

**COPING STYLES AS A PREDICTOR OF TRAIT AND BEHAVIORAL
IMPULSIVITY**

An Undergraduate Research Scholars Thesis

by

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ABSTRACT

Coping Styles as a Predictor of Trait and Behavioral Impulsivity. (May 2015)

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The present study will examine the relationship between coping styles and impulsive behavior in adolescents. The coping styles being examined are productive and non-productive coping as predictors of impulsive personality traits and behavior. In previous studies, non-productive coping has been related to risk taking behavior such as drinking, risky sexual activities, and smoking (Magar, 2008). This study will be comparing non-productive and productive coping to impulsive personality traits and behavioral impulsivity as the underlying mechanism of risk taking behavior. Coping styles will be collected using the Adolescent Coping Orientation for Problem Experiences (ACOPE), a self-report measure of specific coping behaviors, which are categorized into 12 coping style subscales. Behavioral impulsivity will be evaluated as a performance measure using Kirby's Monetary-Choice Questionnaire, while trait impulsivity will be measured using the Barratt Impulsiveness Scale (BIS). Regression analyses will be conducted to determine the relationship between coping strategies and levels of impulsivity. The measures will then be analyzed for significant indications of a predictive correlation. This study shows that non-productive coping styles are related to higher levels of impulsivity.

Keywords: coping, impulsivity

CHAPTER I

INTRODUCTION

More than half of all driver fatalities involve individuals between 16 to 24 years of age. This age range accounts for less than a quarter of drivers yet maintains a disproportionate number of fatalities regardless of the parameters set on exposure to the different risks of driving (e.g. distance of travel, time of day, etc.) (Furby, 1992). Driving is only one of a multitude of activities, which include smoking, drinking, and risky sex, in which adolescent's well-being is endangered due to their risk-taking behavior. Previous studies have found that an individual's inclination towards risky behavior can be traced to a break down in self-regulatory control, resulting in an increase in impulsivity (Magar, 2008). Executive functioning is a sub-category of self-regulation that controls planning and the execution of actions, thwarting impulsivity (Baumeister & Vohs, 2003). Adolescents endure pubertal changes in the brain along with premature executive functioning, making them more susceptible to immediate rewards and impaired decision-making (Steinberg et al., 2009). It is hypothesized that impulsivity is likely one underlying mechanism that differentiates individuals who engage in risky behavior from those who do not.

Impulsivity

Impulsivity is defined as “the predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions” (International Society for Research on Impulsivity). It is considered a multidimensional construct characterized several different domains including self-control and delay of gratification. Previous research has

suggested that self-report and behavioral measures differ in the constructs that they measure; self-report measures tend to capture the trait-like while behavioral measures capture delay discounting, or the inability to delay gratification (Reynolds, Ortengren, Rishards, & de Wit, 2006). Trait measures such as the Barratt Impulsiveness Scale (BIS) capture an individual's impulsive personality characteristics including attention, motor, self-control, cognitive complexity, perseverance, and cognitive instability. In contrast, behavioral measures are thought to capture impulsive decision making, or an individual's inability to "make decisions about delayed versus immediate or probabilistic versus certain outcomes" (Reynolds, Penfold, & Patak, 2008).

Previous studies, utilizing both cross-sectional and longitudinal methods, have shown that impulsivity scores peak during adolescence (Collado, Felton, MacPherson, & Lejuez, 2014; Romer, 2010). Particularly, sensation seeking shows a sharp increase in adolescence yielding a disconcerting development of risk taking behavior due to an underdeveloped self-regulatory control (Magar, 2008; Romer, 2010). There are multiple theories that have been suggested to account for such drastic increases in impulsivity in adolescence. One biological perspective suggests that there is a maturation gap between the development of the prefrontal cortex, involved in risk assessment and mitigation, and the frontostriatal reward circuits, which drive a heightened desire for novel activities (e.g. drinking, driving, sex, etc.). These reward circuits mature at a relatively early stage compared to the prefrontal cortex resulting in an increase of involvement in novel activities, which have a propensity toward increased risk (Romer, 2010; Steinberg et al., 2009). However, more recent reviews of this theory suggest that biological pubertal changes in the brain restricting executive functioning create limitations that are

unsubstantial when compared to the novelty of encounters by adolescents, creating experiential limitations. Recent studies have shown that the most significant cause of adolescent impulsivity is a lack of experience, either vicarious or direct, with novel and sensational experiences (Romer, 2010).

