COPING STRATEGIES, LOCUS OF CONTROL, AND SUICIDE RISK IN
U.S. ADOLESCENTS

By

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ABSTRACT OF THE THESIS

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Adolescence is a developmentally important period for suicide risk assessment, prevention, and intervention. It is important to better understand risk factors and correlates that will help identify at-risk youth, and predict when their risk may increase. The present study aimed to: 1) compare and contrast differences in adolescents’ use of coping strategies across varying suicide risk levels; and 2) evaluate locus of control orientation as a moderator of the association between coping and suicide risk. Data came from the National Comorbidity Survey Replication - Adolescent Supplement (NCS-A), a nationally representative survey that assessed the prevalence and correlates of DSM-IV mental disorders among adolescents in the United States (Kessler et al., 2009a; Kessler et al., 2009b). In the present study, groups were classified according to the following suicide risk factors: 1) no suicide ideation or behaviors (“No SI/SA”); 2) lifetime suicide ideation only (“Lifetime SI”); 3) past 12-month suicide ideation (“12-month SI”); 4) a lifetime suicide attempt (“Lifetime SA”); 5) a past 12-month suicide attempt (“12-month SA”). The groups were therefore mutually exclusive. Problem-focused coping generally appeared to be a protective factor, as the No SI/SA group endorsed higher levels of problem-focused coping than each of the suicide risk groups, and the highest risk 12-month SA group reported the lowest levels of problem-focused coping. Positive emotion-focused coping generally appeared to be a protective factor, as levels of positive emotion-focused coping tended to decrease as suicide risk
increased, with some exceptions. Negative emotion-focused coping emerged as a risk factor for suicide, as adolescents with greater suicide risk generally demonstrated greater use of negative emotion-focused coping. Results indicated that low internal locus of control and high external locus of control amplify the protective effect of problem-focused coping. High internal locus of control was generally protective, but may exacerbate suicide risk in the context of positive emotion-focused coping. Together, these findings suggest that, locus of control moderates the relationship between coping and suicide risk and may therefore be a relevant treatment target.
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I. Introduction

Suicide is a significant public health concern and adolescents are at elevated risk for suicide relative to the general population. Suicide is the second leading cause of death among U.S. adolescents (Heron, 2019). Attempts and ideation are even more prevalent, with an estimated 25 suicide attempts for every death by suicide (Crosby et al., 2011; Nock, Borges et al., 2008). Risk for suicide drastically increases in the transition into adolescence, making it a developmentally important period for suicide risk assessment, prevention, and intervention. Generally, suicide rates have risen across all age groups in the U.S. from 2007 through 2017, and deaths by suicide have increased at a higher rate for adolescents than any other age group (Heron, 2019). It is therefore important to better understand risk factors and correlates that will help identify at-risk youth, and predict when their risk may increase. Studies should therefore evaluate differences not only between individuals with suicide risk and individuals without, but also between different levels of suicide risk. Further information is also needed to determine why some adolescents are at higher risk than others, and one such factor may involve personal emotional coping style or feelings of control. Accordingly, the purpose of the current study is to examine the use of coping strategies across varying suicide risk levels and evaluate locus of control orientation as a moderator of the association between coping and suicide risk.

Levels of Risk: Suicide Ideation versus Suicide Attempts

Suicide risk classification protocols often consider individuals without any history of suicide ideation or attempts to be at minimal risk for suicide. Endorsement of suicide ideation may represent an increased risk for suicide, with recent suicide ideation representing higher suicide risk than lifetime suicide ideation (Chu et al., 2015). Suicide ideation and suicide plans have been shown to predict subsequent suicide attempts among adolescents, and research
indicates that the transition from suicidal ideation to attempts occurs quickly among youth, making the 6 to 12 months after the onset of suicide ideation a period of greater risk for suicidal behaviors (Glenn et al., 2017; Nock et al., 2013; Pearce & Martin, 1994).

Presence of a prior suicide attempt is thought to indicate a greater risk for suicide than suicide ideation alone (Brent et al., 1988). History of a suicide attempt is among the more robust predictors of future suicide attempts and deaths (Esposito et al., 2003; King et al., 1995; Ribeiro et al., 2016). Furthermore, more recent suicide attempts may indicate an even greater suicide risk, with evidence indicating that risk for death by suicide may be highest within the 6 months to 2 years after a suicide attempt (Chu et al., 2015; Lewinsohn et al., 1996; Spirito et al 1992). While these experiences of suicidal thoughts and behaviors are not mutually exclusive, they provide a framework for identifying potential differential risk factors. Studying differences in the use of coping strategies or in traits such as locus of control across varying levels of suicide risk could potentially highlight targets or obstacles for suicide prevention and intervention among adolescents. The current study will therefore group adolescents into the following categories (from lowest to highest suicide risk): 1) no suicide ideation or behaviors; 2) lifetime suicide ideation only; 3) past 12-month suicide ideation; 4) lifetime suicide attempt; and 5) past 12-month suicide attempt.

**Coping Strategies as a Suicide Risk Factor in Adolescents**

Suicidal ideation and behaviors can arise from difficulties coping with stress. Coping – part of the broader construct of emotion regulation – refers to the process of managing or responding to stressors or their related distress, and maladaptive coping has been associated with diverse psychopathology as well as suicidal ideation and behaviors (Carver & Connor-Smith, 2010). Research suggests that individuals engage in both nonsuicidal self-injury and suicide attempts...
primarily to escape from intolerable negative emotions (Nock, Wedig et al., 2008; Pisani et al., 2013; Rudd, Joiner & Rajab, 2001). It has therefore been suggested that reliance on maladaptive or ineffective coping strategies may increase vulnerability to engaging in suicidal behaviors if individuals do not believe they can use other coping strategies to escape those negative emotions (Rajappa et al., 2012; Wolff et al., 2018). Consistent with this hypothesis, greater self-reported trait difficulty accessing effective coping strategies has been found to predict suicide ideation over 2-to-3-year follow-up, and has also been associated with the presence of prior suicide attempts among young adults (Miranda et al., 2013; Rajappa et al., 2012).

This link between ineffective coping and suicide risk may be particularly important for adolescents. The transition from childhood into adolescence appears to be characterized by a maladaptive shift toward less effective coping, with adolescents experiencing more frequent and intense negative emotions and demonstrating increased use of maladaptive coping strategies and decreased use of adaptive strategies (Cracco et al., 2017; Larson et al., 2002; Zimmerman & Iwanski, 2014). Supporting the hypothesized link between coping and suicide risk, a study of hospitalized adolescents with a recent suicide attempt showed that higher objectively-rated coping effectiveness predicted greater reductions in suicidal ideation over a 2-year follow-up (Piquet & Wagner, 2003). Together, these findings highlight the need to better understand the relationship between coping behaviors and suicide risk among adolescents.

