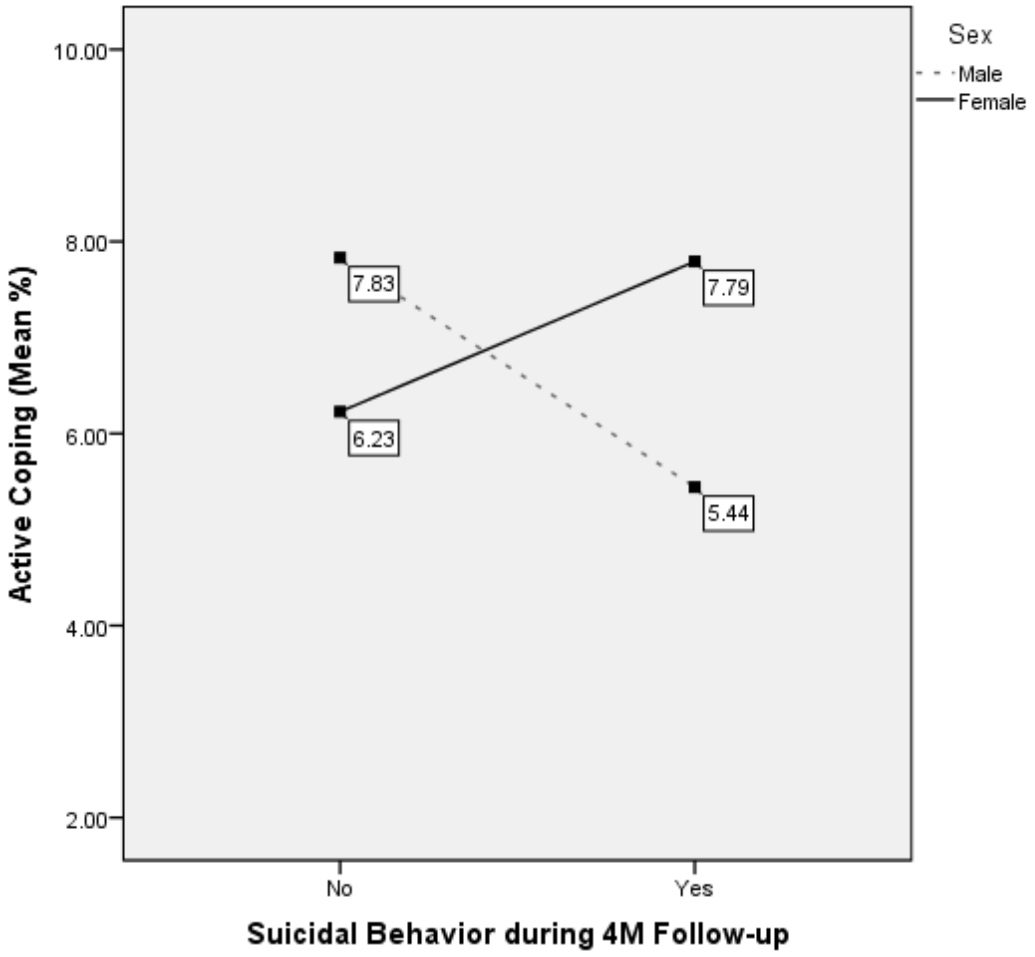
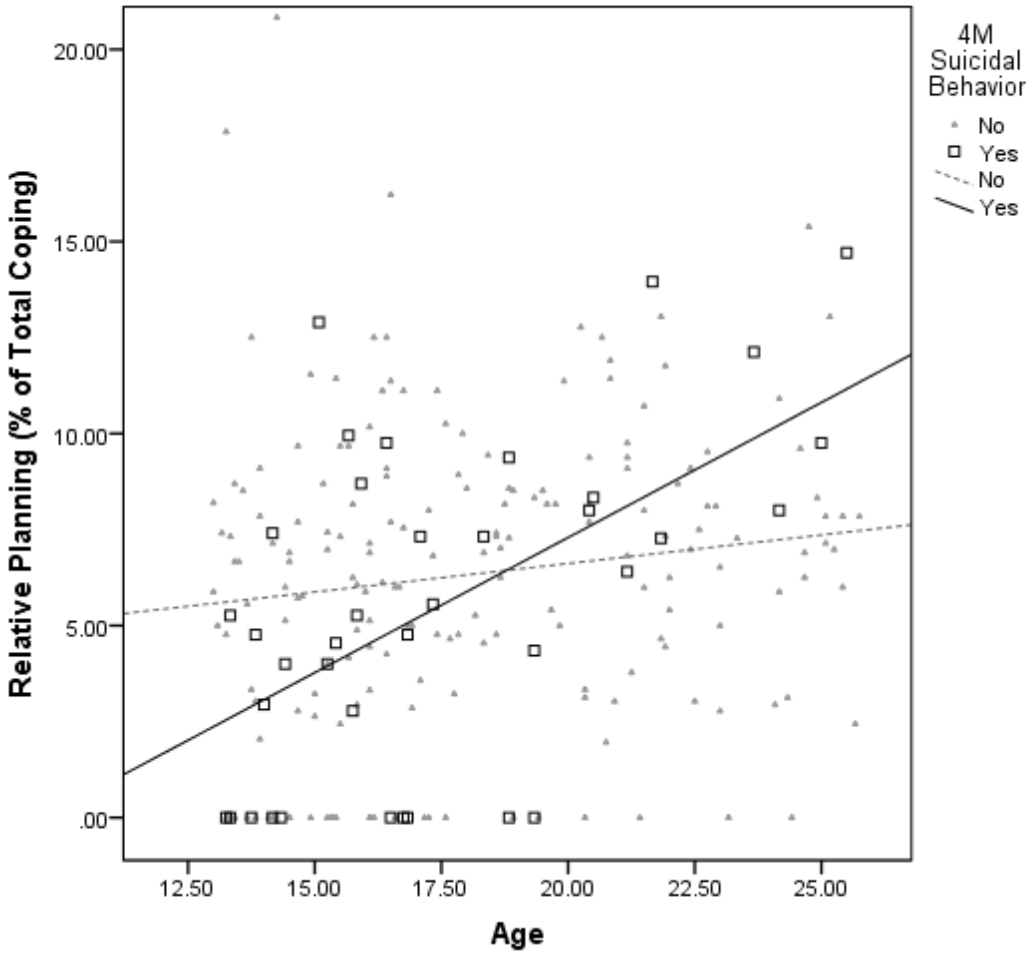