Concurrent to pubertal, biological, and cognitive changes, adolescence is marked by a unique set of stressors created by developmental tasks related to social functioning. (Patterson & Mccubbin, 1987). Increased stress related to social functioning, particularly inclusion in a peer group, has been related to heightened levels of impulsivity and lowered self-control (Fields, Leraas, Collins, & Reynolds, 2009). These changes in impulsivity and self-control may be the underlying mechanisms of risk-taking behavior. Thus, during adolescents when stressors are poorly handles, more impulsive decisions may be made resulting in risky health behaviors (Collado, Felton, MacPherson, & Lejuez, 2014; Fields, Leraas, Collins, & Reynolds, 2009; Romer, 2010).

Coping

Given that stress may contribute to weak self-control and increases in impulsive behavior, it is important to understand how adolescents cope with stress (Carver, Scheier, & Fulford, 2008 and Magar, 2008; Romer, 2010; Fields, Leraas, Collins, & Reynolds, 2009). Coping, a response to a stressor, occurs in situations in which obstacles can either be overcome or accepted as unachievable (Carver, Scheier, & Fulford, 2008). Generally, coping behaviors are classified into several productive and non-productive coping styles. Productive coping involves problem solving while maintaining healthy physical and social aspects of life and includes factors such as *investment in close friends, developing social support, and developing self-*

reliance (Frydenberg & Lewis, 2011; Patterson & Mccubbin, 1987). Non-productive coping utilizes the avoidance of stressors and can include factors such as *avoiding problems*, *seeking diversions*, and *ventilating feelings* (Frydenberg & Lewis, 2011; Patterson & Mccubbin, 1987).

Like impulsivity, coping may be thought of as a series of cognitive and behavioral techniques. However, in the case of coping these techniques are utilized to eliminate, reduce, or redefine stresses to make them manageable. In addition, coping can be utilized to acquire adequate resources to appease the stressors (Carver, Scheier, & Fulford, 2008; Patterson & Mccubbin, 1987). Thus, beyond productive and non-productive coping strategies, previous researchers have broken coping down into three major functions: *problem-focused coping*, *appraisal-focused coping*, and *emotion-focused coping*. Problem-focused coping is a direct approach to eliminate, reduce, or acquire adequate resources to manage a stressor. Appraisal-focused coping refers to the redefinition of stressors to make them manageable. Finally, emotion-focused coping is an indirect approach that is intended to manage the emotional tension that is causing the stress (Patterson & Mccubbin, 1987). These functions are the underlying classifications common coping assessment measures (Frydenberg & Lewis, 2011; Patterson & Mccubbin, 1987).

Given that adolescence is marked by developmental stressors, this may be a key developmental time for coping strategies as well. This results in an increased risk caused by inexperience and high levels of activity leading to extreme reactions to stress (Patterson & Mccubbin, 1987).

According to Patterson & Mccubbin (1987), there are four ways in which coping behaviors and styles are acquired: personal experience with a situation, vicarious experience with a situation, perceptions of personal physiology and inferences about ones vulnerability, and social

persuasion. Given that adolescents are facing some particular stressors for the first time, their repertoire of working responses is minimal and underdeveloped (Patterson & Mccubbin, 1987). If poor coping response techniques are developed during adolescence, such as substance abuse or avoidance coping, there are likely to be long-term consequences that have the potential to carry over into adulthood. In addition, non-productive coping can become its own source of strain (Patterson & Mccubbin, 1987). However, well-adjusted individuals that implement productive coping skills such as problem solving show to have higher levels of optimism, better relations with friends and family, and a stronger control over daily stressful situations.

CHAPTER II

METHODS

Participants

Forty college students from Texas A&M University were recruited for this study through their enrollment in SONA, an online subject pool. There were thirty-one (9 female and 22 male) participants age 18, two who did not identify their age, and seven participants who were excluded because the measures used in this study required participants to be 18 or younger. Additionally, the participant sample included a racial composition of twenty-six Caucasians, two Asians, and three Hispanics.

