

Risk Propensity as a Function of Personality and Identity

Reilly Branch  and Steven L. Berman *

Department of Psychology, College of Sciences, University of Central Florida, Sanford, FL 32773, USA

* Correspondence: steven.berman@ucf.edu

Abstract: Previous research has indicated a relationship between risk propensity and the Dark Tetrad personality traits (i.e., narcissism, Machiavellianism, psychopathy, and sadism). No research has yet been conducted to analyze the relationship between Dark Tetrad personality traits and adaptive or maladaptive identity development. Of interest is whether the Dark Tetrad personality traits are related to identity development and how these factors might affect risk propensity or participation in risk-taking behaviors (e.g., drug use). College students ($N = 424$) completed an anonymous online survey battery. Machiavellianism, psychopathy, and sadism positively predicted maladaptive identity development, while narcissism inversely predicted pathological identity factors and positively predicted consolidated identity. Consolidated identity, disturbed identity, Machiavellianism, narcissism, and psychopathy were found to be positive predictors of risk propensity. Finally, narcissism appeared to mediate the relationship between consolidated identity and risk propensity. This study highlights the need for identity-based interventions for adolescents and young adults who may be at risk for delinquent or externalizing behaviors. Further results and their implications are discussed.

Keywords: dark tetrad; dark personality; identity development; identity distress; risk propensity

1. Introduction

1.1. Overview

In recent years, interest has been growing in the study of maladaptive, harmful, or generally negative personality traits and various topics of interest, including problematic behaviors on social media [1], attachment styles [2], delinquency [3], and aggression [4]. These traits have been termed dark personality traits [5]. Paulhus (2014) describes dark personality traits as being a constellation of socially adverse traits that are subclinical in nature [5]. These traits are pervasive throughout the population and do not solely exist within the criminal justice system, though this has been a common area of interest for researchers. The primary dark personality traits captured within the Dark Tetrad are Machiavellianism, sadism, narcissism, and psychopathy [6]. Research on personality has demonstrated that specific traits might affect how people develop their identity [7]. Some studies have indicated a relationship between the Dark Triad and one's sense of self, leading to new discussions on the potential relationship between these personality traits and identity development [7]. Separate relationships have been found between identity development and risk taking [8], as well as between dark personality traits and risk propensity [9]. The literature has demonstrated similar correlates between unhealthy/maladaptive identity development and dark personality and their subsequent relationship with risk-related outcomes. To date, no studies have examined the relationship between the SCIM identity dimensions and the Dark Tetrad, though the literature supports the idea that dark personality traits might affect how people select their roles, goals, and values [7]. Additionally, the relationship among the Dark Tetrad, identity (i.e., maladaptive identity development, adaptive identity development, and identity distress), and risk propensity has not been adequately explored.



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1.2. The Dark Tetrad

As previously mentioned, the Short Dark Tetrad (SD4) measures dark or antagonistic personality traits. Traits measured with the SD4 are Machiavellianism, psychopathy, narcissism, and sadism [5]. Prior to Paulhus (2021), dark personality was primarily measured through the Short Dark Triad (SD3), which included Machiavellianism, narcissism, and psychopathy [6]. Sadism was added as a distinct personality trait in the Dark Tetrad after researchers found that sadism should be considered a separate dark personality trait rather than considered a component of a pre-existing trait (e.g., psychopathy). As taxonomized by Paulhus (2014), Machiavellianism is characterized by interpersonal manipulation, deceit, and callousness. Psychopathy, a similar construct to Machiavellianism, is characterized by callousness and manipulation but also incorporates impulsivity. Often, those high in psychopathy demonstrate various components of impulsivity, such as a lack of premeditation and a lack of perseverance (i.e., inhibited ability to participate in tasks of low interest) [10]. Narcissism is mainly characterized by callousness and grandiosity but can also consist of elevated levels of impulsivity. This trait has been further broken down by researchers into three facets that include agentic self-promoting, antagonistic self-defending, and neurotic instability. The SD4 primarily focuses on the agentic factor of narcissism [10]. Finally, sadism typically consists of high levels of callousness and enjoyment of cruelty or harm to others [5]. Though these traits seem to have areas of overlap (e.g., callousness), studies have indicated that these are distinct traits. Confirmatory factor analyses have provided support for the four-factor model [6]. However, there has been some debate about whether there is a common “core” to the Dark Tetrad and what that core might be, partially due to the overlap found between these traits. Researchers have explored the various potential cores of these constructs. These proposed cores have included the HEXACO model of personality’s Honesty-Humility construct, callousness, fast life strategy, and agreeableness from the Big Five traits [11]. A study by Book and colleagues (2016) found that the HEXACO model was most useful, particularly for low Honesty-Humility, as well as Emotionality, Conscientiousness, and Agreeableness [11]. The Dark Tetrad (and its older counterpart, the Dark Triad) have been primarily utilized to study various delinquent or criminal behaviors, such as the perpetration of aggressive online behaviors, including cyberbullying [12]. The current study aims to better understand how this constellation of dark personality traits is related to identity development and risk propensity. Research has been conducted to study some aspects of identity development (i.e., self-concept) and the Dark Triad [7]. Additionally, some research has been conducted looking at risk-taking and the Dark Tetrad [9]. However, no research has examined the utility of the Dark Tetrad in predicting maladaptive/adaptive identity development or the utility of using both personality (Dark Tetrad) and identity development to predict a tendency towards risk-taking. The current study aims to fill these gaps in the literature.