Figure 3. Planning by Age with 4M Suicidal Behavior



References

Abramson, L. Y., Alloy, L. B., Hogan, M. E., Whitehouse, W. G., Cornette, M., Akhavan, S., & Chiara, A. (1998). Suicidality and cognitive vulnerability to depression among college students: a prospective study. *Journal of Adolescence, 21*(4), 473-487.

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-based subtype of depression. *Psychological Review, 96*(2), 358-372.

Al-Bahrani, M., Aldhafri, S., Alkharusi, H., Kazem, A., & Alzubiadi, A. (2013). Age and gender differences in coping style across various problems: Omani adolescents' perspective. *Journal of adolescence, 36*(2), 303-309.

Aldridge, A. A., & Roesch, S. C. (2008). Developing coping typologies of minority adolescents: A latent profile analysis. *Journal of Adolescence, 31*(4), 499-517. doi: 10.1016/j.adolescence.2007.08.005

Almeida, D. M., & Kessler, R. C. (1998). Everyday stressors and gender differences in daily distress. *Journal of personality and social psychology, 75*(3), 670-680.

Amirkhan, J., & Auyeung, B. (2007). Coping with stress across the lifespan: Absolute vs. relative changes in strategy. *Journal of Applied Developmental Psychology, 28*(4), 298-317.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142*(5), 559-563.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the hopelessness scale. *Journal of Consulting and Clinical Psychology, 42*(6), 861-865.

Benjet, C., Borges, G., & Medina-Mora, M. E. (2010). Chronic childhood adversity and onset of psychopathology during three life stages: childhood, adolescence and adulthood. *Journal of psychiatric research, 44*(11), 732-740.

Berk, M. S., Henriques, G. R., Warman, D. M., Brown, G. K., & Beck, A. T. (2004). A cognitive therapy intervention for suicide attempters: An overview of the treatment and case examples. *Cognitive and Behavioral Practice, 11*(3), 265-277.

Boyraz, G., Waits, J. B., Felix, V. A., & Wynes, D. D. (2016). Posttraumatic stress and physical health among adults: The role of coping mechanisms. *Journal of Loss and Trauma, 21*(1), 47-61. doi: 10.1080/15325024.2014.965978

Brady, J. (2006). The association between alcohol misuse and suicidal behaviour. *Alcohol and Alcoholism, 41*(5), 473-478.

Brent, D. A., Baugher, M., Bridge, J., Chen, T., & Chiappetta, L. (1999). Age- and sex-related risk factors for adolescent suicide. *Journal of the American Academy of Child & Adolescent Psychiatry, 38*(12), 1497-1505.

Brent, D. A., Perper, J. A., Moritz, G., Allman, C., Friend, A., Roth, C., . . . Baugher, M. (1993). Psychiatric risk factors for adolescent suicide: A case-control study. *Journal of the American Academy of Child & Adolescent Psychiatry, 32*(3), 521-529.

Brent, D. A., Perper, J. A., Moritz, G., & Baugher, M. (1993). Stressful life events, psychopathology, and adolescent suicide: A case control study. *Suicide & Life-Threatening Behavior, 23*(3), 179-187.

Bridge, J. A., Goldstein, T. R., & Brent, D. A. (2006). Adolescent suicide and suicidal behavior. *Journal of Child Psychology and Psychiatry, 47*(3), 372-394.

Brougham, R. R., Zail, C. M., Mendoza, C. M., & Miller, J. R. (2009). Stress, sex differences, and coping strategies among college students. *Current psychology, 28*(2), 85-97.