Measures and Design

Coping Style

Coping styles were measured using the Adolescent Coping Orientation for Problem Experiences (ACOPE), a self-report questionnaire with 54 detailed coping behaviors measured on a 5-point Likert scale (5 = Most of the time, 1 = Never) oriented to indicate commonality of use (Jorgensen & Dusek, 1990). These coping behaviors are categorized into the following 12 subscales: Ventilating Feelings, Seeking Diversions, Self-Reliability, Social Support, Solving Family Problems, Avoiding Problems, Spiritual Support, Investing in Close Friends, Professional Support, Engaging in a Demanding Activity, Humor, and Relaxing (Patterson & McCubbin, 1987).

Impulsivity

Behavioral impulsivity was measured using Kirby's Monetary-Choice Questionnaire, a self-report measure with a fixed set of 27 questions that requires individuals to choose between a small amount of money available immediately, or a larger amount of money after a delay. (Kirby, Petry, Bickel, 1999). The task is based on the principle that impulsive individuals lack the ability to delay rewards and has been used to determine impulsivity in a wide range of sample populations (Duckworth & Seligman, 2005; Petry, 2001; Wilson & Daly, 2004).

Trait impulsivity was measured using the Barratt Impulsiveness Scale-11-Adolescent (BIS-11-A; Fossatti et al., 2002), a 30-item self-report measure that yields a total score with higher scores indicating greater levels of trait impulsivity. Previous research has suggested that the overall score is the best indicator for adolescent impulsivity, given a high correlation among subtests (Gossatti et al., 2002).

Statistical Analyses

Separate regression analyses were conducted to compare the total ACOPE score and 12 subscale scores of coping strategies with (1) behavioral impulsivity as measured by the Kirby Monetary-Choice Questionnaire and (2) trait impulsivity as measured by the BIS-11-A.

Materials and Procedures

The required materials for this experiment were Qualtrics (an online survey software), SONA (a subject pool organized by Texas A&M University), and a computer used to run participants. After each participant was granted access to the study on SONA, they were redirected to

Qualtrics and presented with instructions to fill out the questionnaires. Once all surveys were completed, the data was collected and compiled by the Qualtrics software.

CHAPTER III

RESULTS

Participant Characteristics

An initial linear regression was utilized to determine the effects of demographics on coping behavior. A significant relationship between sex and coping score was identified ($B = 0.474, p = 0.01$). Race had no significant relationship to coping ($B = 0.117, p = 0.498$).