1.3. Identity Formation

Late adolescence and emerging adulthood is a complex stage in human development, where people must consolidate a variety of personal factors, along with beliefs, values, and goals that are present across nearly every aspect of their lives. This is referred to as identity formation and involves the development of a clear perception of who they are and what they value in life. During this process, a single, cohesive identity must be formed [13]. Not every adolescent is successful in the task of consolidating their identity. Some adolescents may experience identity distress, where they may have strong negative feelings that result from the inability to resolve the task of consolidating one’s identity and related identity issues [13]. Though identity distress is often considered natural and non-pathological when developmentally appropriate, this distress may become debilitating if there is an inability to resolve identity-related issues. Inability to resolve these identity-related issues could act as an indicator of potential psychopathology and maladjustment [13]. Identity distress and/or maladaptive identity development may be related to dark personality traits, as researchers have posited the idea that specific personality traits may be related to identity formation [14].

Therefore, the measurement of identity disturbance may be useful in predicting dark personalities or vice-versa. The Self-Concept and Identity Measure (SCIM) measures adaptive and maladaptive identity development. The SCIM is a dimensional model that measures consolidated identity, a lack of identity, and disturbed identity [15]. Consolidated identity is high in individuals who report feeling a sense of consistency across aspects of the self, including confidence in their beliefs, attitudes, and values. This is the healthy or adaptive construct measured within the SCIM. Individuals who score high on the disturbed identity dimension might base their identity on others or quickly vacillate in identity-related areas such as beliefs or goals. Finally, individuals who have high scores on lack of identity may feel a sense of emptiness or feelings of non-existence in identity-related areas. Those who score high in this dimension may struggle to confidently report their roles, goals, and values in their life. The SCIM has been found to be associated with emotion dysregulation, depression, and other psychopathology [16]. It is possible that identity could play into other constructs associated with adolescence (e.g., personality traits). Previous research has indicated that personality traits act as a predictor of adolescents' approach to identity issues. It was also found that personality traits may act as potential determinants of both the initial levels and rates of change over time in identity processes (i.e., identity exploration and identity commitment) among adolescents [17]. Studies utilizing the Big Five trait model have found that both the Big Five and the associated narrow traits accounted for over half of the variance in their relationship with one's sense of identity [18]. Therefore, personality traits appear to potentially influence identity and one's sense of self as a whole. However, no research has determined whether there is a relationship between the Dark Tetrad and identity development, particularly focusing on maladaptive versus adaptive development. Based upon previous findings, it is possible that these dark personality traits might negatively affect successful identity consolidation, leading to maladaptive identity processes such as identity disturbance. Some studies (e.g., Doerfler et al., 2021) have found a connection between the Dark Triad and self-concept. It was found that the Dark Triad traits, particularly psychopathy, predicted a weaker and more unstable sense of self. Those with higher levels of the Dark Triad traits also experienced more state-related self-concepts, as opposed to trait-related self-concepts [7]. Doerfler and colleagues (2021) posited that the Dark Triad traits may lead to a weaker or more unstable self-concept, as those high in these traits might have an external orientation, or a focus outward that might lead to little devotion towards the development of themselves and their identity [7]. Similarly, studies have found that those with higher levels of the Dark Triad traits were more likely to report a quickly shifting identity and feelings of isolation from both childhood and adulthood [19]. It would be reasonable to posit, based on these previous findings, that those higher in the Dark Tetrad traits might have positive relationships with the disturbed and lack of identity dimensions of the SCIM. It is also possible that an inverse relationship might be found between these traits and a consolidated identity, as those high in the Dark Tetrad might spend less time focusing inward. No research to date has specifically determined whether there is a relationship between the Dark Tetrad and maladaptive/adaptive identity development. The current study aims to fill this gap in the literature by determining whether the Dark Tetrad is related to identity distress, identity disturbance, a lack of identity, or consolidated identity.

1.4. Risk Propensity

The relationship among identity, dark personality, and risk-taking/risk propensity has not been thoroughly examined. However, studies have analyzed dark personality or identity development to determine their independent contribution to the development of risk propensity or risk-taking behaviors. A particular area of focus in the relationship between identity and risk behavior has been substance use among adolescents. De Moor and colleagues (2022), utilizing a framework for understanding psychopathology and identity, expressed that difficulties in forming a consolidated identity could lead to substance use and other risky behaviors [8]. Additionally, it is important to note that adolescence and

emerging adulthood are periods of vulnerability, partly due to the turbulence associated with the exploration of new identities (e.g., an adolescent identifying with mature roles and responsibilities rather than responsibilities associated with childhood). Therefore, some have posited that adolescents struggling with the development of a consolidated identity may seek to cope with discomfort and uncertainty through substance-use/self-medication [8]. Alternatively, researchers suggest that this turbulence in adolescence may lead individuals to rebel from their upbringings, leading to familial conflict when obedience to normative behavior and the need for autonomy are being balanced [20]. Subsequent negative emotions associated with identity development may lead to adolescents externalizing these difficulties through delinquent or risky behaviors. These individuals may choose patterns of behavior that are perceived as characteristic of adulthood (e.g., binge drinking). Additionally, these adolescents may choose to experiment with rebellious roles [20]. Therefore, adolescents may participate in risky behaviors to cope with internal stressors, as a component of rebellious identity experimentation, or for peer acceptance.

