



Psychiatry

Interpersonal and Biological Processes

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/upsy20>

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To cite this article: Matthew P. Kramer, Roselyn Peterson, Emy A. Willis, Angelina V. Leary, Tatiana Magri, Jessica L. Cora & Robert D. Dvorak (2022) Psychopathy and Protective Behavioral Strategies: PBS Mediates the Relationships between Primary and Secondary Psychopathy and Alcohol Consumption and Problems, *Psychiatry*, 85:3, 293-307, DOI: [10.1080/00332747.2022.2052557](https://doi.org/10.1080/00332747.2022.2052557)

To link to this article: <https://doi.org/10.1080/00332747.2022.2052557>



Published online: 29 Mar 2022.



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Psychopathy and Protective Behavioral Strategies: PBS Mediates the Relationships between Primary and Secondary Psychopathy and Alcohol Consumption and Problems

Matthew P. Kramer, Roselyn Peterson, Emy A. Willis, Angelina V. Leary, Tatiana Magri, Jessica L. Cora, and Robert D. Dvorak

Objective: The most common conceptualization of psychopathy is a two-factor model of primary psychopathy and secondary psychopathy. Primary psychopathy consists of interpersonally abusive behavior, and callousness. Secondary psychopathy includes impulsive and risky decision making. Past research has found that psychopathy is related to negative outcomes, including increased alcohol consumption and problems, and is inversely related to harm reduction behaviors. Protective behavioral strategies (PBS), behaviors designed to reduce alcohol consumption and associated problems, may mediate the relationship between psychopathy and alcohol pathology. The current study examined the relationship between psychopathy, each subtype of PBS use (serious harm reduction (SHR), manner of drinking (MD) and stopping/limiting drinking (SLD)), alcohol consumption, and alcohol problems.

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Method: Participants were $n = 967$ (61.22% female) college students. Participants completed measures assessing psychopathy, PBS use, alcohol consumption, and alcohol problems. A path analysis was conducted to examine the relationships between psychopathy, subtypes of PBS, and alcohol consumption and problems.

Results: Results indicated an inverse relationship between primary psychopathy and both SHR PBS and MD PBS, while secondary psychopathy was inversely associated with all three PBS subtypes. SHR PBS was inversely associated with alcohol problems while MD PBS was inversely associated with alcohol consumption.

Conclusion: These findings suggest specific PBS subtypes mediate the relationship between primary and secondary psychopathy and alcohol consumption and problems. It may be clinically pertinent to consider targeting PBS use, such as with motivational interviewing, when working with patients exhibiting psychopathy traits. Future research should consider these findings when examining alcohol use.

Though not an official DSM-5 diagnosis, psychopathy is conceptualized as an extreme variation of antisocial personality disorder (Coid & Ullrich, 2010). One of the most widely known models of psychopathy consists of two variants: primary psychopathy and secondary psychopathy (Karpman, 1941, 1948; Lilienfeld & Andrews, 1996). Primary psychopathy is identified as the interpersonal and affective component of psychopathy and includes abusive and predatory interpersonal behaviors (e.g., lying, cheating, aggression), callousness, low anxiety, and an overall lack of empathy (Berg et al., 2013; Lilienfeld & Andrews, 1996; McHoskey et al., 1998; Poythress & Hall, 2011). Secondary psychopathy is identified as the more impulsive, antisocial lifestyle facet and is marked by poor self-control, risky decision making, and thrill-seeking (Anestis et al., 2009; Berg et al., 2013; Dean et al., 2013; Lilienfeld & Andrews, 1996). Psychopathy has been associated with a host of negative outcomes (Widiger, 2006), including higher quantity and frequency of alcohol use and subsequent problems (Kimonis et al., 2012; LaLiberte & Grekin, 2015; Neumann & Hare, 2008; Smith & Newman, 1990; Sylvers et al., 2011; Taylor et al., 2006). As such, the present study aims to further elucidate the relationship between

primary and secondary psychopathy and alcohol pathology (both consumption and problems) by examining the potential role of protective behavioral strategies (i.e., specific strategies for reducing alcohol consumption and problems).