Coping strategies have been studied in relation to depression, but they are less understood with respect to suicide risk, and particularly among adolescents (Horwitz et al., 2011). However, there are different forms of coping. In the current study, we will divide coping strategies into the following categories:
Problem-focused coping aims to directly address or diminish the stressor, and includes strategies such as seeking advice, making a plan, and brainstorming solutions (Carver & Connor-Smith, 2010; Lazarus & Folkman, 1984; Vaughn-Coaxum et al., 2018). Problem-focused coping is generally considered to be a relatively effective, adaptive set of coping strategies, and it has been associated with lower depressive symptom severity in adolescents and lower suicide risk in adults (Amir et al., 1999; Horwitz et al., 2011). In a longitudinal study of adolescents and young adults, greater problem-focused coping predicted reduced suicidal ideation after 1 year (Khurana & Romer, 2012). Less frequent use of problem-focused coping has also been associated with presence of a prior suicide attempt and a history of self-harm among adolescents (Mathew & Nanoo, 2013; McMahon et al., 2013).

Emotion-focused coping aims to reduce the distress caused by the stressor, rather than addressing the stressor directly, and includes a wide range of strategies such as relaxation, cognitive reappraisal, acceptance, expressing negative emotion, rumination, and denial (Carver & Connor-Smith, 2010; Lazarus & Folkman, 1984). Greater reliance on seemingly maladaptive emotion-focused coping strategies like rumination, avoidance, and denial has generally been associated with negative outcomes, including depression and suicidal thoughts and behaviors (Nolen-Hoeksema, 2000; Ullman & Najdowski, 2009). Greater use of emotion-focused coping has been associated with a history of deliberate self-harm and with greater severity of past self-harm among adolescents (McMahon et al., 2013). In a sample of young adults, emotion-focused coping was positively correlated with suicide ideation and history of past attempts (Edwards & Holden, 2001). Rumination, a form of emotion-focused coping in which one thinks repetitively about one’s negative emotions, has been consistently linked to depressive and anxiety symptoms in adolescents and adults and may prospectively predict suicidal ideation (Abela et al., 2002;
Miranda & Nolen-Hoeksema 2007; Nolen-Hoeksema, 2000; Nolen-Hoeksema & Morrow, 1991; Rood et al., 2009; Schäfer et al., 2017; Smith et al., 2006). However, emotion-focused coping appears to be a heterogeneous construct, and not all emotion-focused strategies are maladaptive. Cognitive reappraisal, an emotion-focused strategy in which one attempts to think about the stressful situation in a different way (thereby altering one’s response to the stressor rather than the stressor itself) has frequently been associated with lower depressive symptom severity and lower suicide risk (Amir et al., 1999; Dryman & Heimberg, 2018; Forkmann et al., 2014; Gross & John, 2003). Acceptance as a coping strategy has also been found to predict reduced suicidal ideation among adolescents and young adults (Khurana & Romer, 2012). Therefore, emotion-focused coping may include both adaptive and maladaptive responses to stress.

Another categorization of coping that may help reconcile discrepant findings on emotion-focused coping divides strategies into engagement (i.e. “approach”) coping or disengagement (i.e. “avoidance”) coping (Carver & Connor-Smith, 2010). Engagement coping represents adaptive efforts to actively address the stressor or its related distress, while disengagement coping involves escaping the stressor or its related distress (Carver & Connor-Smith, 2010). Engagement coping therefore includes problem-focused strategies like seeking advice and making a plan, and only the assertive, approach-oriented emotion-focused strategies, such as cognitive reappraisal, acceptance, and seeking emotional support (Carver & Connor-Smith, 2010). Though it may seem counterintuitive, the emotion-focused strategy of self-distraction can be considered a form of engagement rather than disengagement coping, as evidence consistently suggests that deliberately engaging in positive activities is an adaptive response to uncontrollable stressors (Skinner et al., 2003). Consistent with prior research by Vaughn-Coaxum and colleagues (2018), we will refer to these assertive, engagement-oriented emotion-focused
strategies as positive emotion-focused coping strategies. The broader category of engagement coping has been associated with lower depressive symptom severity, and better physical and mental health (Carver & Connor-Smith, 2010; Seiffge-Krenke & Klessinger, 2000). Evidence further suggests that individuals with depressive symptoms or who are at risk for suicide may underutilize engagement coping (Dryman & Heimberg, 2018; Forkmann et al., 2014; Garnefski & Kraaij, 2006). Hospitalized adolescents with a prior suicide attempt have also been shown to be less likely than controls to engage in more effortful approach coping strategies, such as taking direct action or seeking social support (Mathew & Nanoo, 2013; Piquet & Wagner, 2003).

Disengagement coping, in contrast to engagement coping, primarily includes what will be referred to as negative emotion-focused coping strategies used to escape distress, such as denial, behavioral isolation or avoidance and wishful thinking, and is often considered a maladaptive form of coping that fails to effectively reduce distress in the long term (Carver & Connor-Smith, 2010; Vaughn-Coaxum et al., 2018). Disengagement may actually amplify negative emotions, and has been associated with increased anxiety and depressive symptom severity, as well as poorer physical health (Carver & Connor-Smith, 2010; Horwitz et al., 2011; Kaminsky, et al., 2006; Schäfer et al., 2017; Seiffge-Krenke & Klessinger, 2000). Studies among adolescent samples suggest that disengagement or negative emotion-focused coping is associated with increased suicide risk in this population. Negative emotion-focused coping has been associated with greater depressive symptom severity, suicidal ideation, and suicide attempt history among adolescents (Gould et al., 2004; Horwitz et al., 2011; Mirkovic et al. 2015; Votta & Manion, 2004). Regarding specific negative emotion-focused coping strategies, denial has been associated with suicidal ideation among inpatient adolescents, and more frequent use of wishful thinking and behavioral isolation or avoidance has been associated with presence of a prior suicide.
attempt (Horwitz et al., 2011; Mathew & Nanoo, 2013). These findings align with research in adult samples, which show associations between negative emotion-focused coping and history of deliberate self-harm (Marusic & Goodwin, 2006). However, the experience of coping strategies among adolescents and across varying levels of suicide risk remains understudied.

**Locus of Control as a Suicide Risk Factor in Adolescents**

How one copes with stress, and relevant suicide risk, may be influenced by feeling a sense of control over events in one’s life, wherein feeling some level of agency or control may help better manage stress. Internal locus of control refers to an attributional style in which people believe that they have control over the events in their lives and their own behaviors determine outcomes, while external locus of control represents a style in which people believe events in their lives result from external factors beyond their control (Levenson, 1973; Rotter, 1966). Internal locus of control has generally been associated with greater use of problem-focused and engagement coping, while external locus of control has been associated with greater use of negative emotion-focused coping (Gomez, 1997; Hoffman & Levy-Shiff, 1994; Petrosky & Birkimer, 1991). However, this association is less studied and understood among adolescents, with some studies demonstrating positive associations between internal locus of control and negative emotion-focused coping (Blanchard-Fields & Irion, 1988; Kliewer, 1991).