Measurement Reliability

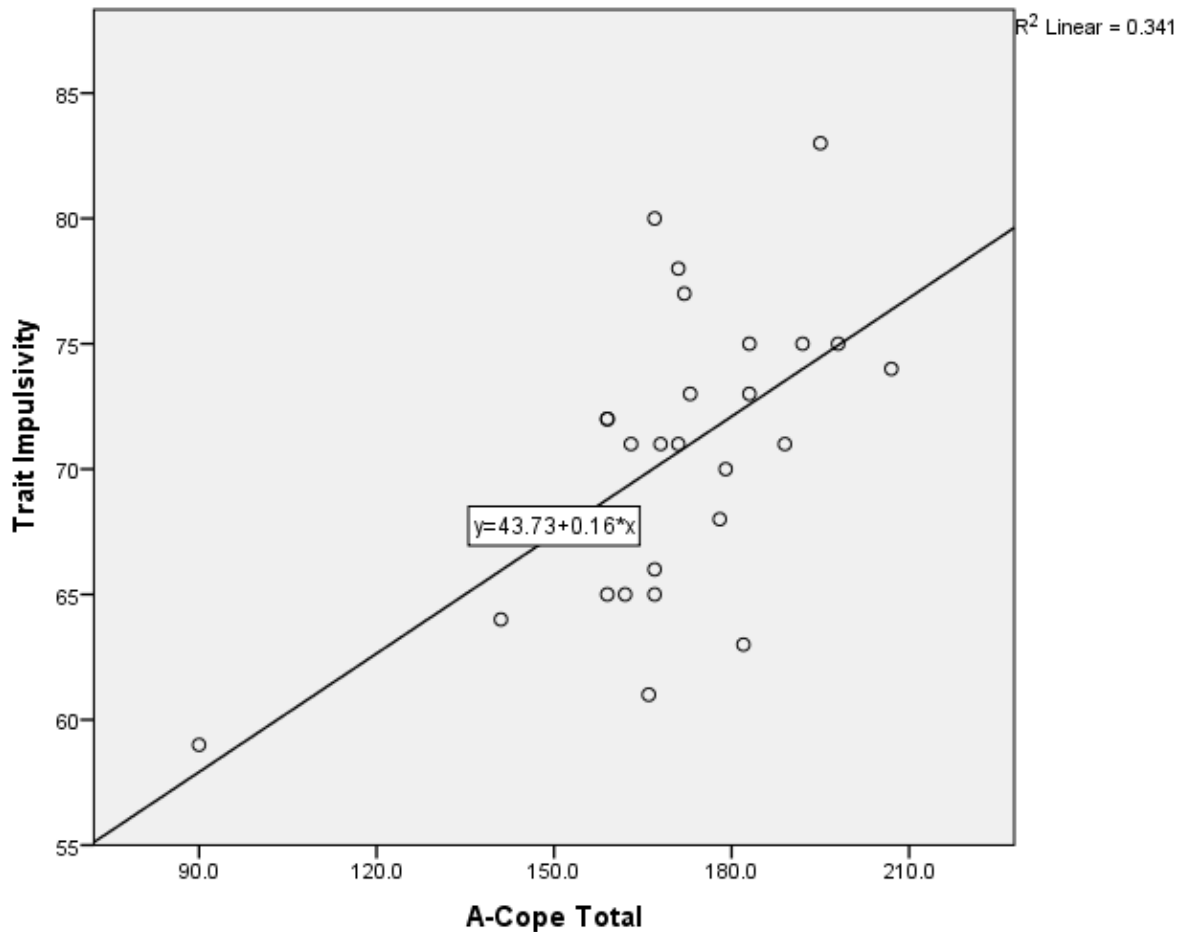
Mean scores of the ACOPE subscales revealed the following mean responses: Ventilating Feelings ($M = 18.33, SD = 3.292$), Seeking Diversions ($M = 21.25, SD = 3.794$), Self-Reliability ($M = 20.18, SD = 3.755$), Social Support ($M = 19.40, SD = 3.979$), Solving Family Problems ($M = 19.22, SD = 5.206$), Avoiding Problems ($M = 19.45, SD = 2.480$), Spiritual Support ($M = 7.00, SD = 2.810$), Investing in Close Friends ($M = 6.60, SD = 2.426$), Professional Support ($M = 3.30, SD = 1.324$), Engaging in a Demanding Activity ($M = 12.73, SD = 3.154$), Humor ($M = 6.60, SD = 1.959$), and Relaxing ($M = 18.33, SD = 2.348$). Means from the current study are similar to those reported in previous studies (Chapman & Mullis, 2000). This means that the results found from the ACOPE can be interpreted with confidence (Patterson & McCubbin, 1987).

Coping and Trait Impulsivity

Results from a linear regression of BIS Total score and ACOPE Total score revealed a significant relationship ($R^2 = 0.416, B = 0.118, p = 0.024$). For further explanation please refer to Figure 1. Regressions examining the impact of ACOPE subscales and BIS revealed non-

significant relationships for the following subscales: Ventilating Feelings ($B = -0.296, p = 0.292$), Self-Reliability ($B = 0.381, p = 0.101$), Solving Family Problems ($B = 0.207, p = 0.224$), Avoiding Problems ($B = -0.431, p = 0.278$), Investing in Close Friends ($B = -0.707, p = 0.066$), Professional Support ($B = 0.457, p = 0.500$), Engaging in a Demanding Activity ($B = 0.629, p = 0.019$), Humor ($B = 1.057, p = 0.015$), and Relaxing ($B = 0.608, p = 0.110$) However, it was found that Seeking Diversions ($B = 0.611, p = 0.006$), Social Support ($B = 0.668, p = 0.002$), and Spiritual Support ($B = 0.866, p = 0.004$) are significantly related to trait impulsivity.