A study by Dumas and colleagues (2012), for example, found that identity development acted as a protective factor between peer pressure and engagement in risky behaviors. Despite the presence of pressuring peer groups, identity commitment acted as a significant buffer against substance use. Conversely, identity exploration acted as a buffer against deviancy in general. The authors suggest that identity development may facilitate resistance to engagement in risky behaviors or peer influence. A possible explanation for these findings is that those who have begun exploring or committing to identity choices may participate less in substance use and other delinquent behaviors as it may interfere with goals they wish to attain in life. For example, a student with high levels of identity consolidation may not use illicit substances, as they wish to work in a government position in adulthood [21]. It appears that identity development, particularly the Eriksonian constructs of exploration and commitment, plays a role in risk-taking behavior. A study conducted by Jones and Hartmann (1988) found that diffused adolescents (lacking in identity exploration and/or identity commitment) were significantly more likely to have experience with alcohol and other substances as compared to adolescents who were classified as having somewhat explored and/or committed to their identity [22].

In terms of research on dark personalities and risk-taking behaviors, there have been a great deal of studies dedicated to analyzing the relationship between the Dark Tetrad (both individual traits and the complete constellation) and risk-taking. In general, it is thought that individuals with higher levels of dark personality traits may be more likely to participate in externalizing behavior. This bias towards externalizing behavior might be due to a tendency to avoid blame, but it may permit individuals higher in these dark personality traits to pursue goals that could potentially be destructive to themselves and others [23]. Previous research has also indicated that those with certain dark personality traits might have heightened perceptions of the benefits of risk-taking, an illusion of control, or a lowered ability to regulate impulses [9,24–26]. Stanwix and Walker (2021) investigated the traits of the Dark Tetrad and their relation to both advantageous and disadvantageous risk-taking. Psychopathy predicted disadvantageous risk-taking and advantageous risk-taking, though significance in advantageous risk-taking was only found at the cluster level. Narcissism was found to be a positive predictor of both advantageous and disadvantageous risk-taking. Sadism predicted all aspects of risk-taking. However, Machiavellianism predicted no aspects of risk-taking at either the domain or cluster level [9]. In a different study on the Dark Triad and risk behavior, Crysel and colleagues (2013) found significant correlations between the aforementioned traits and both impulsive and sensation-seeking behaviors. It was found that narcissism was most strongly and consistently related to tasks involving risk, particularly the behavioral tasks. Therefore, the authors concluded that narcissism might be the driving force in the relationship between the Dark Triad and risk-taking [24]. Similarly, Malesza and Ostaszewski (2016) found that narcissism and psychopathy were significant predictors of risk behaviors in adolescents. Machiavellianism, as in previous studies, was not related to risk-taking [25]. Grover and Furnham (2021) found

similar results to previous literature, as it was demonstrated that primary psychopathy (a construct similar to the key features of Machiavellianism) and Machiavellianism had no effect on risk-taking, while secondary psychopathy (a construct closer in similarity to narcissism) and narcissism positively predicted risk-taking [26]. There has been a significant overlap in correlates between personality, identity, and behavior. Therefore, the purpose of the current study is to determine whether personality and identity better predict risk propensity together within a combined model based upon the logic that personality has the ability to shape the roles and values that people have, which can subsequently affect tendencies towards a behavior.

1.5. Rationale and Hypotheses

The current study aimed to measure identity, dark personality, and risk propensity in college students. Previous research has focused on the associations between traits of the Dark Tetrad/Triad and various externalizing behaviors (e.g., risk propensity, delinquency, and aggression). Additionally, while there has been limited research on the relationship between the Dark Tetrad and identity development; the role of maladaptive and adaptive identity development in this relationship has not been explored. The following hypotheses were tested:

Hypothesis 1. *Scores on the Dark Tetrad will positively predict scores on maladaptive subscales of identity development (i.e., disturbed identity and lack of identity) and inversely predict identity consolidation.*

Hypothesis 2. *Scores on the Dark Tetrad, the SCIM identity dimensions, and identity distress will predict risk propensity better than any of these variables alone.*

2. Methods

2.1. Participants

College students were recruited from a large metropolitan university in the southeastern United States ($n = 424$). Recruitment occurred through SONA, an online recruitment software utilized by the university. Students from large-enrollment psychology courses at the university are provided course credit for participation in research studies. Students on SONA are provided a list of active studies through which they may earn this credit; however, if students do not wish to participate in research, they are given the opportunity to earn credit via alternate assignments of similar time and effort. If students wished to participate in the current study, they were routed to Qualtrics, where they completed the anonymous online survey. The age of the participants ranged from 18 to 43 ($M_{age} = 20.66$, $SD = 4.44$). Participants of all ages were invited to participate in the survey, as there is utility in researching development in both emerging adults and adults. While personality remains relatively stable throughout the lifespan, identity continues to undergo changes into adulthood [27]. The gender breakdown included 65.3% females, 31.8% males, 1.7% non-binary, 0.9% transgender, and 0.2% classifying as other. Due to the limited number of participants in some of the provided gender groups, the groups were condensed into 3 groups (277 females, 135 males, and 12 other). The ethnic breakdown included 47.4% white, 28.3% Hispanic, 9.2% Asian or Pacific Islander, 8.5% black, 0.2% Native American or Alaskan Native, and 6.4% mixed ethnicity or other. Due to the limited number of participants in some of the provided ethnicity groups, the groups were condensed into five groups (201 white participants, 120 Hispanic participants, 39 Asian participants, 36 black participants, and 28 mixed ethnicity or other). The breakdown of education included 38.7% freshmen, 17.7% sophomore, 26.2% junior, 15.8% senior, 0.5% non-degree seeking, 0.2% graduate student, and 0.7% other. These categories were condensed into 6 groups, due to the limited number of participants in some of the educational groups provided (164 freshman participants, 75 sophomore participants, 111 junior participants, 67 senior participants, 2 non-degree seeking participants, and 4 other).