PSYCHOPATHY AND ALCOHOL PATHOLOGY

There is a rich literature on psychopathy and alcohol pathology. While the most common conceptualization of psychopathy is a 2-factor model, other models have been proposed (e.g., the Triarchic Model of Psychopathy; Patrick et al., 2009) as well as numerous studies examining subfactors of primary and secondary psychopathy (Gordts et al., 2017; Neumann et al., 2012). Despite this, most research examining psychopathy and alcohol pathology writ large has focused on the more traditional 2-factor model, with the majority of studies focusing on secondary psychopathy and associated alcohol problems (Heritage & Benning, 2013; Kimonis et al., 2012; LaLiberte & Grekin, 2015; Smith & Newman, 1990; Sylvers et al., 2011). For example, Smith and Newman (1990) found that alcohol abuse was

positively associated with secondary psychopathy. Similarly, Sylvers et al. (2011) found that psychopathy predicted heavy episodic drinking frequency. Kimonis et al. (2012) found that incarcerated youth who endorsed higher levels of secondary psychopathy versus primary psychopathy also endorsed higher substance use (particularly alcohol) both before and during incarceration and had a higher likelihood of being diagnosed with a DSM-IV alcohol abuse or alcohol dependence disorder. These findings may be, at least partly, due to the impulsivity aspect of secondary psychopathy (Dean et al., 2013; Karpman, 1948; Lyons, 2015) and the relationship between impulsiveness and reward seeking that is seen in the conceptualization of secondary psychopathy (Newman et al., 2005).

There is also evidence that primary psychopathy is related to increased alcohol pathology (Kramer et al., 2017; Waller & Hicks, 2019). Waller and Hicks (2019) found a positive association between both primary and secondary psychopathy and alcohol consumption. While they had hypothesized the relationship between higher scores of secondary psychopathy and greater alcohol consumption, the results regarding primary psychopathy were unexpected. As such, while they provided a reasonable rationale for the secondary psychopathy and alcohol consumption relationship, there was no clear explanation provided regarding the relationship between primary psychopathy and alcohol consumption (Waller & Hicks, 2019). Kramer et al. (2017) showed similar results, with primary psychopathy being positively associated with alcohol consumption and problems among a college student sample. A possible explanation, is that primary psychopathy is inversely related to engagement in harm reduction strategies (Levenson et al., 1995) including protective behavioral strategies (PBS; Kramer et al., 2017) that are specific to alcohol use, such as not drinking and driving, avoiding drinking games, and setting limits to alcohol consumption. Given the relationship

between primary psychopathy and reduced harm avoidance strategies, as well as the impulsive nature of secondary psychopathy (indeed, impulsive behavior has been found to be negatively correlated with specific subtypes of PBS; Pearson et al., 2012), it is important to understand protective behavioral strategies and consider their role in the relationship between both facets of psychopathy and alcohol consumption and problems.

Protective Behavioral Strategies

Protective behavioral strategies (PBS) are a set of behaviors used to decrease alcohol consumption and problems related to alcohol use (DeMartini et al., 2013; Kenney & LaBrie, 2013; Martens et al., 2007, 2004; Pearson, 2013; Prince et al., 2013). PBS consists of three subcategories: stopping/limiting drinking (SLD; e.g., leaving the bar at a pre-determined time), manner of drinking (MD; e.g., not engaging in drinking games), and serious harm reduction (SHR; e.g., using a designated driver). As such, SLD and MD PBS focus on alcohol consumption, with SLD focusing on *how much* an individual drinks whereas MD focuses more on the specific *manner of how* you drink. SHR more so ignore quantity and instead focuses on *safety measures* one can take during a drinking occasion. Research has shown specific PBS subtypes differentially affect alcohol outcomes (Bravo et al., 2017). Specifically, both SLD PBS and MD PBS have been inversely associated with alcohol consumption, while SHR PBS is inversely associated alcohol-related problems (DeMartini et al., 2013; Moorer et al., 2013; Pearson, 2013). This may be due to the nature of these PBS subtypes, as SLD PBS and MD PBS involve behaviors regarding how an individual consumes alcohol (e.g., a set number of drinks or not taking shots) while SHR PBS is directly associated with risky behaviors an individual can engage in when consuming alcohol.