Figure 1



Coping and Behavioral Impulsivity

K-scores were calculated based on previously outlined procedures to determine overall levels of impulsivity for each participant on the Kirby Monetary-Choice Questionnaire. Regression between the Kirby Total Score and ACOPE total score revealed a non-significant relationship ($B = -0.001, p = 0.277$). However, further examination of the subscales revealed some significant results. Ventilating Feelings ($B = 0.008, p = 0.005$), Seeking Diversions ($B = -0.005, p = 0.034$), Self-Reliability ($B = -0.007, p = 0.006$), and Humor ($B = -0.010, p = 0.035$) were all significantly related to behavioral impulsivity. Social Support ($B = -0.002, p = 0.354$), Solving Family Problems ($B = -0.001, p = 0.475$), Avoiding Problems ($B = 0.006, p = 0.107$), Spiritual Support ($B = 0.000, p = 0.971$), Investing in Close Friends ($B = -0.008, SD = 0.054$), Professional Support ($B = -0.002, p = 0.742$), Engaging in a Demanding Activity ($B = -0.005, p = 0.091$), and Relaxing ($B = -0.005, p = 0.188$) were not significantly related to behavioral impulsivity.

CHAPTER IV

CONCLUSION

It was hypothesized that coping would be related to impulsivity such that non-productive coping styles would correspond to high levels of trait and behavioral impulsivity. The results both supported and refuted the hypothesis, showing that the ACOPE total score was related to trait impulsivity, however it was not related to behavioral impulsivity. Additionally, it was found that different subscales for the ACOPE were significantly related to trait or behavioral impulsivity. More specifically, Seeking Diversions (e.g. finding solace in distracting activities) was the only subscale construct of coping that was significantly related to both trait and behavioral impulsivity (Jorgensen & Dusek, 1990).

It was found that overall trait impulsivity was not related to coping. However, when the ACOPE is divided into its 12 subscales Seeking Diversion, Social Support (e.g. engaging in increase social interactions), and Spiritual Support (e.g. reducing stress through faith or religious activities) are the only three subscale constructs that have a significant relationship (Jorgensen & Dusek, 1990). It is worth noting that Seeking Diversion may be the only significant subscale that is related to non-productive coping, while social and spiritual support are more productive coping strategies. Thus, it cannot be stated that greater levels of trait impulsivity are associated with more frequent use of non-productive coping.

Results also revealed that behavioral impulsivity was related to coping strategies. However, when the ACOPE is divided into its 12 subscales Ventilating Feelings (e.g. “letting of steam”),

Seeking Diversions, Self Reliability (e.g. boosting self-image by an increase in personal control), and Humor (e.g. making light of a situation) were the only subscales that were significantly related to behavioral impulsivity. These subscales are all part of the same factor outlined by Patterson and Mccubbin (1987) called emotion-focused coping. This factor includes all of the subscales dealing with avoidance, anger, and more immediate reactions to cope with stress (Dusek & Danko, 1994). The significant relationship between these styles of coping and behavioral impulsivity may suggest that some individuals who are more inclined to act on emotion are also more likely to engage in impulsive decision-making. Further, given the link between impulsive decision-making and risky health behaviors, it is possible that these adolescents are at greater risk for engaging in reckless driving, substance use, and risky sex.

The current study has a number of limitations that should be considered. First, due to the online nature of the study a true behavioral measure of monetary delay discounting (such as the delay discounting questionnaire) could not be utilized. These computerized measures with adjusting-amount paradigms may be more sensitive to the impulsive decision-making construct than the Kirby Monetary-Choice Questionnaire which is filled out in pencil and paper format. Second, the current study only included participants who were 18 years old due to a limited sample. The ACOPE is designed for all high-school aged students and should be utilized with a broader age-range to increase the generalizability of the findings from the current study. Finally, analyses for the current study could benefit from further evaluating the influence of the three factor structures (emotion, problem, and appraisal-focused coping). These analyses should be the target of future work in this field based on subscale-specific findings from the current study.

Although the study has limitations that need to be considered, it is the first of its kind to examine the role of coping on trait and behavioral impulsivity. Given that adolescents demonstrate increased levels of developmental stress and impulsivity, it is important to identify mechanisms, such as coping strategies, that may place them at risk for making poor decision. The study provides preliminary evidence that interventions that seek to reduce engagement in risky health behaviors should also examine the way the adolescents cope with stress, which may reveal the subset of individuals who turn to smoking, drinking, and risky sex to deal with their problems.

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