2.2. Measures

2.2.1. Demographic Questionnaire

The demographic questionnaire included questions about age, gender, education, and ethnicity/racial identity.

2.2.2. Short Dark Tetrad

The Short Dark Tetrad (SD4) [6] is a 28-item self-report measure that captures various dark or malevolent personality traits. Traits captured by the SD4 include Machiavellianism, psychopathy, narcissism, and sadism. There are 7 items for each of these 4 personality subscales. Participants were asked to rate their agreement with each statement using a 5-point scale of 1-strongly disagree to 5-strongly agree. An example item from the Machiavellianism subscale is “Whatever it takes, you must get the important people on your side”, an example item from the psychopathy subscale is “I sometimes get into dangerous situations”, an example item from the narcissism subscale is “I like to show off every now and then”, and an example item from the sadism subscale is “Some people deserve to suffer”. The Cronbach alphas of the subscales were previously found to be 0.75 for Machiavellianism, 0.81 for psychopathy, 0.80 for narcissism, and 0.81 for sadism [6]. In the current study, the internal consistency was found to be 0.73, 0.78, 0.80, and 0.82, respectively.

2.2.3. Self-Concept and Identity Measure

The Self-Concept and Identity Measure (SCIM) [15] is a 27-item self-report measure used to assess maladaptive and adaptive identity development. Three subscales indicate disturbed identity, consolidated identity, and a lack of identity. Participants were asked to indicate their level of agreement with each statement using a 7-point scale of 1-strongly disagree to 7-strongly agree. An example item from the disturbed identity subscale is “I imitate other people instead of being myself”. An example item from the consolidated identity subscale is “I know who I am”. An example item from the lack of identity subscale is “I feel lost when I think about who I am”. Previously, Cronbach’s alpha for the SCIM was found to be 0.82 for disturbed identity, 0.73 for consolidated identity, 0.86 for lack of identity, and 0.86 for the total score [16]. In the current study, the internal consistency was found to be 0.86, 0.82, and 0.92, respectively.

2.2.4. Identity Distress Survey

The Identity Distress Survey (IDS) [28] measures the level of worry, distress, and discomfort one may feel regarding their identity. The IDS is a 7-item measure that measures 7 domains of identity: long-term goals, career choice, friendships, sexual orientation and behavior, religion, values or beliefs, and group loyalties. Distress in each domain was rated by participants on a 5-point scale from 1-none at all to 5-very severely. An example item is “To what degree have you recently been upset, distressed, or worried over your long term goals (e.g., finding a good job, being in a romantic relationship, etc.)”. The IDS has previously been found to have a Cronbach’s alpha of 0.80 [28]. In the current study, Cronbach’s alpha was found to be 0.83.

2.2.5. General Risk Propensity Scale

The General Risk Propensity Scale (GRiPS) [29] is an 8-item self-report scale that measures a general tendency towards risk-taking. Participants are asked to rate their level of agreement with each item on a 5-point Likert scale from 1-strongly disagree to 5-strongly agree. An example item from this measure is “I am attracted, rather than scared, by risk”. Previously, the Cronbach alpha for this measure was found to be 0.91 [29]. In the current study, a Cronbach’s alpha of 0.91 was found.

2.3. Procedure

After the study received approval from the Institutional Review Board, participants were recruited via Sona, the University’s research participation system. Participants from

large enrollment psychology courses completed the anonymous online survey for course credit. Students who chose not to participate in research were given an alternative option of equal time and effort to receive credit. All participants reviewed an explanation of the research and consented to participating in the study prior to taking the survey.

2.4. Analytical Procedure

Data analyses was completed utilizing IBM SPSS Statistics V28.0. Effect sizes were obtained using G*Power 3 [30].

Hypothesis 1 (scores on the Dark Tetrad will positively predict scores on maladaptive subscales of identity development (i.e., disturbed identity and lack of identity) and inversely predict identity consolidation) was tested through a series of 3 regressions. Each regression placed sex and age at step 1, and the Dark Tetrad subscales (i.e., Machiavellianism, sadism, narcissism, and psychopathy) were entered at step 2. The maladaptive/adaptive identity development subscales (the SCIM subscales: lack of identity, disturbed identity, and consolidated identity) served as dependent variables for each of the regressions. The hypothesis would be considered supported if the Dark Tetrad subscales were positive predictors of the maladaptive identity development subscales (i.e., lack of identity and disturbed identity) and inverse predictors of the adaptive SCIM subscale (i.e., identity consolidation).

Hypothesis 2 (scores on the Dark Tetrad, the SCIM identity dimensions, and identity distress will predict risk propensity better than any of these variables alone) was tested using a regression model. Sex and age were entered at step 1, and the Dark Tetrad subscales, the SCIM identity dimensions, and identity distress were entered at step 2. Risk propensity was included as the dependent variable within the model. The hypothesis would be considered supported if each of the measures (i.e., SCIM, the Dark Tetrad, and the Identity Distress Scale) contributed largely to variance within the model.