As noted, PBS use has been found to be inversely related to cluster B personality traits, including psychopathy (Kramer et al., 2017; Levenson et al., 1995). For example, Pearson et al. (2012) found that MD PBS was inversely related to sensation seeking, negative urgency, and positive urgency while SHR PBS was inversely related to positive urgency, all considered core features of secondary psychopathy (Anestis et al., 2009; Dean et al., 2013). Additionally, previous research has found that conscientiousness (the ability to plan ahead and stick to those plans) is positively correlated with all three subtypes of PBS (Martens et al., 2009). Given impulsivity is a prominent feature of secondary psychopathy (Dean et al., 2013; Lilienfeld & Andrews, 1996; Poythress & Hall, 2011), it is possible that the relationship between secondary psychopathy and alcohol pathology is, at least partially, due to reduced use of PBS. Furthermore, as referenced earlier, Kramer et al. (2017) found that PBS partially mediated the relationship between primary psychopathy and both alcohol consumption and problems (Kramer et al., 2017). However, Kramer et al. (2017) did not separate PBS into its different subcategories, nor did they examine both primary and secondary psychopathy in the same model. Additionally, there is evidence of psychopathy being related to other types of PBS (Kramer et al., 2021). Specifically, Kramer et al. (2021) found a significant relationship between primary psychopathy, but not secondary psychopathy, and gambling PBS. Collectively, it is important to investigate in a complete model both primary and secondary psychopathy, the three PBS subcategories, and alcohol use and problems. Possible implications, should hypotheses be supported, would highlight the importance of protective behavioral strategies in a population (e.g., individuals with higher levels of psychopathy) that has shown to have increased overall alcohol pathology.

Study Overview

The present study examines the relationship between primary and secondary

psychopathy, the three subtypes of PBS, and alcohol consumption and problems. We hypothesized that higher levels of primary psychopathy would be associated with decreased SHR PBS use (H1a), and that greater SHR PBS would be associated with fewer reported alcohol problems (H1b). We also hypothesized that higher levels of secondary psychopathy would be inversely associated with all three subcategories of PBS (H2a), and that higher reported use of both SLD PBS and MD PBS would be inversely related with alcohol consumption (H2b).

METHOD

Participants and Procedure

Participants were from a convenience sample of college students ($n = 967$; 61.22% female) from a large Southeastern public university. To participate, participants had to be at least 18 years old, speak English fluently, and be able to provide consent. Individuals were excluded from data analyses if they reported they do not consume alcohol. Participants ranged in age from 18 to 61 years old ($M = 20.39$, $SD = 4.74$). Participants were predominantly white (73.38%), while 10.39% identified as Black/African American, 0.97% identified as American Native or American Indian, 6.17% identified as Asian, 0.65% identified as Native Hawaiian or other pacific islander, and 8.43% identified as “other” or multiple racial categories. Additionally, 19.48% identified as Hispanic. Participant demographics were similar to that of the university.

Participants were recruited during the Fall 2017 and Spring 2018 semesters via the university’s research subject pool, where they were invited to participate in a study on emotion, impulsivity, and risk. The invitation contained a link that directed them to the study website where they completed informed consent and were then directed to

the survey items. The university's IRB approved the study and all participants were treated in accordance with the APA ethical guidelines for research (Sales & Folkman, 2000). Participants provided consent before being able to proceed with the study and received course credit for their participation.

Measures

Psychopathy. Psychopathy was measured via the Levenson Self-Report Psychopathy scale (LSRP). The LSRP is a 26-item questionnaire rated on a 4-point Likert scale from 1 (strongly disagree) to 4 (strongly agree) with a total possible range of 26 to 104. This measure was developed to assess both primary and secondary psychopathic traits in a non-institutionalized population and was developed using a college student sample (Levenson et al., 1995). Questions include both negative characteristics (e.g., "For me, what's right is whatever I can get away with") and positive characteristics (e.g., "Cheating is not justified because it is unfair to others"). Previous research has shown the LSRP has good reliability and validity among college students (Levenson et al., 1995; Lynam et al., 1999; Salekin et al., 2014). Additionally, Miller et al. (2008) found support for the LSRP regarding its ability to accurately capture features of primary and secondary psychopathy. Internal consistency was sufficient in the present sample for both the primary ($\alpha = .80$, $M = 1.99$, $SD = 0.48$) and secondary subscales ($\alpha = .70$, $M = 1.93$, $SD = 0.49$). Of note, the LSRP does not provide a cutoff score for determining levels of psychopathy or identifying if someone would meet clinical severity. Thus, while all individuals are on a continuum of personality, including psychopathy (i.e., some level of traits), the majority of the present sample would likely not meet clinical levels of psychopathy (Fisher et al., 2020).