Evidence among adolescents suggests that external locus of control is associated with higher levels of suicide risk (Evans et al., 2005). Specifically, external locus of control has been cross-sectionally associated with endorsement of suicidal ideation, deliberate self-harm, and suicide attempts among both adolescents and young adults, though it is unclear whether external locus of control longitudinally predicts suicidal thoughts and behaviors (Beutrais et al., 1999; Martin et al., 2005; Pearce & Martin, 1993). One study of hospitalized adolescents found that
adolescents with a recent suicide attempt demonstrated significantly greater external locus of control than control adolescents without any history of suicide attempts (Topol & Reznikoff, 1982). Conversely, internal locus of control has been correlated with an absence of suicide attempts in young adults (Donald et al., 2006).

Despite converging evidence generally linking external locus of control with greater suicide risk and internal locus of control with lower suicide risk, it is not well understood whether locus of control may vary across suicide risk factors or whether the link between locus of control and suicide risk holds true beyond the effects of depression (Aydin et al., 2018; De Wilde et al., 1993). For instance, while one study found that college students with moderate- to high-intensity suicide ideation demonstrated greater external locus of control than those with no or low-intensity suicide ideation, another study found no difference in external locus of control between those with one prior suicide attempt versus multiple prior suicide attempts (Aydin et al., 2018; Strang & Orlofsky, 1990). These findings raise locus of control as an important third variable to consider when examining the relationship between coping and suicide risk.

Locus of control, coping, and suicide risk may all be interrelated. Though relationships among these three constructs remain understudied in adolescents, psychological theories provide frameworks to describe how locus of control and coping strategies might be related and affect suicide risk. Self-determination theory highlights a sense of autonomy in one’s life as one of three basic psychological needs that must be satisfied to facilitate psychological well-being (Deci & Ryan, 2000). Consistent with the theory, a lower perceived sense of autonomy has been associated with increased suicide risk and nonsuicidal self-injury, as well as greater coping difficulty (Britton et al., 2014; Emery, Heath & Mills, 2016; Emery, Heath & Rogers, 2017). The differential choice-effectiveness model states that personality variables, such as locus of control,
may influence the selection of specific coping strategies, as well as the effectiveness of those strategies (Bolger & Zuckerman, 1995). For example, individuals with an internal locus of control may be more likely to choose problem-focused strategies, while individuals who have an external locus of control and view life outcomes as uncontrollable may be more likely to engage in negative emotion-focused coping strategies that help disengage from the situation; negative emotion-focused coping may help alleviate distress in the short term, but worsen outcomes in the long term (Bolger & Zuckerman, 1995; Hahn, 2000). Supporting this model, one study found that inpatient adolescents with a recent suicide attempt were just as capable as controls at generating adaptive coping strategies for a recent life stressor, but were also more likely to report having ultimately selected a maladaptive coping strategy (Wilson et al., 1995). Interestingly, adolescents with a suicide attempt were also significantly less likely to agree with independent raters on the extent to which they had control over the stressor, suggesting that beliefs about – or a misappraisal of – stressor controllability plays a role in selecting coping strategies (Wilson et al., 1995). Other studies have shown that external locus of control, less problem-focused and more emotion-focused coping were each correlated with greater psychological distress or history of suicide attempts (Kurtović et al., 2018; Lauer et al., 2008).

The differential choice-effectiveness model suggests a potential role for locus of control as a moderator of the relationship between coping strategies and suicide risk (Bolger & Zuckerman, 1995). In addition to guiding the selection of coping strategies, locus of control orientation may influence subsequent effectiveness of selected coping strategies. The differential choice-effectiveness model and Person-Environment (P-E) fit framework suggest that coping strategies that align with locus of control orientation will be more effective at reducing distress than coping strategies that are incompatible with locus of control orientation (Bolger &
Therefore, problem-focused or positive emotion-focused coping may be more protective against suicide risk for an individual with an internal locus of control. According to this model, for an individual who feels a greater sense of control over one’s life, actively engaging with stressors would be more protective for this individual’s psychological well-being. Conversely, an individual who feels their life events highly depend on their own efforts, but then engages in more passive negative emotion-focused coping might be at greater risk for suicide. Though this hypothesis has not been closely studied, some supporting evidence shows that individuals with an internal interpersonal locus of control who used problem-focused coping strategies reported reduced depression (Hahn, 2000).

Given increasing evidence linking problem-focused and engagement coping with greater psychological well-being and disengagement coping with worse psychological well-being, we would expect that problem-focused and positive emotion-focused coping would be associated with lower suicide risk. Further, we expect this protective association to be stronger for those with greater internal locus of control. Finally, we expect that negative emotion-focused coping would be associated with greater suicide risk, but that this deleterious association will be stronger for those with more internal locus of control, due to the mismatch between internal locus of control and coping style.

**Current Study**

With increasing rates in suicide, more information on level-specific risk factors is more important than ever. Yet, suicide risk factors can be challenging to study given the relative low base rate in the population and inherent challenges obtaining sufficiently powered samples. Although coping strategies and locus of control have separately been associated with suicide risk in youth, interactions among these factors in the prediction of suicide risk remain understudied,
and particularly among adolescents. Epidemiological data from the National Comorbidity Survey - Adolescent Supplement ([NCS-A], Kessler et al., 2009a), a cross-sectional dataset of a nationally representative sample of U.S. adolescents aged 13-17, provides an opportunity to further study interactions among these factors.

**Study Aims and Hypotheses**

Accordingly, in the present study we had the following primary aims and hypotheses:

**Study Aim 1.** Compare and contrast differences in adolescents’ use of coping strategies across the following suicide risk factors (from lowest to highest suicide risk): no suicide ideation or behaviors; lifetime suicide ideation only; past 12-month suicide ideation; lifetime suicide attempt; and past 12-month suicide attempt.

**Hypothesis 1.** It is hypothesized that those with greater suicide risk would demonstrate greater use of negative emotion-focused coping strategies, and lower use of problem-focused and positive emotion-focused coping strategies.

**Hypothesis 1a.** Specifically, both suicide ideation groups are expected to exhibit greater use of negative emotion-focused strategies and lower use of problem-focused and positive emotion-focused coping strategies relative to the group without any history of suicide ideation or attempts.

**Hypothesis 1b.** Similarly, the suicide attempt groups are expected to exhibit greater use of negative emotion-focused strategies and lower use of problem-solving and positive emotion-focused coping strategies, when compared to each of the suicide ideation and no ideation groups.