3. Results

3.1. Age and Gender Differences

As a preliminary analysis, all measures were evaluated for differences in demographics. Additionally, correlation coefficients were generated for each variable of interest (see Table 1). Age was negatively correlated with sadism ($r = -0.16, p = 0.001$), Machiavellianism ($r = -0.14, p = 0.007$), disturbed identity ($r = -0.29, p < 0.001$), and risk propensity ($r = -0.13, p = 0.007$). To determine if scores on any variables differed by gender, a one-way analysis of variance (ANOVA) was conducted. Significant differences were found for identity distress ($F_{(2, 421)} = 8.29, p < 0.001$), sadism ($F_{(2, 421)} = 44.72, p < 0.001$), Machiavellianism ($F_{(2, 421)} = 3.31, p = 0.038$), lack of identity ($F_{(2, 421)} = 9.78, p < 0.001$), and disturbed identity ($F_{(2, 421)} = 5.08, p = 0.007$). An LSD post hoc analysis revealed differences on a measure of identity distress, with males reporting significantly less distress than females or those who identified with the “other” category. Those in the “other” category also had significantly higher levels of identity distress compared to females. Significant differences were found on a measure of sadism, with females reporting lower levels of sadism than males or those who identified with the “other” category. Additionally, post hoc analyses revealed differences on a measure of Machiavellianism, with females having significantly lower scores than males. Significant differences were found on a measure of disturbed identity, with those identifying as “other” reporting more identity disturbance than males or females. Finally, it was found that, on a measure of lack of identity, males reported lower levels of lack of identity compared to females and those who identified themselves as “other”. Those who identified as “other” reported significantly higher scores of lack of identity compared to females.

Table 1. Means, standard deviations, and correlation coefficients for all study variables.

| | <i>M</i> | <i>SD</i> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------------------|----------|-----------|-----------|-----------|----------|----------|----------|----------|----------|-----------|----------|----------|
| 1. Age | 20.66 | 4.44 | — | | | | | | | | | |
| 2. Gender | — | — | 0.11 * | — | | | | | | | | |
| 3. Risk Propensity | 7.95 | 0.92 | −0.13 * | −0.03 | — | | | | | | | |
| 4. Machiavellianism | 3.31 | 0.65 | −0.15 ** | −0.13 * | 0.25 *** | — | | | | | | |
| 5. Narcissism | 3.13 | 0.76 | −0.09 | 0.03 | 0.44 *** | 0.18 *** | — | | | | | |
| 6. Psychopathy | 1.82 | 0.66 | −0.08 | −0.05 | 0.46 *** | 0.13 ** | 0.25 *** | — | | | | |
| 7. Sadism | 2.32 | 0.87 | −0.16 ** | −0.42 *** | 0.19 *** | 0.25 *** | 0.11 * | 0.35 *** | — | | | |
| 8. Consolidated Identity | 5.32 | 0.89 | 0.04 | −0.07 | 0.20 *** | 0.07 | 0.40 *** | −0.10 | −0.07 | — | | |
| 9. Disturbed Identity | 3.00 | 1.13 | −0.30 *** | −0.06 | 0.16 *** | 0.18 *** | −0.03 | 0.24 *** | 0.21 *** | −0.38 *** | — | |
| 10. Lack of Identity | 2.69 | 1.50 | −0.10 * | 0.10 * | −0.01 | 0.18 *** | −0.12 * | 0.21 *** | 0.18 *** | −0.60 *** | 0.63 *** | — |
| 11. Identity Distress | 2.30 | 0.84 | −0.09 | 0.15 ** | 0.01 | 0.12 * | 0.08 | 0.13 ** | 0.07 | −0.31 *** | 0.41 *** | 0.59 *** |

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.2. Ethnic Differences

To determine if scores differed by ethnicity, a one-way analysis of variance (ANOVA) was conducted. Significant differences between ethnicities were found for Machiavellianism ($F_{(4, 419)} = 5.33, p < 0.001$), narcissism ($F_{(4, 415)} = 2.48, p = 0.044$), and identity distress ($F_{(4, 419)} = 3.90, p = 0.004$). An LSD post-hoc analysis revealed that the means for ethnicity were significantly different on a measure of Machiavellianism, with white individuals scoring lower than black and Asian individuals. Additionally, on a measure of Machiavellianism, Hispanic individuals scored significantly lower than black and Asian individuals. Analyses revealed that the means for ethnicity were significantly different on a measure of narcissism, with black individuals scoring higher than white, Asian, and mixed or “other” individuals. Additionally, Hispanic individuals scored higher on the measure of narcissism as compared to white individuals. Finally, significant differences were found on a measure of identity distress, with mixed ethnicity or “other” individuals scoring higher than white, Hispanic, and Asian individuals. Additionally, Asian participants scored significantly lower than white and black individuals on a measure of identity distress.