Brown, G. R., & Anderson, B. (1991). Psychiatric morbidity in adult inpatients with childhood histories of sexual and physical abuse. *American journal of Psychiatry, 148*(1), 55-61.

Cairns, K. E., Yap, M. B. H., Pilkington, P. D., & Jorm, A. F. (2014). Risk and protective factors for depression that adolescents can modify: a systematic review and meta-analysis of longitudinal studies. *Journal of affective disorders, 169*, 61-75.

Canetto, S. S., & Sakinofsky, I. (1998). The gender paradox in suicide. *Suicide and Life-Threatening Behavior, 28*(1), 1-23.

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality & Social Psychology, 56*, 267-283.

Centers for Disease Control and Prevention. (2014). Youth Risk Behavior Surveillance - United States, 2013. *Morbidity and Mortality Weekly Report, 63*(4).

Centers for Disease Control and Prevention. (2016). *Web-based Injury Statistics Query and Reporting System (WISQARS)* Retrieved March 25th, 2016, from www.cdc.gov/ncipc/wisqars

Collins, N. L., & Miller, L. C. (1994). Self-disclosure and liking: a meta-analytic review. *Psychological bulletin, 116*(3), 457-475.

Compas, B. E. (1987). Coping with stress during childhood and adolescence. *Psychological Bulletin, 101*(3), 393-403.

Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87-127. doi: 10.1037/0033-2909.127.1.87

Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in older children and young adolescents. *Journal of consulting and clinical psychology, 56*(3), 405-411.

Compas, B. E., Orosan, P. G., & Grant, K. E. (1993). Adolescent stress and coping: Implications for psychopathology during adolescence. *Journal of adolescence, 16*(3), 331-349.

Connor-Smith, J. K., & Compas, B. E. (2004). Coping as a moderator of relations between reactivity to interpersonal stress, health status, and internalizing problems. *Cognitive Therapy and Research, 28*(3), 347-368.

Czyz, E. K., Liu, Z., & King, C. A. (2012). Social connectedness and one-year trajectories among suicidal adolescents following psychiatric hospitalization. *Journal of Clinical Child and Adolescent Psychology, 41*(2), 214-226. doi: 10.1080/15374416.2012.651998

Daniel, S. S., & Goldston, D. B. (2009). Interventions for suicidal youth: A review of the literature and developmental considerations. *Suicide and Life-Threatening Behavior, 39*(3), 252-268.

De Leo, D., & Heller, T. S. (2004). Who are the kids who self-harm? An Australian self-report school survey. *Medical journal of Australia, 181*(3), 140-144.

Dinya, E., Csorba, J., Sorfozo, Z., Steiner, P., Ficsor, B., & Horvath, A. (2009). Profiles of suicidality and clusters of Hungarian adolescent outpatients suffering from suicidal behaviour. *Psychopathology, 42*(5), 299-310.

Donaldson, D., Prinstein, M. J., Danovsky, M., & Spirito, A. (2000). Patterns of children's coping with life stress: implications for clinicians. *American Journal of Orthopsychiatry, 70*(3), 351-359.

Durkheim, E. (1897). *Suicide*. New York: Free Press.

Eisenberg, N., Fabes, R. A., & Guthrie, I. K. (1997). Coping with stress: The roles of regulation and development. In S. Wolchik & I. Sandler (Eds.), *Handbook of children's coping: Linking theory and intervention* (pp. 41-70). New York: Plenum.

Eisenberg, N., Valiente, C., Spinrad, T. L., Cumberland, A., Liew, J., Reiser, M., . . . Losoya, S. H. (2009). Longitudinal relations of children's effortful control, impulsivity, and negative emotionality to their externalizing, internalizing, and co-occurring behavior problems. *Developmental psychology, 45*(4), 988-1008.

Evans, E., Hawton, K., & Rodham, K. (2005). In what ways are adolescents who engage in self-harm or experience thoughts of self-harm different in terms of help-seeking, communication and coping strategies? *Journal of Adolescence, 28*(4), 573-587.

Evans, L., Kouros, C., Frankel, S. A., McCauley, E., Diamond, G. S., Schloredt, K. A., & Garber, J. (2014). Longitudinal relations between stress and depressive symptoms in youth: coping as a mediator. *Journal of abnormal child psychology, 43*(2), 355-368.

Fergusson, D. M., Horwood, L. J., Ridder, E. M., & Beautrais, A. L. (2005). Suicidal behaviour in adolescence and subsequent mental health outcomes in young adulthood. *Psychological Medicine, 35*(7), 983-993.

Fergusson, D. M., Woodward, L. J., & Horwood, L. J. (2000). Risk factors and life processes associated with the onset of suicidal behaviour during adolescence and early adulthood. *Psychological Medicine, 30*(1), 23-39.

Fitzpatrick, K. K., Witte, T. K., & Schmidt, N. B. (2005). Randomized controlled trial of a brief problem-orientation intervention for suicidal ideation. *Behavior Therapy, 36*(4), 323-333.