**Hypothesis 1c.** 12-month suicide ideation and 12-month suicide attempt groups are expected to exhibit greater use of negative emotion-focused strategies and lower use of problem-
focused and positive emotion-focused coping strategies relative to the lifetime-only suicide ideation and lifetime-only suicide attempt groups, respectively.

**Study Aim 2.** Explore locus of control as a potential moderator of the association between coping strategies and suicide risk.

**Hypothesis 2.** It is hypothesized that adolescent locus of control would moderate the association between coping strategies and suicide risk. Although these analyses are theory-driven and exploratory in nature, it is hypothesized that greater use of problem-focused and positive emotion-focused coping would be associated with lower suicide risk, and that these strategies would be more protective for adolescents with higher internal locus of control.

**Hypothesis 2a.** It is hypothesized that internal locus of control is protective in the context of problem-focused and positive emotion-focused coping. Specifically, we would expect that greater use of problem-focused and positive emotion-focused coping would be associated with lower suicide risk. Further, we expect this protective association to be stronger for adolescents with higher internal locus of control, and weaker for those with high external locus of control due to chance.

**Hypothesis 2b.** However, internal locus of control is expected to increase suicide risk in the context of greater negative emotion-focused coping. We expect that greater use of negative emotion-focused coping would be associated with higher suicide risk, and that this deleterious association may be unaffected by high external locus of control due to chance, but strengthened for adolescents with higher internal locus of control due to the mismatch between internal locus of control and disengagement coping.

We will examine other combinations of locus of control subscales and coping to further explore relationships among locus of control, coping, and suicide risk.
II. Method

Participants

Data come from the National Comorbidity Survey Replication - Adolescent Supplement (NCS-A), a nationally representative survey that assessed the prevalence and correlates of DSM-IV mental disorders among adolescents in the United States (Kessler et al., 2009a; Kessler et al., 2009b). Data were collected from 10,148 U.S. adolescents aged 13 to 17 between 2001 and 2004; both the study design and field procedures of the NCS-A have been previously reported (Kessler et al., 2009a; Kessler et al., 2009b). The sample has an average age of 15.18 years ($SD=1.505$) and is 50.8% female and 49.2% male. 19.3% self-reported their race as Black, 18.9% as Hispanic, 55.7% as White, and 6.1% as Other. Regarding the highest level of education attained by either parent, 16.7% reported less than high school, 30.5% high school, 19.7% some college, and 33.1% college graduate. The adolescent sample has an average of 8.76 years ($SD=1.593$) of continuous education, with 96.3% of respondents reporting 0-11 years of education, 3.6% reporting 12 years of education, and .1% reporting 13-15 years of education.

Measures

Sociodemographic variables. Adolescents self-reported their age, sex, race, and parents’ education level.

Psychiatric diagnoses. Lifetime DSM-IV diagnoses were assessed with a version of the World Health Organization’s Composite International Diagnostic Interview ([CIDI], Kessler, Avenevoli, Green et al., 2009). Mood disorders (major depressive disorder, dysthymia, bipolar I/II/subthreshold disorder), anxiety disorders (generalized anxiety disorder, panic disorder, posttraumatic stress disorder, social phobia, specific phobia) and substance use disorders

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1 9.1% of responses for self-reported gender are missing in the NCS-A dataset. Reported values represent percentages of valid responses.
alcohol abuse, drug abuse, drug dependence) will be included as covariates in this study. Lifetime DSM-IV diagnoses made in the NCS-A based on the CIDI have demonstrated good concordance with blinded diagnoses based on the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) (Kessler, Avenevoli, Green et al., 2009).

**Coping strategies.** Coping strategies were assessed using 20 items adapted from the COPE inventory and Ways of Coping Scale (Carver et al., 1989; Folkman & Lazarus, 1980). Participants were asked to imagine that they experienced stress related to an interpersonal difficulty or conflict, and report how much they would engage in specific strategies to cope with these situations on a likert-type scale (e.g. 1 = “a lot”, 2 = “some”, 3 = “a little”, 4 = “not at all”). To facilitate ease of interpretation, responses were reverse-coded such that higher scores represented greater use of the coping strategy.

Coping strategies were grouped into three dimensions identified and used in prior research with the NCS-A dataset via exploratory factory analysis (Lee-Winn et al., 2016; Vaughn-Coaxum et al., 2018). The **problem-focused coping** domain consisted of 4 items (e.g. “try to analyze the problem and see how to make it better”; “seek advice from other people”; “make a plan of action and follow it”). The **positive emotion-focused coping** domain included 6 items that generally were emotion-focused coping strategies also considered engagement coping strategies, such as cognitive reappraisal, acceptance, and types of deliberate cognitive distraction (e.g. “keep a sense of humor”; “look at the situation in a different way so it doesn’t seem so bad”; “try not to think about it at all”; “do things to take your mind off the situation”; “accept that nothing can be done and try to move on”). The **negative emotion-focused coping** domain included 7 emotion-focused coping strategies that fall under disengagement coping, such as denial, avoidance, wishful thinking, yelling, and ruminating (e.g. “day dream about how things
used to be”; “go over the situation again and again in your mind”; “get mad and break something or cause a scene”; “avoid being with people and spend lots of time alone”; “watching sad or angry movies or listening to sad music”). Three items were dropped (e.g. “rely on your religious beliefs to help you cope”; “do special things to treat yourself”; “do special things to help yourself relax”). The three subscales demonstrate moderate internal consistency reliability (negative emotion-focused coping, $\alpha = .72$; positive emotion-focused coping, $\alpha = .62$; problem-focused coping, $\alpha = .64$). All scores were standardized prior to analysis.

**Locus of control.** Locus of control was assessed with items adapted from the Levenson Locus of Control Scale (Levenson, 1973). *Internal locus of control* was assessed with 4 statements (e.g. “When I get what I want, it is usually because I worked hard for it”; “My life is determined by my own actions”), *external locus of control due to chance* with 4 statements (e.g. “When I get what I want, it is usually because I am lucky”, “I believe that chance or luck plays an important role in my life”), and *external locus of control due to powerful others* with 2 statements (e.g. “I feel like what happens in my life is mostly determined by powerful people”, “When I get what I want it is usually because powerful others let it happen”). Participants were asked to indicate the extent to which each statement was true for them and responded on a likert-type scale (e.g. 1 = “very”, 2 = “some”, 3 = “a little”, 4 = “not at all”). Responses were reverse-coded such that higher scores represented higher agreement with the statement. The three subscales demonstrate moderate internal consistency reliability (internal locus of control, $\alpha = .61$; external locus of control due to chance, $\alpha = .64$; external locus of control due to powerful others, $\alpha = .73$). All scores were standardized prior to analysis.