3.3. Predicting Identity Development

Hypothesis 1 (scores on the Dark Tetrad will positively predict scores on maladaptive subscales of identity development, while the Dark Tetrad will negatively predict identity consolidation) was analyzed using a series of regressions, with the self-concept and identity measure dimensions as the dependent variables (see Table 2). The first regression analysis was conducted with age and sex entered at step 1, the Dark Tetrad traits entered at step 2, and consolidated identity as the dependent variable. The resulting equation was significant ($R^2 = 0.23$, adjusted $R^2 = 0.22$, $\Delta R^2 = 0.22$, $F_{(6, 380)} = 18.81, p < 0.001, f^2 = 0.28$), with the standardized coefficient betas reaching significance for gender, narcissism, psychopathy, and sadism. The second regression was conducted with disturbed identity as the dependent variable, and again the resulting equation was significant ($R^2 = 0.17$, adjusted $R^2 = 0.15$, $\Delta R^2 = 0.08$, $F_{(6, 381)} = 12.54, p < 0.001, f^2 = 0.09$), with the standardized coefficient betas reaching significance for age, Machiavellianism, narcissism, and psychopathy. A final regression was conducted with lack of identity as the dependent variable, and, once again, the resulting equation was significant ($R^2 = 0.16$, adjusted $R^2 = 0.15$, $\Delta R^2 = 0.13$, $F_{(6, 381)} = 12.15, p < 0.001, f^2 = 0.15$), with the standardized coefficient betas reaching significance for gender, Machiavellianism, narcissism, psychopathy, and sadism.

Table 2. Regression data for the prediction of identity development.

| | Consolidated Identity | | | Disturbed Identity | | | Lack of Identity | | |
|------------------|-----------------------|-------|--------|--------------------|-------|--------|------------------|-------|--------|
| | β | t | p | β | t | p | β | t | p |
| Step 1 | | | | | | | | | |
| Age | 0.05 | 0.90 | 0.371 | -0.29 | -6.01 | <0.001 | -0.12 | -1.18 | 0.021 |
| Sex | -0.09 | -1.69 | 0.09 | -0.03 | -0.59 | 0.557 | 0.13 | 2.52 | 0.012 |
| Step 2 | | | | | | | | | |
| Age | 0.07 | 1.46 | 0.145 | -0.27 | -5.57 | <0.001 | -0.09 | -1.79 | 0.07 |
| Sex | -0.15 | -3.02 | 0.003 | 0.03 | 0.60 | 0.547 | 0.22 | 4.23 | <0.001 |
| Machiavellianism | 0.05 | 1.00 | 0.320 | 0.11 | 2.20 | 0.028 | 0.16 | 3.10 | 0.002 |
| Narcissism | 0.46 | 9.76 | <0.001 | -0.13 | -2.64 | 0.009 | -0.23 | -4.68 | <0.001 |
| Psychopathy | -0.19 | -3.79 | <0.001 | 0.21 | 3.97 | <0.001 | 0.22 | 4.20 | <0.001 |
| Sadism | -0.11 | -2.05 | 0.041 | 0.08 | 1.33 | 0.184 | 0.13 | 2.31 | 0.022 |

3.4. Predicting Risk Propensity

Hypothesis 2 (scores on the Dark Tetrad, the SCIM identity dimensions, and identity distress will predict risk propensity scores) was tested with a regression analysis (see Table 3). Sex and age were entered as control variables on Step 1. The SCIM identity dimensions, identity distress, and the Dark Tetrad were entered on Step 2. Risk propensity

was entered as the dependent variable. The resulting equation was significant ($R^2 = 0.40$, Adjusted $R^2 = 0.38$, $\Delta R^2 = 0.38$, $F_{(10, 376)} = 24.62$, $p < 0.001$, $f^2 = 0.61$). Standardized coefficient betas reached significance for consolidated identity, disturbed identity, Machiavellianism, narcissism, and psychopathy at Step 2.

Table 3. Regression data for the prediction of risk propensity.

| | | Risk Propensity | | |
|-----------------------|--|-----------------|-------|--------|
| | | β | t | p |
| Step 1 | | | | |
| Age | | −0.12 | −2.33 | 0.020 |
| Sex | | −0.04 | −0.82 | 0.410 |
| Step 2 | | | | |
| Age | | −0.02 | −0.41 | 0.682 |
| Sex | | 0.03 | 0.71 | 0.476 |
| Consolidated Identity | | 0.12 | 2.18 | 0.030 |
| Disturbed Identity | | 0.18 | 3.27 | 0.001 |
| Lack of Identity | | −0.10 | −1.43 | 0.154 |
| Identity Distress | | −0.07 | −1.35 | 0.177 |
| Machiavellianism | | 0.14 | 3.05 | 0.002 |
| Narcissism | | 0.25 | 5.18 | <0.001 |
| Psychopathy | | 0.41 | 8.94 | <0.001 |
| Sadism | | 0.00 | 0.01 | 0.995 |