PBS. Protective behavioral strategies (PBS) were measured with the PBS Scale (PBSS). The PBSS contains 15 items that assess the use of the three types of PBS: 7 items for SLD ($\alpha = .87$, $M = 3.06$, $SD = 1.28$; sample item: "Determine, in advance, not to exceed a set number of drinks"), 5 items for MD ($\alpha = .79$, $M = 1.83$, $SD = 1.22$; sample item: "Avoid drinking games"), and 3 items for SHR ($\alpha = .70$, $M = 4.22$, $SD = 1.05$; sample item: "Know where your drink has been at all times"). Previous research has found the PBSS to be a reliable and valid measure amongst college students (Martens et al., 2007; Pearson et al., 2013). Each subtype of the PBSS was calculated separately to create three separate variables.

Alcohol Consumption and Problems. Alcohol consumption and subsequent problems were assessed using the Alcohol Use Disorder Identification Test (AUDIT). The AUDIT is a 10-item questionnaire that is comprised of three subscales: serious harm ($\alpha = .60$, $M = 1.47$, $SD = 2.28$; sample item: "Have you or someone else been injured as a result of your drinking?"), alcohol dependence ($\alpha = .73$, $M = 0.68$, $SD = 1.56$; sample item: "How often during the last year have you found that you were not able to stop drinking once you had started?"), and alcohol consumption ($\alpha = .70$, $M = 3.71$, $SD = 2.35$; sample item: "How often do you have six or more drinks on one occasion?"). Previous research supports the AUDIT as an accurate measure of both alcohol consumption and problems among college student drinkers (DeMartini & Carey, 2009) with sound reliability and validity (Donovan et al., 2006; Saunders et al., 1993). The consumption subscale (comprised of the follow items: "How often do you have a drink containing alcohol; How many standard drinks containing alcohol do you have on a typical day when drinking; How many standard drinks containing alcohol do you have on a typical day when drinking") was used as the alcohol

consumption variable while the dependence and serious harm subscales were combined to create the alcohol problems variable (remaining seven items; $\alpha = .77$, $M = 2.15$, $SD = 3.50$). Total possible scores range from 0 to 40, with Babor et al. (2001) suggesting a cutoff score of 15 for problematic, and possibly diagnosable, alcohol use.

Data Preparation and Analysis Overview

The full dataset contained $N = 1,635$ participants ($n = 980$ women, 59.9%). However, $n = 668$ (40.86%) of the sample did not endorse consuming alcohol and were removed from the analyses, resulting in a final sample of $n = 967$ (592 women, 61.2%). To test the hypotheses, we specified an observed variable path model with primary and secondary psychopathy predicting greater alcohol consumption and problems via lower SHR PBS, MD PBS, and SLD PBS. The psychopathy and PBS variables were treated as observed variables, while alcohol consumption and problems were treated as negative binomial count variables. All reported betas are standardized coefficients.

Model Fit. The initial model showed reasonable overall fit to the data $\chi^2(9) = 79.77$, $p < .001$, CFI = 0.96, RMSEA = 0.09 (90% CI = 0.07, 0.11), SRMR = 0.05. Examination of modification indices indicated adding paths from primary psychopathy to alcohol consumption and from secondary psychopathy to alcohol problems. This makes sense given the strong relationship between psychopathy (both primary and secondary) and alcohol pathology (Neumann & Hare, 2008; Waller & Hicks, 2019). Modification indices also suggested adding a path from primary psychopathy to MD PBS. Primary psychopathy's relationship with MD PBS could be due to the bold, somewhat narcissistic aspects of psychopathy which are described as existing more in the primary

variant (Karpman, 1948; Lee & Ashton, 2005; Paulhus & Williams, 2002). As such, an individual with these traits may not see it necessary to engage in MD PBS as they may perceive themselves as impervious to the negative outcomes MD PBS targets. A Satorra-Bentler Scale Chi-Square test (Satorra & Bentler, 1994) indicated that the re-estimated model was superior to the original model ($\Delta\chi^2[3] = 71.50$, $p < .001$). The final model, depicted in Figure 1, showed excellent fit to the data: $\chi^2(6) = 8.77$, $p = .187$, CFI = 1.00, RMSEA = 0.02 (90% CI = 0.00, 0.05), SRMR = 0.01.