Foley, D. J., Manderscheid, R. W., Atay, J. E., Maedke, J., Sussman, J., & Cribbs, S. (2006). Highlights of organized mental health services in 2002 and major national and state trends. In R. W. Manderscheid & J. T. Berry (Eds.), *Mental health, United States, 2004* (pp. 200-236). Rockville, MD: Substance Abuse and Mental Health Services Administration.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21*(3), 219-239. doi: 10.2307/2136617

Folkman, S., & Lazarus, R. S. (1988). Coping as a mediator of emotion. *Journal of personality and social psychology, 54*(3), 466-475.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of personality and social psychology, 50*(5), 992-1003.

Garnefski, N., Legerstee, J., Kraaij, V., van den Kommer, T., & Teerds, J. (2002). Cognitive coping strategies and symptoms of depression and anxiety: A comparison between adolescents and adults. *Journal of adolescence, 25*(6), 603-611.

Gibb, B. E., Alloy, L. B., Abramson, L. Y., Rose, D. T., Whitehouse, W. G., & Hogan, M. E. (2001). Childhood maltreatment and college students' current suicidal ideation: A test of the hopelessness theory. *Suicide and Life-Threatening Behavior, 31*(4), 405-415.

Gipson, P. Y., Agarwala, P., Opperman, K. J., Horwitz, A. G., & King, C. A. (2015). Columbia-Suicide Severity Rating Scale (C-SSRS): Predictive validity with adolescent psychiatric emergency patients. *Pediatric Emergency Care, 31*(2), 88-94.

Goldberg, J. F., Ernst, C. L., & Bird, S. (2007). Predicting hospitalization versus discharge of suicidal patients presenting to a psychiatric emergency service. *Psychiatric services, 58*(4), 561-565.

Goldman-Mellor, S. J., Caspi, A., Harrington, H., Hogan, S., Nada-Raja, S., Poulton, R., & Moffitt, T. E. (2014). Suicide attempt in young people: A signal for long-term health care and social needs. *JAMA Psychiatry, 71*(2), 119-127.

Goldston, D. B., Daniel, S. S., Erkanli, A., Reboussin, B. A., Mayfield, A., Frazier, P. H., & Treadway, S. L. (2009). Psychiatric diagnoses as contemporaneous risk factors for suicide attempts among adolescents and young adults: Developmental changes. *Journal of Consulting and Clinical Psychology, 77*(2), 281-290.

Goldston, D. B., Daniel, S. S., Reboussin, B. A., Reboussin, D. M., Frazier, P. H., & Harris, A. E. (2001). Cognitive risk factors and suicide attempts among formerly hospitalized adolescents: A prospective naturalistic study. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(1), 91-99.

Goldston, D. B., Erkanli, A., Daniel, S. S., Heilbron, N., Weller, B. E., & Doyle, O. (2016). Developmental trajectories of suicidal thoughts and behaviors from adolescence through adulthood. *Journal of the American Academy of Child & Adolescent Psychiatry, 55*(5), 400-407.

Gould, M. S., Velting, D., Kleinman, M., Lucas, C., Thomas, J. G., & Chung, M. (2004). Teenagers' attitudes about coping strategies and help-seeking behavior for suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry, 43*(9), 1124-1133.

Griffith, M. A., Dubow, E. F., & Ippolito, M. F. (2000). Developmental and cross-situational differences in adolescents' coping strategies. *Journal of youth and adolescence, 29*(2), 183-204.

Grøholt, B., Ekeberg, Ø., Wichstrøm, L., & Haldorsen, T. (1999). Sex differences in adolescent suicides in Norway, 1990–1992. *Suicide and life-threatening behavior, 29*(4), 295-308.

Grover, K. E., Green, K. L., Pettit, J. W., Monteith, L. L., Garza, M. J., & Venta, A. (2009). Problem solving moderates the effects of life event stress and chronic stress on suicidal behaviors in adolescence. *Journal of Clinical Psychology, 65*(12), 1281-1290.

Guerreiro, D. F., Cruz, D., Frasquilho, D., Santos, J. C., Figueira, M. L., & Sampaio, D. (2013). Association between deliberate self-harm and coping in adolescents: a critical review of the last 10 years' literature. *Archives of suicide research, 17*(2), 91-105.

Hampel, P., & Petermann, F. (2006). Perceived stress, coping, and adjustment in adolescents. *Journal of Adolescent Health, 38*(4), 409-415.

Harford, T. C., Grant, B. F., Yi, H.-y., & Chen, C. M. (2005). Patterns of DSM-IV alcohol abuse and dependence criteria among adolescents and adults: Results from the 2001 National Household Survey on Drug Abuse. *Alcoholism: Clinical and Experimental Research, 29*(5), 810-828.

Harris, P. A., Taylor, R., Thielke, R., Payne, J., Gonzalez, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—a metadata-driven methodology and workflow

process for providing translational research informatics support. *Journal of biomedical informatics, 42*(2), 377-381.

Hawton, K. (2000). Sex and suicide. Gender differences in suicidal behaviour. *British Journal of Psychiatry, 177*, 484-485.