3.5. Exploratory Analyses

Given the previously unexpected findings associated with narcissism and its relationship to identity development, further explanatory analyses were conducted to determine if there may be a mediational relationship present. It was determined that narcissism may mediate the relationship between consolidated identity and risk propensity. The proposed mediation model was tested with a series of multiple regression analyses (see Table 4). Following the procedure to establish mediation suggested by Holmbeck (1997), a total of three regression analyses are necessary [31]. In the first regression, variable A (identity consolidation) must significantly predict variable B (narcissism). In the second regression, variable A (identity consolidation) must significantly predict variable C (risk propensity). In the third regression, both variables A (identity consolidation) and B (narcissism) are entered on the same step to predict variable C (risk propensity). To demonstrate mediation, variable A (identity consolidation) should no longer be associated with variable C (risk propensity). Furthermore, a significant relationship between variable B (narcissism) and variable C (risk propensity) should be observed. In other words, when controlling for narcissism, identity consolidation no longer predicts risk propensity. In each regression, age and gender were entered as control variables. In the first regression, identity consolidation predicted narcissism ($R^2 = 0.17$, adjusted $R^2 = 0.17$, $\Delta R^2 = 0.17$, $F_{(3, 383)} = 26.85$, $p < 0.001$, $f^2 = 0.20$). Narcissism scores were significantly predicted by age and consolidated identity. In the second regression, age and identity consolidation significantly predicted risk propensity ($R^2 = 0.06$, adjusted $R^2 = 0.05$, $\Delta R^2 = 0.04$, $F_{(3, 387)} = 7.87$, $p < 0.001$, $f^2 = 0.04$). Risk propensity scores were significantly predicted by age and consolidated identity. In the final regression, using both identity consolidation and narcissism scores to predict risk propensity, the overall model was significant ($R^2 = 0.20$, adjusted $R^2 = 0.19$, $\Delta R^2 = 0.18$, $F_{(4, 382)} = 23.12$, $p < 0.001$, $f^2 = 0.22$). Risk propensity scores were significantly predicted by narcissism. Identity consolidation was no longer a significant predictor ($p = 0.543$), thus fulfilling Holmbeck's (1997) requirements to establish mediation [31].

Table 4. Narcissism as a potential mediator in the relationship between identity consolidation and risk propensity.

| Regression 1 | Narcissism | | | Regression 2 | Risk Propensity | | | Regression 3 | Risk Propensity | | |
|-----------------------------|------------|-------|--------|-----------------------------|-----------------|-------|--------|-----------------------------|-----------------|-------|--------|
| | β | t | p | | β | t | p | | β | t | p |
| Age | −0.11 | −2.36 | 0.019 | Age | −0.13 | −2.67 | 0.008 | Age | −0.08 | −1.77 | 0.078 |
| Sex | 0.06 | 1.34 | 0.181 | Sex | −0.03 | −0.57 | 0.569 | Sex | −0.05 | −1.09 | 0.277 |
| Identity Con- solidation | 0.41 | 8.75 | <0.001 | Identity Con- solidation | 0.20 | 4.00 | <0.001 | Identity Con- solidation | 0.03 | 0.61 | 0.543 |
| | | | | | | | | Narcissism | 0.41 | 8.12 | <0.001 |

4. Discussion

Risk propensity had a strong, significant correlation with the entire Dark Tetrad, as well as with the consolidated and disturbed identity dimensions of the SCIM. However, lack of identity and identity distress were not significantly correlated with risk propensity. Machiavellianism was correlated to the other traits of the Dark Tetrad, though a weaker relationship was found between Machiavellianism and psychopathy compared to the other two traits. Machiavellianism was correlated with identity disturbance, feelings of a lack of identity, and identity distress. Narcissism was significantly correlated with all of the Dark Tetrad traits, though its relationship with sadism was weaker than its relationship with the other two traits. Narcissism was found to positively predict consolidated identity and inversely predict a lack of identity. Psychopathy had a significant relationship with all of the Dark Tetrad traits and the maladaptive or negative identity processes within the study (i.e., disturbed identity, lack of identity, and identity distress). Sadism was correlated with the other Dark Tetrad traits and disturbed both identity and lack of identity. Ultimately, while all of the Dark Tetrad traits were significantly correlated with one another, the weakest correlations were found for sadism and narcissism ($p = 0.031$). In a study by Bonfá-Araujo and colleagues (2022), it was found that the greatest correlates of sadism were psychopathy and Machiavellianism, rather than narcissism. Therefore, the finding that sadism and narcissism had the weakest (but still significant) correlation is consistent with previous literature [32]. Consolidated identity was found to have a significant correlation with risk propensity and narcissism. Additionally, identity consolidation was inversely related to all of the maladaptive/negative identity processes. Disturbed identity was correlated with all of the Dark Tetrad traits, with the exception of narcissism. Additionally, disturbed identity was positively related to both lack of identity and identity distress. Lack of identity was correlated to all of the Dark Tetrad traits, with narcissism being the only inverse relationship present. In terms of the Dark Tetrad, only Machiavellianism and psychopathy were correlated with identity distress. As expected, identity distress was positively correlated with the maladaptive identity dimensions while being inversely correlated with identity consolidation.

This study quantitatively measured identity development and identity distress in relation to dark personality traits and risk propensity. In a regression model, Machiavellianism and psychopathy were found to positively predict scores on both the disturbed identity and lack of identity dimensions. Scores of sadism appeared to positively predict feelings of unawareness towards or separation from the self (i.e., lack of identity). Therefore, psychopathy and Machiavellianism acted as positive predictors of maladaptive subscales of identity development. Additionally, both psychopathy and sadism inversely predicted consolidated identity. Similar to Doerfler and colleagues' (2021) results demonstrating the Dark Triad's ability to predict a weaker sense of self, the current findings reflect the utility of the Dark Tetrad in predicting identity development, particularly in the maladaptive dimensions [7]. One area of difference, however, was that the aforementioned study found that Machiavellianism was not a significant predictor of sense of self or self-concept clarity when added to the combined model. The current study found that Machiavellianism was a significant predictor of both disturbed and lack of identity. It is important to note that