**Suicide risk.** Suicidal ideation and attempts were assessed with a version of the Suicidal Behavior Module of the CIDI (Kessler & Ustün, 2004). Adolescents were first asked to endorse
whether they had ever experienced suicide ideation (e.g. “You seriously thought about killing yourself”). Those who responded “yes” were then asked whether they experienced suicide ideation in the past 12 months. Those who endorsed lifetime suicide ideation were subsequently asked to report whether they had a suicide attempt in their lifetime and if it occurred in the past 12 months (e.g. “You tried to kill yourself”).

In the present study, groups were classified as adolescents who self-reported: 1) neither suicide ideation nor attempts in their lifetime (“No SI/SA”); 2) active suicide ideation in their lifetime, but not in the past 12 months, and no suicide attempts in their lifetime (“Lifetime SI”); 3) active suicide ideation in the past 12 months, but no suicide attempts in their lifetime (“12-month SI”); 4) a suicide attempt in their lifetime, but not in the past 12 months (“Lifetime SA”); 5) a suicide attempt in the past 12 months (“12-month SA”). The groups were therefore mutually exclusive. Because these classifications represented rank order regarding recency (lifetime vs 12 month) and potential severity (ideation vs attempt), we conceptualized this rating scale as ordinal and utilized appropriate generalized analytic models accordingly.

**Data Analytic Strategy**

**Study Aim 1.** Multivariate analysis of variance (MANOVA) was conducted to assess differences in use of problem-focused, positive emotion-focused, and negative emotion-focused coping strategies across the 5 suicide risk groups, controlling for sociodemographic and diagnostic covariates. All combinations of post-hoc pairwise comparisons were conducted. Due to the number of comparisons that will be conducted comparing multiple groups across multiple variables, statistical significance was set at a conservative p-value of .01 to reduce Type I error.

**Study Aim 2.** Moderation regression analysis was conducted using ordinal regression to evaluate locus of control subscales as moderators of the relationship between coping and suicide
risk, according to previously outlined hypotheses and controlling for sociodemographic and
diagnostic covariates. Of note, the suicide risk outcome variable was treated as an ordinal ranked
variable, because suicide risk categories were ranked based on recency and potential severity of
risk factors. Statistical significance was also set at a conservative p-value of .01 to reduce Type I
error.
III. Results

Preliminary Analyses

Demographic information is presented in Table 1. Bivariate correlations across coping and locus of control variables are displayed in Table 2.

Coping Differences Across Suicide Risk Groups

Multivariate analysis of variance (MANOVA) results (omnibus Pillai’s trace = .024, $p < .001$) for suicide risk group comparisons on problem-focused coping, positive emotion-focused coping, and negative emotion-focused coping are displayed in Table 3. Results of Sidak post-hoc pairwise comparisons, as well as effect sizes, are reported in Table 4. Estimated means of coping strategies used to test post-hoc pairwise comparisons across suicide risk groups are depicted in Figures 1 and 2. Across the multiple risk variables, findings were as follows:

*Problem-focused Coping*

Generally, lower suicide risk groups used problem-focused coping more than higher suicide risk groups, with the No SI/SA group and Lifetime SA groups using problem-focused coping more than higher level groups and with small to large effect sizes (see Table 4). There were several exceptions to the negative association between problem-focused coping and suicide risk. Contrary to hypothesis, the Lifetime SI group used problem-focused coping less than the 12-month SI ($d = .12$) and Lifetime SA ($d = .24$) groups conceptualized as being higher risk. Also contrary to hypothesis, the 12-month SI group used problem-focused coping less than the Lifetime SA group ($d = .12$). All other hypothesized pairwise differences were supported. For instance, the 12-month SA group used problem-focused coping less than any other group, demonstrating medium to large effect sizes ($-.77 < d < -.50$). All pairwise differences were significant at $p < .001$. 
Positive Emotion-focused Coping

Overall, lower suicide risk groups used positive emotion-focused coping more than higher suicide risk groups, with the notable exception of the highest risk 12-month SA group, which used positive emotion-focused coping more than any other group (all $p < .001$; see Figure 1). Therefore, the No SI/SA group and Lifetime SI group used positive emotion-focused coping more than any higher suicide risk group, except for the 12-month SA group, which reported the highest use of positive emotion-focused coping. The 12-month SI group and Lifetime SA group did not significantly differ from each other in use of positive emotion-focused coping ($p > .01$; Table 4).

Negative Emotion-focused Coping

Lower suicide risk groups used negative emotion-focused coping less than higher suicide risk groups (Figure 1). For instance, the No SI/SA group ($0.38 < d < 0.92$), Lifetime SI group ($0.33 < d < 0.52$), and Lifetime SA group ($d = 0.21$) used negative emotion-focused coping less than higher risk groups, with the exception of the 12-month SI group, which reported greater use of negative emotion-focused coping than either the higher risk Lifetime SA ($d = 0.12$) or 12-month SA ($d = 0.09$) groups. Overall consistent with hypotheses, the 12-month SA group used negative emotion-focused coping more than any other group ($0.38 < d < 0.92$), except for the 12-month SI group. All pairwise differences were significant at $p < .001$ (Table 4).

Locus of Control as a Moderator of the Relationship between Coping and Suicide Risk

Results of all moderation analyses are presented in Table 5. Across all ordinal regressions, there were significant main effects of all locus of control subscales on suicide risk. There were significant main effects of internal locus of control ($B: -0.150$ – $-0.089$, $p < .001$) on suicide risk, such that increases in internal locus of control decreased the probability of belonging to a higher
suicide risk group. Similarly, there were significant main effects of external locus of control due to chance (B: 0.066 – 0.156, p < .001) and external locus of control due to powerful others (B: 0.052 – 0.134, p < .001) on suicide risk, such that increases in each external locus of control scale increased the probability of belonging to a higher suicide risk group (see Table 5).

*Problem-focused Coping by Internal Locus of Control*

There were significant main effects of problem-focused coping (B = -.241) and internal locus of control (B = -.089) on suicide risk (p < .001). For every 1 point increase in problem-focused coping scores, there was a .786 probability of belonging to a higher suicide risk group. For every 1 point increase in internal locus of control scores, there was a .914 probability of belonging to a higher suicide risk group. Although there was a significant interaction between problem-focused coping and internal locus of control on suicide risk (B=.024, p < .001), contrary to hypothesis, this protective association was stronger for adolescents with lower internal locus of control. Simple slopes analyses showed that this protective effect was significant at both lower (i.e., one standard deviation below the mean; slope = -.27, p < .001) and higher (i.e., one standard deviation above the mean; slope = -.22, p < .001) levels of internal locus of control (Figure 3).