Heim, C., Newport, D. J., Heit, S., Graham, Y. P., Wilcox, M., Bonsall, R., . . . Nemeroff, C. B. (2000). Pituitary-adrenal and autonomic responses to stress in women after sexual and physical abuse in childhood. *Jama, 284*(5), 592-597.

Herman-Stabl, M. A., Stemmler, M., & Petersen, A. C. (1995). Approach and avoidant coping: Implications for adolescent mental health. *Journal of Youth and Adolescence, 24*(6), 649-665.

Hoffman, M. A., Levy-Shiff, R., Sohlberg, S. C., & Zarizki, J. (1992). The impact of stress and coping: Developmental changes in the transition to adolescence. *Journal of Youth and Adolescence, 21*(4), 451-469.

Horwitz, A. G., Czyz, E. K., & King, C. A. (2015). Predicting future suicide attempts among adolescent and emerging adult psychiatric emergency patients. *Journal of Clinical Child & Adolescent Psychology, 44*(5), 751-761.

Horwitz, A. G., Hill, R. M., & King, C. A. (2011). Specific coping behaviors in relation to adolescent depression and suicidal ideation. *Journal of Adolescence, 34*(5), 1077-1085.

Ingram, R. E., & Luxton, D. D. (2005). Vulnerability-stress models. In B. L. Hankin & J. R. Z. Abela (Eds.), *Development of psychopathology: A vulnerability-stress perspective* (pp. 32-46). Thousand Oaks, CA: Sage.

Jacobson, C. M., & Gould, M. (2007). The epidemiology and phenomenology of non-suicidal self-injurious behavior among adolescents: A critical review of the literature. *Archives of Suicide Research, 11*(2), 129-147.

Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.

Kaslow, N. J., Adamson, L. B., & Collins, M. H. (2000). A developmental psychopathology perspective on the cognitive components of child and adolescent depression. In A. J. Sameroff, M. Lewis & S. M. Miller (Eds.), *Handbook of developmental psychopathology (2nd ed)* (pp. 491-510). New York: Plenum.

Kessler, R. C., & McLeod, J. D. (1984). Sex differences in vulnerability to undesirable life events. *American sociological review*, 620-631.

Khurana, A., & Romer, D. (2012). Modeling the distinct pathways of influence of coping strategies on youth suicidal ideation: A national longitudinal study. *Prevention Science, 13*(6), 644-654.

Kim, H. S., & Kim, H. S. (2008). Risk factors for suicide attempts among Korean adolescents. *Child psychiatry and human development, 39*(3), 221-235.

King, C. A. (1997). Suicidal behavior in adolescence. In R. Maris, M. Silverman & S. Canetto (Eds.), *Review of suicidology, 1997*. (pp. 61-95): Guilford Press.

King, C. A. (1998). Suicide across the life span: Pathways to prevention. *Suicide & Life-Threatening Behavior, 28*(4), 328-337.

King, C. A., Jiang, Q., Czyz, E. K., & Kerr, D. C. R. (2014). Suicidal ideation of psychiatrically hospitalized adolescents has one-year predictive validity for suicide attempts in girls only. *Journal of Abnormal Child Psychology, 42*(3), 467-477. doi: 10.1007/s10802-013-9794-0

King, C. A., & Merchant, C. R. (2008). Social and interpersonal factors relating to adolescent suicidality: A review of the literature. *Archives of Suicide Research, 12*(3), 181 - 196.

Klonoff, E. A., Landrine, H., & Campbell, R. (2000). Sexist discrimination may account for well-known gender differences in psychiatric symptoms. *Psychology of Women Quarterly, 24*(1), 93-99.

Klonsky, E. D., & May, A. M. (2014). Differentiating suicide attempters from suicide ideators: a critical frontier for suicidology research. *Suicide and life-threatening behavior, 44*(1), 1-5.

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003). The Patient Health Questionnaire-2: validity of a two-item depression screener. *Medical Care, 41*(11), 1284-1292. doi: 10.1097/01.mlr.0000093487.78664.3c

Laye-Gindhu, A., & Schonert-Reichl, K. A. (2005). Nonsuicidal self-harm among community adolescents: Understanding the "whats" and "whys" of self-harm. *Journal of Youth and Adolescence, 34*(5), 447-457.

Lazarus, R. S. (1993). Coping theory and research: Past, present, and future. *Psychosomatic Medicine, 55*(3), 234-247.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer publishing company.

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology, 62*(2), 297-305.

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1996). Adolescent suicidal ideation and attempts: Prevalence, risk factors, and clinical implications. *Clinical Psychology: Science and Practice, 3*(1), 25-46.

Lewinsohn, P. M., Rohde, P., Seeley, J. R., & Baldwin, C. L. (2001). Gender differences in suicide attempts from adolescence to young adulthood. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(4), 427-434.

Linehan, M. M. (1987). Dialectical behavioral therapy: A cognitive behavioral approach to parasuicide. *Journal of Personality disorders, 1*(4), 328-333.