different scales of Machiavellianism were used, and that self-concept might not perfectly map onto the maladaptive versus adaptive identity conceptualization that is utilized in the current study. Interestingly, narcissism was found to have the opposite effect compared to the other Dark Tetrad traits in that the variable positively predicted consolidation and inversely predicted the maladaptive subscales of identity development. These results demonstrate a relationship that had not been previously predicted. The fact that narcissism deviated from the other Dark Tetrad traits suggests that further investigation should be performed on the nuances of identity development and narcissism. It is possible that those with high levels of narcissism are focused inward, and thus able to form more consolidated identities. This finding is consistent with the study by Doerfler and colleagues (2021) that found that the leadership/authority component of grandiose narcissism acted as a predictor of a stronger self-concept and sense of self [7]. The SD4's conceptualization of narcissism is unidimensional and tends to focus on the more "grandiose" components of the trait. Therefore, it is possible that narcissism was a positive predictor of consolidated identity due to the nature of the measure and of grandiose narcissism itself. Additionally, due to the self-report nature of the study, it is possible that those higher in narcissism might be providing inaccurate reports due to factors such as social desirability or the desire to present themselves in a favorable way (e.g., appearing "healthier" in identity development).

The current study found that consolidated and disturbed identities, as well as Machiavellianism, narcissism, and psychopathy, acted as significant positive predictors of risk propensity. It was found that dark personality traits did not act as the sole predictor of risk propensity, and identity factors contributed largely to the variance. The findings of the study were consistent with another previous study that found that narcissism and psychopathy were related to higher scores of impulsivity (both functional and dysfunctional) [33]. Findings regarding sadism's ability to predict risk-taking have been mixed. Consistent with most previous literature, it was found that sadism was not a significant predictor of risk propensity. Stanwix and Walker (2021) found that sadism predicted both advantageous and disadvantageous risk-taking. This result was unexpected in their study; however, the authors suggest that items on the risk-taking measure may have been appealing for those high in sadism, as some of the items related to interpersonal aggression (e.g., revealing a friend's secret in a damaging situation) [9]. Additionally, the literature on Machiavellianism and risk has been mixed. The current study is consistent with findings from Crysel and colleagues' (2013) study, that found that all subscales of the Dark Triad (including Machiavellianism) were positively correlated to impulsivity and sensations seeking [24]. However, other studies have found no relationship between Machiavellianism and risk propensity [26]. It is likely that small differences in risk propensity, risk-taking, and impulsivity measures contribute to this finding, as some items may be more commonly endorsed by those high in Machiavellianism.

While risk propensity has been linked to dark personality [9] and identity development [8,21], no previous investigation has looked at all three constructs in the same study. Although the results of the study suggest that both identity consolidation and narcissism can predict risk propensity individually, when combined, identity consolidation was no longer a significant predictor of risk propensity. In other words, when controlling for narcissism, identity consolidation no longer predicted risk propensity. This would be consistent with a mediation model suggesting that identity consolidation influences narcissism and narcissism influences risk propensity. It is worth noting that the risk propensity measure focuses on a general tendency towards risk, not towards disadvantageous risk. This could mean that the personality trait of narcissism may be useful in predicting risk-taking outcomes among adolescents who have a consolidated identity. It is important to emphasize that this study is correlational in design; therefore, causal interpretation is precluded. While these results are consistent with a mediation model, they cannot be considered proof of the model. To prove causation, an experimental design would be required that would experimentally manipulate one's identity consolidation. This would be neither possible

nor ethical to conduct. In the absence of an experimental design, quasi-experimental or longitudinal designs may be utilized to strengthen causal support for this model.

5. Limitations and Future Studies

The data for this study was collected via self-report measures. This could lead to biased responses if the participants did not accurately report their answers, either intentionally or unintentionally. It is possible that participants may have under-estimated or under-reported on measures of dark personality or risk propensity. It is important to note that this data was collected through a university survey participation website; therefore, participants may have been weary of reporting true risk propensity due to fear of university retribution or legal involvement. Attempts were made to minimize this limitation, as participants were told that the survey was anonymous and would not have any penalties associated with taking it. Future research could utilize clinical interviews in addition to self-report measures to assist in that regard. Another limitation of the study was the inclusion of general measures of risk propensity. Some literature (e.g., Blais and Weber, 2006) has suggested that a multi-dimensional or domain-specific measure of risk propensity might be more useful in determining whether there are global effects on risk propensity or if it might be limited to specific domains (e.g., social decision making) [34]. Future studies might benefit from including both general and domain-specific scales of risk propensity to determine the exact nature of these relationships. On the other hand, it might be beneficial to include more fundamental measures of personality, such as the NEO-PI-R or the HEXACO [35,36]. Some researchers have suggested that the Big Five traits might serve as the “core” of the personality as a whole [37]. Researchers have found relationships between the Big Five traits and the Dark Tetrad [11], as well as identity development [18,38]. Therefore, future studies might benefit from measuring multiple trait structures. In addition, our sample consisted of college students who were primarily white females. Future studies may benefit from studying these factors across multiple different ethnicities, gender orientations, and age generations. Larger samples of participants with a wider range of demographic variables may yield more representative results. Future research could also develop a longitudinal study that determines how dark personality, identity consolidation, and risk propensity change over time. The most important limitation to note is that our study was correlational in nature; therefore, causal processes of the study variables cannot be assumed. Future research is needed to replicate these findings and explore the underlying causes associated with the results. Qualitative studies may also be helpful in this regard.

Despite the aforementioned limitations, the finding that narcissism could be a mediator between consolidated identity and risk propensity has important implications for prevention and intervention programs aimed at positive youth development.

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