*Problem-focused Coping by External Locus of Control due to Chance*

There was a protective main effect of problem-focused coping (B = -.25, p < .001) on suicide risk. There was a significant interaction between problem-focused coping and external locus of control due to chance such that the protective effect of problem-focused coping on suicide risk was stronger for those with higher external locus of control due to chance (B = -.15, p<.001). This protective effect was significant at both lower (-1 SD slope = -.10, p < .001) and higher (+1 SD slope = -.39, p < .001) levels of external locus of control due to chance (Figure 4).

*Problem-focused Coping by External Locus of Control due to Powerful Others*
There was a significant main effect of problem-focused coping (B = -.27, p < .001) on suicide risk. There was also a significant interaction between problem-focused coping and external locus of control due to powerful others such that the protective association between problem-focused coping and suicide risk was stronger for those with higher external locus of control due to powerful others (B = -.01, p < .001). This protective effect was significant at both lower (-1 SD slope = -.26, p < .001) and higher (+1 SD slope = -.28, p < .001) levels of external locus of control due to powerful others (Figure 5).

**Positive Emotion-focused Coping by Internal Locus of Control**

There was a protective main effect of positive emotion-focused coping on suicide risk (B = -.016, p < .001). There was a significant interaction (B = .134, p < .001) such that greater positive emotion-focused coping decreased suicide risk for those with lower internal locus of control (-1 SD slope = -.150, p < .001), but increased suicide risk for those with higher internal locus of control (+1 SD slope = .118, p < .001; Figure 6).

**Positive Emotion-focused Coping by External Locus of Control due to Chance**

There was a protective main effect of positive emotion-focused coping on suicide risk (B = -.062, p < .001). Although there was also a significant interaction between positive emotion-focused coping and external locus of control due to chance (B = -.010, p < .001), this protective effect was stronger for those with higher external locus of control due to chance. This protective effect was significant at both lower (-1 SD slope = -.052, p < .001) and higher (+1 SD slope = -.072, p < .001) levels of external locus of control due to chance (Figure 7).

**Positive Emotion-focused Coping by External Locus of Control due to Powerful Others**

There was a protective main effect of positive emotion-focused coping on suicide risk (B = -.034, p < .001). There was a significant interaction (B = -.118, p < .001) such that greater
positive emotion-focused coping decreased suicide risk for those with higher external locus of control due to powerful others (+1 SD slope = -.152, p<.001), but increased suicide risk for those with lower external locus of control due to powerful others (-1 SD slope = .084, p<.001; Figure 8).

**Negative Emotion-focused Coping by Internal Locus of Control**

There was a significant main effect of negative emotion-focused coping on suicide risk (B = .314, p <.001) such that increased negative emotion-focused coping was associated with increased probability of belonging to a higher suicide risk group, but there was no significant interaction between negative emotion-focused coping and internal locus of control (p >.01; Figure 9).

**Negative Emotion-focused Coping by External Locus of Control due to Chance**

There was a significant main effect of negative emotion-focused coping on suicide risk (B = .303, p <.001). There was also a significant interaction such that the harmful association between negative emotion-focused coping and suicide risk was stronger for those with higher external locus of control due to chance (B = .029, p<.001). This harmful association was significant at both lower (-1 SD slope = .274, p < .001) and higher (+1 SD slope = .332, p < .001) levels of external locus of control due to chance (Figure 10).

**Negative Emotion-focused Coping by External Locus of Control due to Powerful Others**

There was a significant main effect of negative emotion-focused coping on suicide risk (B = .306, p<.001). There was also a significant interaction such that the harmful association between negative emotion-focused coping and suicide risk was stronger for those with higher external locus of control due to powerful others (B = .079, p<.001). This harmful association was
significant at both lower (-1 SD slope = .227, \( p < .001 \)) and higher (+1 SD slope = .385, \( p < .001 \)) levels of external locus of control due to powerful others (Figure 11).
IV. Discussion

The present study aimed to compare and contrast coping differences across suicide risk factors among a nationally representative sample of U.S. adolescents. Adolescents with higher suicide risk were expected to exhibit greater use of negative emotion-focused coping and lower use of problem-focused and positive emotion-focused coping compared to adolescents with lower suicide risk. A second exploratory aim was to evaluate locus of control as a moderator of the relationship between coping and suicide risk.

**Coping Differences across Suicide Risk Categories**

Problem-focused coping generally appeared to be a protective factor, as the No SI/SA group endorsed higher levels of problem-focused coping than each of the suicide risk groups, and the highest risk 12-month SA group reported the lowest levels of problem-focused coping. The 12-month SA group used problem-focused coping much less than any other group (medium to large effect sizes). However, relative use of problem-focused coping ran counter to hypotheses for the Lifetime SI, 12-month SI, and Lifetime SA groups. Specifically, the Lifetime SI group reported lower levels of problem-focused coping than did the 12-month SI and Lifetime SA groups, though these were small effect sizes. The 12-month SI group also used problem-focused coping less than the Lifetime SA group. Given similar patterns between the 12-month SI and Lifetime SA groups across the other coping strategies, this result seems to indicate that past-year suicidal ideation represents higher suicide risk than presence of a lifetime suicide attempt. Still, deficits in problem-focused coping appeared to confer greater suicide risk.

Positive emotion-focused coping generally appeared to be a protective factor, as levels of positive emotion-focused coping tended to decrease as suicide risk increased, with some notable exceptions. The 12-month SI and Lifetime SA groups did not significantly differ in their use of
this coping strategy, which may indicate that our conceptualization of Lifetime SA (i.e. endorsed a suicide attempt in their lifetime, but not in the past 12 months) as representing greater suicide risk than 12-month SI should be reversed. Also contrary to hypothesis, the 12-month SA group reported the greatest use of positive emotion-focused coping of all groups, suggesting that positive emotion-focused coping should not always be considered a protective factor. The 12-month SA group appeared to rely on emotion-focused coping in general, as this group not only displayed high positive emotion-focused coping, but high negative emotion-focused coping with the greatest deficit in problem-focused coping. In the context of a deficit in problem-focused coping, the 12-month SA group may shift to rely on positive emotion-focused coping, which may represent a less effective set of strategies, as they are by definition not directly addressing the stressor.

Negative emotion-focused coping emerged as a risk factor for suicide, as adolescents with greater suicide risk generally demonstrated greater use of negative emotion-focused coping. Negative emotion-focused coping was the most endorsed coping strategy across all suicide ideation and attempt groups, and the least endorsed coping strategy among those with no suicide ideation or attempts. Hypotheses for negative emotion-focused coping were generally supported, with negative emotion-focused coping increasing as suicide risk increased. One exception was the 12-month SI group, which endorsed even greater negative emotion-focused coping than did the 12-month SA group. This pattern suggests that the those who have experienced suicidal ideation in the past year have a deficit of problem-focused and positive emotion-focused coping, and instead rely heavily on negative emotion-focused coping, while those who have had a suicide attempt in the past year shift to engaging both positive and negative emotion-focused coping. This shift might reflect an effort to distract from negative emotions or adjust coping
strategies after a suicide attempt has occurred. Given the retrospective and cross-sectional nature of this study, it is not possible to determine whether positive emotion-focused coping is associated with increased risk of making a suicide attempt, or if a relative shift from negative to positive emotion-focused coping occurs after a suicide attempt. This pattern of findings also suggests that interpretation of coping effectiveness should not be made by assessing the frequency of a specific coping category, but by comparing an individual’s use of coping strategies relative to other coping categories.