Liu, X., Gentzler, A. L., George, C. J., & Kovacs, M. (2009). Responses to depressed mood and suicide attempt in young adults with a history of childhood-onset mood disorder. *Journal of Clinical Psychiatry, 70*(5), 644-652. doi: 10.4088/JCP.07m03895

Löwe, B., Kroenke, K., & Gräfe, K. (2005). Detecting and monitoring depression with a two-item questionnaire (PHQ-2). *Journal of psychosomatic research, 58*(2), 163-171.

Marttunen, M. J., Aro, H. M., Henriksson, M. M., & Lonnqvist, J. K. (1991). Mental disorders in adolescent suicide: DSM-III--R Axes I and II diagnoses in suicides among 13 to 19-year-olds in Finland. *Archives of General Psychiatry, 48*(9), 834-839.

Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and individual differences, 37*(7), 1401-1415.

McDonough, P., & Walters, V. (2001). Gender and health: reassessing patterns and explanations. *Social science & medicine, 52*(4), 547-559.

McGirr, A., Renaud, J., Bureau, A., Seguin, M., Lesage, A., & Turecki, G. (2008). Impulsive-aggressive behaviours and completed suicide across the life cycle: A predisposition for younger age of suicide. *Psychological Medicine, 38*(3), 407-417.

McMahon, E. M., Corcoran, P., McAuliffe, C., Keeley, H., Perry, I. J., & Arensman, E. (2015). Mediating effects of coping style on associations between mental health factors and self-harm among adolescents. *Crisis*.

Mikolajczak, M., Petrides, K., & Hurry, J. (2009). Adolescents choosing self-harm as an emotion regulation strategy: The protective role of trait emotional intelligence. *British Journal of Clinical Psychology, 48*(2), 181-193.

Miranda, R., Scott, M., Hicks, R., Wilcox, H. C., Munfakh, J. L. H., & Shaffer, D. (2008). Suicide attempt characteristics, diagnoses, and future attempts: Comparing multiple attempters to single attempters and ideators. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(1), 32-40.

Miret, M., Nuevo, R., Morant, C., Sainz-Cortón, E., Jiménez-Arriero, M. Á., López-Ibor, J. J., . . . Ayuso-Mateos, J. L. (2011). The role of suicide risk in the decision for psychiatric hospitalization after a suicide attempt. *Crisis: The Journal of Crisis Intervention and Suicide Prevention, 32*(2), 65.

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological review, 100*(4), 674-701.

Monteiro, N. M., Balogun, S. K., & Oratile, K. N. (2014). Managing stress: the influence of gender, age and emotion regulation on coping among university students in Botswana. *International journal of adolescence and youth, 19*(2), 153-173.

Nock, M. K., Green, J. G., Hwang, I., McLaughlin, K. A., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: results from the National Comorbidity Survey Replication

Adolescent Supplement. *JAMA Psychiatry, 70*(3), 300-310. doi: 10.1001/2013.jamapsychiatry.55

Nock, M. K., Joiner, T. E., Jr., Gordon, K. H., Lloyd-Richardson, E., & Prinstein, M. J. (2006). Non-suicidal self-injury among adolescents: Diagnostic correlates and relation to suicide attempts. *Psychiatry Research, 144*(1), 65-72.

Nock, M. K., & Kessler, R. C. (2006). Prevalence of and risk factors for suicide attempts versus suicide gestures: Analysis of the National Comorbidity Survey. *Journal of Abnormal Psychology, 115*(3), 616-623.

Nrugham, L., Holen, A., & Sund, A. M. (2012). Suicide attempters and repeaters: depression and coping: a prospective study of early adolescents followed up as young adults. *The Journal of nervous and mental disease, 200*(3), 197-203.

Oquendo, M. A., Bongiovi-Garcia, M. E., GaIfaIvy, H., Goldberg, P. H., Grunebaum, M. F., Burke, A. K., & Mann, J. J. (2007). Sex differences in clinical predictors of suicidal acts after major depression: A prospective study. *American Journal of Psychiatry, 164*(1), 134-141.

Ortin, A., Lake, A. M., Kleinman, M., & Gould, M. S. (2012). Sensation seeking as risk factor for suicidal ideation and suicide attempts in adolescence. *Journal of Affective Disorders, 143*(1–3), 214-222.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of health and social behavior*, 2-21.

Pedersen, W. (2008). Does cannabis use lead to depression and suicidal behaviours? A population-based longitudinal study. *Acta Psychiatrica Scandinavica, 118*(5), 395-403.

Petersen, A. C., Compas, B. E., Brooks-Gunn, J., & Stemmler, M. (1993). Depression in adolescence. *American Psychologist, 48*(2), 155-168.

Phelps, S. B., & Jarvis, P. A. (1994). Coping in adolescence: Empirical evidence for a theoretically based approach to assessing coping. *Journal of Youth and Adolescence, 23*(3), 359-371.

Piquet, M. L., & Wagner, B. M. (2003). Coping responses of adolescent suicide attempters and their relation to suicidal ideation across a 2-year follow-up: A preliminary study. *Suicide and Life-Threatening Behavior, 33*(3), 288-301.

Plancherel, B., Bolognini, M., & Halfon, O. (1998). Coping strategies in early and mid-adolescence. *European Psychologist, 3*(3), 192-201.