RESULTS

Descriptive Statistics

Participants ranged in age from 18 to 61 years old ($M = 20.39$, $SD = 4.74$). Participants were predominantly white (73.38%), while 10.39% identified as Black/African American, 0.97% identified as American Native or American Indian, 6.17% identified as Asian, 0.65% identified as Native Hawaiian or other pacific islander, and 8.43% identified as "other" or multiple racial categories. Additionally, 19.48% identified as Hispanic. Participant demographics were similar to that of the university. Descriptive statistics and bivariate correlations can be found in Table 1.

Primary Analysis

Results indicated that primary psychopathy was inversely related to both SHR PBS ($\beta = -0.12$, $p < .001$) and MD PBS ($\beta = -0.13$, $p < .001$). Similarly, secondary psychopathy was inversely related to all three subtypes of PBS: SHR ($\beta = -0.12$, $p = .001$), MD ($\beta = -0.11$, $p = .007$), and SLD ($\beta = -0.15$, $p < .001$). Furthermore, SHR PBS was inversely related to alcohol problems ($\beta = -0.20$, $p < .001$), while MD PBS

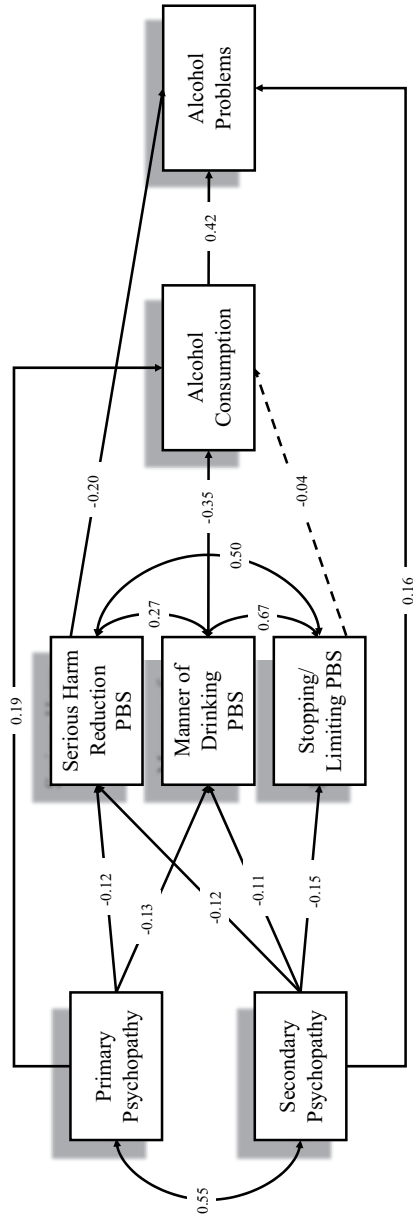


FIGURE 1. Final model of primary and secondary psychopathy onto alcohol consumption and problems via PBS subtypes. All values are standardized betas unless otherwise noted. Dashed lines denote nonsignificant associations.

TABLE 1. Descriptive Statistics and Bivariate Correlations

Variables	1	2	3	4	5	6	7	8	9
1. Age	—								
2. Sex	0.04	—							
3. Primary Psychopathy	-0.19**	-0.21**	—						
4. Secondary Psychopathy	-0.14**	-0.10**	0.57**	—					
5. SLD PBS	-0.02	0.15**	-0.07*	-0.15**	—				
6. MD PBS	0.14**	0.16**	-0.22**	-0.20**	0.66**	—			
7. SHR PBS	-0.18**	0.24**	-0.18**	-0.18**	0.52**	0.29**	—		
8. Alcohol Use	-0.10**	-0.18**	0.29**	0.23**	-0.30**	-0.43**	-0.13**	—	
9. Alcohol Problems	-0.04	-0.02	0.20**	0.27**	-0.20**	-0.24**	-0.24**	0.44**	—
Mean	20.39	1.61	1.99	1.93	3.06	3.02	4.22	3.71	2.15
SD	4.74	0.49	0.48	0.49	1.28	1.01	1.05	2.35	3.50
Range	18–61	1–2	1–3.69	1–3.71	0–5	0–5	0–5	1–12	0–28