Regarding patterns of coping within specific suicide risk categories, the No SI/SA group was characterized by general reliance on problem-focused coping compared to positive or negative emotion-focused coping. The Lifetime SI group demonstrated lower levels of problem-focused coping and positive emotion-focused coping, as well as a greater tendency to engage in negative emotion-focused coping. The 12-month SI group had deficits in both problem-focused coping and positive emotion-focused coping, and reported the highest level of negative emotion-focused coping of all groups, suggesting this group may represent a higher level of suicide risk than the Lifetime SA group. The Lifetime SA group reported moderate levels of problem-focused coping, low positive emotion-focused coping and higher use of negative emotion-focused coping. The 12-month SA group exhibited the largest deficit in problem-focused coping, showing a large effect size when compared to the No SI/SA group, and small effect size when compared to the Lifetime SI group. The 12-month SA group reported overall high levels of emotion-focused coping, relying most on negative emotion-focused coping, but also reporting greater reliance on positive emotion-focused coping than any other suicide risk group.

**Locus of Control as a Moderator of the Relationship between Coping and Suicide Risk**
Consistent with hypotheses, there was an overall protective effect of internal locus of control, such that, as internal locus of control increased, probability of belonging to a higher suicide risk group decreased. In contrast, external locus of control due to chance was a significant suicide risk factor. As external locus of control due to chance increased, probability of belonging to a higher suicide risk group increased. External locus of control due to powerful others was also a significant suicide risk factor, with increases in this locus of control subscale yielding greater probability of belonging to a higher suicide risk group.

As hypothesized, as problem-focused coping scores increased, probability of belonging to a higher suicide risk group decreased. It was expected that this protective relationship would be stronger for adolescents with higher internal locus of control and weaker for those with higher external locus of control due to chance, given the hypothesized alignment between internal locus of control and approach-oriented coping. However, contrary to hypothesis, this protective relationship was stronger for those with lower internal locus of control and higher external locus of control due to chance or due to powerful others. This finding may reflect that adolescents with higher internal – or low external – locus of control already are already characterized by low suicide risk, and therefore experienced less reduction in suicide risk from engaging in problem-focused coping.

Similar to problem-focused coping, positive emotion-focused coping demonstrated a stronger protective effect among adolescents with lower internal locus of control and higher external locus of control due to chance or powerful others. However, positive emotion-focused coping was associated with increased suicide risk for adolescents with higher internal locus of control and lower external locus of control due to powerful others. This result may point to the particularly heterogenous and less obviously adaptive nature of the positive emotion-focused
coping category, which is generally considered to be approach-oriented behavior, but by
definition does not directly address the problem or stressor. Perhaps positive emotion-focused
coping is less approach-oriented in different contexts, and may in some situations resemble
disengagement coping, thereby increasing suicide risk for adolescents with high internal locus of
control due to the mismatch between internal locus of control and disengagement coping.

Negative emotion-focused coping was associated with increased suicide risk. While there
was no significant interaction between negative emotion-focused coping and internal locus of
control on suicide risk, there were significant interactions between negative emotion-focused
coping and both external locus of control subscales, such that the harmful effect of negative
emotion-focused coping was amplified for adolescents with higher external locus of control due
to chance or due to powerful others. The lack of a significant interaction for internal locus of
control perhaps supports the multidimensional nature of locus of control, such that internal locus
of control and external locus of control due to chance or due to powerful others are not simply
two poles of the same construct.

Limitations

The present findings should be understood in the context of several study limitations. The
NCS-A assessed suicidal ideation and attempts using single items. Research suggests that single-
item assessments of suicide attempt history, in particular, may lead to misclassification of past
behaviors that may not have been suicide attempts, or that may have been aborted or interrupted
suicide attempts (Hom et al., 2016). Nock and Kessler (2006) also previously noted the difficulty
in parsing out respondents who engaged in self-injury with intent to die rather than to
communicate with others. Both concerns potentially limit the generalizability of these findings to
adolescents with prior suicide attempts. Second, the NCS-A utilized binary gender assessment
and 9.1% of respondents were recorded as having missing responses to this question, and were thus excluded from analyses. Evidence suggests that gender minority youth may face elevated risk for suicide (Barboza et al., 2016; Guz et al., 2021). This demographic information was not available and therefore limits generalizability of findings to gender minority youth. In addition, the second exploratory aim included use of an ordinal ranked suicide risk dependent variable conceptualized for this study. The differential risk between history of a lifetime suicide attempt (not in the past 12 months) and past 12-month suicidal ideation without suicide attempt is unclear (Chu et al., 2015). It is possible that the suicide risk variable needs adjustment, and perhaps should be reordered to prioritize recency in ranking, such that past 12-month suicidal ideation would constitute a higher suicide risk category than lifetime suicide attempt (not in past 12 months). Lastly, while the broad scope of this dataset affords many strengths, the cross-sectional nature of the data preclude inferences about causality or directionality of findings.

**Future Directions**

The present study provides a more comprehensive look at patterns of coping across adolescent suicide risk groups. Given the retrospective, cross-sectional design of this study, future research should prospectively study temporal relationships between coping strategies and suicidal ideation and behaviors to understand whether reliance on certain coping strategies precedes the onset of suicidal ideation and attempts, or whether certain coping patterns develop in response to suicidal ideation and attempts. The present study yielded limited evidence of high internal locus of control exacerbating suicide risk in the context of positive emotion-focused coping. This finding should be replicated in future research. To further clarify mixed findings on the effectiveness of positive emotion-focused coping, future studies could examine specific coping strategies, rather than categories, which may also facilitate replication across studies.
Conclusions

The present study suggests that problem-focused coping is a protective factor that should be developed, and that negative emotion-focused coping is a suicide risk factor that should be reduced. Positive emotion-focused coping may not necessarily be protective, depending on one’s level of internal locus of control, and use of positive emotion-focused coping may not be an effective solution for a deficit in problem-focused coping. Coping in adolescents should not be studied by focusing on use of a single category in isolation, but rather in the broad context of their overall repertoire and relative use of different coping categories.