Plunkett, S. W., Radmacher, K. A., & Moll-Phanara, D. (2000). Adolescent life events, stress, and coping: A comparison of communities and genders. *Professional School Counseling, 3*(5), 356-366.

Portzky, G., De Wilde, E.-J., & Van Heeringen, K. (2008). Deliberate self-harm in young people: differences in prevalence and risk factors between The Netherlands and Belgium. *European Child & Adolescent Psychiatry, 17*(3), 179-186.

Posner, K., Brown, G. K., Stanley, B., Brent, D. A., Yershova, K. V., Oquendo, M. A., . . . Shen, S. (2011). The Columbia–Suicide Severity Rating Scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *American Journal of Psychiatry, 168*(12), 1266-1277.

Ptacek, J. T., Smith, R. E., & Dodge, K. L. (1994). Gender differences in coping with stress: When stressor and appraisals do not differ. *Personality and Social Psychology Bulletin, 20*(4), 421-430.

Ptacek, J. T., Smith, R. E., & Zanas, J. (1992). Gender, appraisal, and coping: A longitudinal analysis. *Journal of Personality, 60*(4), 747-770.

Read, J., & Fraser, A. (1998). Abuse histories of psychiatric inpatients: to ask or not to ask? *Psychiatric services, 49*(3), 355-359.

Reinherz, H. Z., Paradis, A. D., Giaconia, R. M., Stashwick, C. K., & Fitzmaurice, G. (2003). Childhood and adolescent predictors of major depression in the transition to adulthood. *American Journal of Psychiatry, 160*(12), 2141-2147.

Reinherz, H. Z., Tanner, J. L., Berger, S. R., Beardslee, W. R., & Fitzmaurice, G. M. (2006). Adolescent suicidal ideation as predictive of psychopathology, suicidal behavior, and compromised functioning at age 30. *American Journal of Psychiatry, 163*(7), 1226-1232.

Reynolds, W. M., & Mazza, J. J. (1994). Suicide and suicidal behaviors in children and adolescents *Handbook of depression in children and adolescents.* (pp. 525-580): Plenum Press.

Rohde, P., Seeley, J. R., Kaufman, N. K., Clarke, G. N., & Stice, E. (2006). Predicting time to recovery among depressed adolescents treated in two psychosocial group interventions. *Journal of consulting and clinical psychology, 74*(1), 80.

Rosario, M., Shinn, M., Mørch, H., & Huckabee, C. B. (1988). Gender differences in coping and social supports: Testing socialization and role constraint theories. *Journal of Community Psychology, 16*(1), 55-69.

Rose, A. J., & Rudolph, K. D. (2006). A review of sex differences in peer relationship processes: Potential trade-offs for the emotional and behavioral development of girls and boys. *Psychological Bulletin, 132*(1), 98-131. doi: 10.1037/0033-2909.132.1.98

Rudd, M. D., Rajab, M. H., Orman, D. T., Stulman, D. A., Joiner, T. E., Jr., & Dixon, W. (1996). Effectiveness of an outpatient intervention targeting suicidal young adults: Preliminary results. *Journal of Consulting and Clinical Psychology, 64*(1), 179-190.

Rudolph, K. D., & Hammen, C. (1999). Age and gender as determinants of stress exposure, generation, and reactions in youngsters: A transactional perspective. *Child Development, 70*(3), 660-677.

Santos, J. C., Saraiva, C. B., & De Sousa, L. (2009). The role of expressed emotion, self-concept, coping, and depression in parasuicidal behavior: A follow-up study. *Archives of Suicide Research, 13*(4), 358-367.

Schilling, E. A., Aseltine Jr, R. H., Glanovsky, J. L., James, A., & Jacobs, D. (2009). Adolescent alcohol use, suicidal ideation, and suicide attempts. *Journal of Adolescent Health, 44*(4), 335-341.

Seiffge-Krenke, I. (1993). Coping behavior in normal and clinical samples: More similarities than differences? *Journal of Adolescence, 16*(3), 285-303.

Seiffge-Krenke, I. (2000). Causal links between stressful events, coping style, and adolescent symptomatology. *Journal of adolescence, 23*(6), 675-691.

Seiffge-Krenke, I., & Klessinger, N. (2000). Long-term effects of avoidant coping on adolescents' depressive symptoms. *Journal of Youth and Adolescence, 29*(6), 617-630. doi: 10.1023/a:1026440304695

Shaffer, D., Gould, M. S., Fisher, P. W., Trautman, P., Moreau, D., Kleinman, M., & Flory, M. (1996). Psychiatric diagnosis in child and adolescent suicide. *Archives of General Psychiatry, 53*(4), 339-348.

Silverman, M. M., Berman, A. L., Sanddal, N. D., O'Carroll, P. W., & Joiner, T. E. (2007). Rebuilding the tower of Babel: a revised nomenclature for the study of suicide and suicidal behaviors. Part 2: Suicide-related ideations, communications, and behaviors. *Suicide & Life-Threatening Behavior, 37*(3), 264-277.