All values are standardized. Sex is coded 1 = males, 2 = females. PBS = Protective Behavioral Strategies; SLD = Stopping/Limiting Drinking; MD = Manner of Drinking; SHR = Serious Harm Reduction

* $p < .05$

** $p < .01$

was inversely related to alcohol consumption ($\beta = -0.35$, $p < .001$). SLD PBS was not significantly related to alcohol consumption ($\beta = -0.04$, $p = .403$). Unsurprisingly, alcohol consumption was strongly related to alcohol problems ($\beta = 0.42$, $p < .001$). Direct associations were also found between primary psychopathy and alcohol consumption ($\beta = 0.19$, $p < .001$) and secondary psychopathy and alcohol problems ($\beta = 0.16$, $p < .001$).

Indirect associations were also calculated (reported results are standardized estimates with 95% confidence intervals) Table 2. The path from primary psychopathy \rightarrow MD PBS \rightarrow alcohol consumption was significant (0.05, CI [0.02, 0.07]), as was the path from primary psychopathy \rightarrow MD PBS \rightarrow alcohol consumption \rightarrow alcohol problems (0.02, CI [0.01, 0.03]). Additionally, there were significant paths from primary psychopathy \rightarrow SHR PBS \rightarrow alcohol problems (0.02, CI [0.01, 0.04]) and from primary psychopathy \rightarrow alcohol use \rightarrow alcohol problems (0.08, CI [0.05, 0.11]). Paths from secondary psychopathy to alcohol use revealed a significant path from secondary psychopathy \rightarrow MD PBS \rightarrow alcohol consumption (0.04, CI [0.01, 0.07]). There were also significant paths from secondary

psychopathy \rightarrow MD PBS \rightarrow alcohol consumption \rightarrow alcohol problems (0.02, CI [0.01, 0.03]) as well as from secondary psychopathy \rightarrow SHR \rightarrow alcohol problems (0.02, CI [0.01, 0.04]). The path from secondary psychopathy \rightarrow SLD PBS \rightarrow alcohol consumption was not significant (0.01, CI [-0.01, 0.02]).

DISCUSSION

The current study examined the relationship between primary and secondary psychopathy, the three subtypes of PBS, and alcohol consumption and problems. Hypotheses were mostly supported. While there was a significant relationship between primary psychopathy and SHR PBS (H1a), there was also a significant relationship between primary psychopathy and MD PBS. Furthermore, SHR PBS, MD PBS, and alcohol consumption mediated the relationship between primary psychopathy and alcohol problems, partially supporting hypothesis H1b. Secondary psychopathy was inversely related to all subcategories of PBS, as hypothesized (H2a). Additionally, MD was the only PBS subtype associated

TABLE 2. Standardized Effects from Psychopathy to Alcohol Outcomes

Parameter	Effects	
	Estimate (SE)	95% C.I.
Effects from PP to AC		
Specific Indirect Effects		
PP → MD → AC	0.05 (0.01)	0.02, 0.07
Direct Effect		
PP → AC	0.19 (0.03)	0.13, 0.25
Total Effect	0.23 (0.03)	0.17, 0.29
Effects from PP to AP		
Specific Indirect Effect		
PP → SHR → AP	0.02 (0.01)	0.01, 0.04
PP → MD → AC → AP	0.02 (0.01)	0.01, 0.03
PP → AC → AP	0.08 (0.01)	0.05, 0.11
Total Indirect Effect	0.12 (0.02)	0.09, 0.15
Effects from SP to AC		
Specific Indirect Effects		
SP → MD → AC	0.04 (0.02)	0.01, 0.07
SP → SLD → AC	0.01 (0.01)	-0.01, 0.02
Total Indirect Effect	0.04 (0.02)	0.01, 0.08
Effects from SP to AP		
Specific Indirect Effects		
SP → SHR → AP	0.02 (0.01)	0.01, 0.04
SP → MD → AC → AP	0.02 (0.01)	0.01, 0.03
SP → SLD → AC → AP	0.00 (0.00)	0.00, 0.01
Total Indirect Effect	0.04 (0.01)	0.02, 0.07
Direct Effect		
SP → AP	0.16 (0.04)	0.08, 0.23
Total Effect	0.20 (0.04)	0.12, 0.27