Locus of control moderates the association between coping and suicide risk. Low internal locus of control and high external locus of control amplify the protective effect of problem-focused coping. High internal locus of control is generally protective, but may exacerbate suicide risk in the context of positive emotion-focused coping. Together, these findings suggest that, although adolescents with low internal locus of control and high external locus of control may be vulnerable to greater suicide risk, they may still experience substantial protective effects of problem-focused and positive emotion-focused coping.
References


Table 1.
Demographic Information for Total NCS-A Sample (N=10,148)

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<th>Variable</th>
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<td>Age (13-18)</td>
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<tr>
<td></td>
<td>(1.51)</td>
</tr>
<tr>
<td>Sex</td>
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<td>Male</td>
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</tr>
<tr>
<td>Non-Hispanic Black</td>
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<td>Non-Hispanic White</td>
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<td>&lt;High school</td>
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</tr>
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</tr>
<tr>
<td>Some college</td>
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<td>Bipolar I disorder</td>
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<td>Bipolar II disorder</td>
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<td>Bipolar subthreshold disorder</td>
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<td>Specific phobia</td>
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<tr>
<td>Drug dependence</td>
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## Table 2.
### Bivariate Correlations Across Coping and Locus of Control Variables

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<th>Coping</th>
<th>Positive emotion-focused</th>
<th>Negative emotion-focused</th>
<th>Locus of Control</th>
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<td>.12*</td>
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<td>.28*</td>
</tr>
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<td>Positive emotion-focused</td>
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<td>.06*</td>
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<td>Locus of Control</td>
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<td>External - Chance</td>
<td>External – Powerful Others</td>
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<td>--</td>
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<tr>
<td>External - Chance</td>
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<td>.36*</td>
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| *p < .001
Table 3. Coping Differences Across Suicide Risk Groups

<table>
<thead>
<tr>
<th>Coping Measure</th>
<th>No SI/SA M (SD)</th>
<th>Lifetime SI M (SD)</th>
<th>12-month SI M (SD)</th>
<th>Lifetime SA M (SD)</th>
<th>12-month SA M (SD)</th>
<th>F(4)</th>
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<tr>
<td>Problem-focused</td>
<td>.03 (.96)</td>
<td>-.24 (1.09)</td>
<td>-.11 (1.13)</td>
<td>.03 (1.18)</td>
<td>-.82 (1.21)</td>
<td>48776.41*</td>
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<tr>
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<td>-.04 (.97)</td>
<td>-.08 (1.02)</td>
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<td>-.13 (1.07)</td>
<td>.10 (1.23)</td>
<td>2822.98*</td>
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<td>Negative emotion-focused</td>
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<td>.28 (1.07)</td>
<td>.75 (1.02)</td>
<td>.62 (1.04)</td>
<td>.84 (1.10)</td>
<td>36053.56*</td>
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*p < .001
Table 4.
*Problem-focused Coping Sidak Post-hoc Comparisons, Mean Differences (Cohen’s d)*

<table>
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<tr>
<th></th>
<th>No SI/SA</th>
<th>Lifetime SI</th>
<th>12-month SI</th>
<th>Lifetime SA</th>
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<tr>
<td>coping</td>
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<td>Lifetime SI</td>
<td>-.28*(-.26)</td>
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<tr>
<td>12-month SI</td>
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<tr>
<td>Lifetime SA</td>
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<td>.13* (.12)</td>
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<td>12-month SA</td>
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<td>emotion-focused</td>
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<td>coping</td>
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<tr>
<td>Lifetime SI</td>
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<tr>
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<td>Lifetime SA</td>
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<td>.17* (.17)</td>
<td>.17* (.19)</td>
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<td>12-month SA</td>
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<td>.08* (.52)</td>
<td>-.19* (.09)</td>
<td>.08* (.21)</td>
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*\(p < .001\)

Note. Mean differences were calculated as Rows - Columns
Table 5.
Ordinal Regression Results for Coping and Locus of Control Subscales

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<thead>
<tr>
<th>Type of Coping</th>
<th>Coping</th>
<th>LoC</th>
<th>Coping * LoC</th>
<th>B</th>
<th>Exp(B)</th>
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<td>.786</td>
<td>.024*</td>
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<td>Problem-focused coping X External LoC due to Chance</td>
<td>-.245*</td>
<td>.782</td>
<td>-.145*</td>
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<td>Problem-focused coping X External LoC due to Powerful Others</td>
<td>-.269*</td>
<td>.764</td>
<td>-.011*</td>
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<tr>
<td>Positive emotion-focused coping X Internal LoC</td>
<td>-.016*</td>
<td>.985</td>
<td>.134*</td>
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<tr>
<td>Positive emotion-focused coping X External LoC due to Chance</td>
<td>-.062*</td>
<td>.940</td>
<td>-.010*</td>
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<tr>
<td>Positive emotion-focused coping X External LoC due to Powerful Others</td>
<td>-.034*</td>
<td>.967</td>
<td>-.118*</td>
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<tr>
<td>Negative emotion-focused coping X Internal LoC</td>
<td>.314*</td>
<td>1.368</td>
<td>.001</td>
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<tr>
<td>Negative emotion-focused coping X External LoC due to Chance</td>
<td>.303*</td>
<td>1.353</td>
<td>.029*</td>
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<td>Negative emotion-focused coping X External LoC due to Powerful Others</td>
<td>.306*</td>
<td>1.357</td>
<td>.079*</td>
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*p < .001
Figure 1. Estimated Marginal Means of Coping Strategies

Note. This figure depicts the estimated marginal means of coping strategies used to test post-hoc pairwise comparisons following MANOVA.
Figure 2. Estimated Marginal Means of Coping Strategies by Suicide Risk Group

Note. This figure depicts the estimated marginal means of coping strategies used to test post-hoc pairwise comparisons following MANOVA. Data have been organized by suicide risk groups for ease of interpretation.
Figure 3. Problem-focused Coping by Internal Locus of Control

Figure 4. Problem-focused Coping by External Locus of Control due to Chance
Figure 5. Problem-focused Coping by External Locus of Control due to Powerful Others

![Graph showing the relationship between problem-focused coping and suicide risk for individuals with an external locus of control (LoC) due to powerful others. The graph illustrates a negative correlation, indicating that as problem-focused coping increases, suicide risk decreases.]

Figure 6. Positive Emotion-focused Coping by Internal Locus of Control

![Graph showing the relationship between positive emotion-focused coping and suicide risk for individuals with an internal locus of control. The graph illustrates a negative correlation, indicating that as positive emotion-focused coping increases, suicide risk decreases.]

Figure 7. Positive Emotion-focused Coping by External Locus of Control due to Chance

Figure 8. Positive Emotion-focused Coping by External Locus of Control due to Powerful Others
Figure 9. Negative Emotion-focused Coping by Internal Locus of Control

Figure 10. Negative Emotion-focused Coping by External Locus of Control due to Chance
Figure 11. Negative Emotion-focused Coping by External Locus of Control due to Powerful Others