Silverman, M. M., Meyer, P. M., Sloane, F., Raffel, M., & Pratt, D. M. (1997). The Big Ten Student Suicide Study: A 10-year study of suicides on midwestern university campuses. *Suicide & Life-Threatening Behavior, 27*(3), 285-303.

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. *Psychological bulletin, 129*(2), 216-269.

Skinner, E. A., & Wellborn, J. G. (1994). Coping during childhood and adolescence: A motivational perspective. In D. Featherman, R. Lerner & M. Perlmutter (Eds.), *Life-Span Development and Behavior* (Vol. 12, pp. 91-133). Hillsdale, NJ: Erlbaum.

Skinner, E. A., & Zimmer-Gembeck, M. (2007). The development of coping. *Annual review of psychology, 58*, 119-144.

Skogman, K., Alsén, M., & Öjehagen, A. (2004). Sex differences in risk factors for suicide after attempted suicide. *Social psychiatry and psychiatric epidemiology, 39*(2), 113-120.

Stanford, S., & Jones, M. P. (2009). Psychological subtyping finds pathological, impulsive, and 'normal' groups among adolescents who self-harm. *Journal of Child Psychology and Psychiatry, 50*(7), 807-815.

Stanley, B., & Brown, G. K. (2012). Safety planning intervention: A brief intervention to mitigate suicide risk. *Cognitive and Behavioral Practice, 19*(2), 256-264. doi: 10.1016/j.cbpra.2011.01.001

Stanley, B., Brown, G. K., Currier, G. W., Lyons, C., Chesin, M., & Knox, K. L. (2015). Brief intervention and follow-up for suicidal patients with repeat emergency department visits enhances treatment engagement. *American journal of public health, 105*(8), 1570-1572.

Substance Abuse and Mental Health Services Administration. (2012). Results from the 2010 National Survey on Drug Use and Health: Mental health findings, *NSDUH Series H-42, HHS Publication No. (SMA) 11-4667*. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Sun, D., Abraham, I., Slack, M., & Skrepnek, G. H. (2014). Emergency department visits in the United States for pediatric depression: estimates of charges and hospitalization. *Academic emergency medicine, 21*(9), 1003-1014.

Swahn, M. H., & Bossarte, R. M. (2007). Gender, early alcohol use, and suicide ideation and attempts: Findings from the 2005 Youth Risk Behavior Survey. *Journal of Adolescent Health, 41*(2), 175-181.

Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and social psychology review, 6*(1), 2-30.

ten Have, M., de Graaf, R., Van Dorsselaer, S., Verdurmen, J., van't Land, H., Vollebergh, W., & Beekman, A. (2009). Incidence and course of suicidal ideation and suicide attempts in the general population. *Canadian Journal of Psychiatry, 54*(12), 824-833.

Thompson, M. P., & Light, L. S. (2011). Examining gender differences in risk factors for suicide attempts made 1 and 7 years later in a nationally representative sample. *Journal of Adolescent Health, 48*(4), 391-397.

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner, T. E., Jr. (2010). The interpersonal theory of suicide. *Psychological Review, 117*(2), 575-600.

Vitaliano, P. P., Maiuro, R. D., Russo, J., & Becker, J. (1987). Raw versus relative scores in the assessment of coping strategies. *Journal of Behavioral Medicine, 10*(1), 1-18.

Wadsworth, M. E., & Compas, B. E. (2002). Coping with family conflict and economic strain: The adolescent perspective. *Journal of Research on Adolescence, 12*(2), 243-274. doi: 10.1111/1532-7795.00033

Wadsworth, M. E., Gudmundsen, G. R., Raviv, T., Ahlkvist, J. A., McIntosh, D. N., Kline, G. H., . . . Burwell, R. A. (2004). Coping with terrorism: Age and gender differences in effortful and involuntary responses to September 11th. *Applied Developmental Science, 8*(3), 143-157.

Wichstrøm, L., & Rossow, I. (2002). Explaining the gender difference in self-reported suicide attempts: A nationally representative study of Norwegian adolescents. *Suicide and Life-Threatening Behavior, 32*(2), 101-116.

Williams, K., & McGillicuddy-De Lisi, A. (1999). Coping strategies in adolescents. *Journal of Applied Developmental Psychology, 20*(4), 537-549.

Wingo, A. P., Baldessarini, R. J., & Windle, M. (2015). Coping styles: Longitudinal development from ages 17 to 33 and associations with psychiatric disorders. *Psychiatry research, 225*(3), 299-304.

Wolfe, D. A., Sas, L., & Wekerle, C. (1994). Factors associated with the development of posttraumatic stress disorder among child victims of sexual abuse. *Child abuse & neglect, 18*(1), 37-50.

Yoon, J., & Bruckner, T. A. (2009). Does deinstitutionalization increase suicide? *Health services research, 44*(4), 1385-1405.

Zhang, J., Wieczorek, W. F., Conwell, Y., & Tu, X. M. (2011). Psychological strains and youth suicide in rural China. *Social science & medicine, 72*(12), 2003-2010.