PP = primary psychopathy, SP = secondary psychopathy, MOD = manner of drinking PBS, SHR = serious harm reduction PBS, AC = alcohol consumption, AP = alcohol problems. All estimates are standardized.

with alcohol consumption, partially supporting hypothesis H2b. Though not hypothesized, there were direct associations between primary psychopathy and alcohol consumption and between secondary psychopathy and alcohol problems, despite the inclusion of PBS.

Research on primary psychopathy and alcohol pathology has been somewhat neglected. While there is some research suggesting that primary psychopathy is inversely associated with PBS use (Kramer et al., 2017), there has been no research examining if primary psychopathy is only associated with certain PBS subtypes. Given the strong relationship between primary psychopathy and both MD and SHR PBS, the present study further supports reduced harm reduction as a component of primary psychopathy, including harm reduction strategies that focus on both *how* an individual is drinking (MD PBS) as well as the *risky consequences* of drinking rather than the only the drinking itself (SHR PBS). Perhaps more interesting is the direct relationship between primary psychopathy and alcohol consumption. As noted earlier, this could be due to the narcissistic elements found in primary psychopathy (Miller et al., 2008), where an individual high in primary traits may feel they will not experience the negative outcomes from excessive alcohol use, leading to higher levels of consumption.

Unlike primary psychopathy, there is an impressive body of literature on secondary psychopathy and alcohol pathology. While this research has mainly examined secondary psychopathy's relationship to alcohol as a function of impulsivity, there is evidence that PBS plays a key role. Pearson et al. (2012) found that facets of impulsivity, a core feature of secondary psychopathy, had varying strengths of association to the PBS subtypes. Thus, there may be additional mechanisms mediating the relationship between impulsivity and alcohol consumption and consequences. Secondary psychopathy might hold those additional pieces, combining impulsivity with a disregard for social norms (Hare,

2003; Karpman, 1941; Lilienfeld & Andrews, 1996). This may explain the association between secondary psychopathy and all three PBS subtypes. However, this does not fully explain the association between secondary psychopathy and alcohol problems. Again, the disregard for social norms may be the mechanism at work in the relationship between secondary psychopathy and alcohol problems. As such, future research should investigate other possible underlying mechanisms at play that may explain this relationship.

Research investigating psychopathy in college students is sorely lacking. Limited research coupled with a lack of cutoff scores for the LSRP in identifying individuals with high levels of psychopathy make it difficult to determine what percentage, if any, of the present sample would meet criteria for psychopathy. Thankfully, there is research suggesting the rate of psychopathy in the general population is approximately 1% (Hare, 1996), though this varies by study and use of cutoff scores (Coid et al., 2009). Regarding problematic alcohol use, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) suggests approximately 5.8% of the US population would meet criteria for an alcohol use disorder diagnosis (Storr et al., 2021). Based on the suggested cutoff scores for the AUDIT (Babor et al., 2001), the present is sample is elevated (26.06%), though this percentage is for those at risk of having an alcohol use disorder rather than a true diagnosis. Thus, while high levels of psychopathy are relatively rare, potentially problematic alcohol use is not, giving additional credence to examining the relationship between psychopathy, PBS, and alcohol use in a college student sample.

Limitations

The present study is not without its limitations, and the findings should be considered within the context of these

limitations. First, the findings may not be generalizable to populations that are not predominantly White/Caucasian, as 73.38% of this study's population indicated. In addition, generalizing these findings to populations that are not college students, or to individuals that meet diagnostic criteria for personality pathology, should be done with caution. Therefore, future research examining psychopathy, PBS, and alcohol pathology should consider sampling from the community as well as from treatment facilities for substance use. Doing so would allow both broader generalizability and a clearer examination of these relationships in a sample seeking treatment for their alcohol use. However, the current approach is consistent with a conceptualization of personality pathology as a continuum (Fisher et al., 2020; Widiger et al., 2009). Furthermore, given the cross-sectional nature of this study, we are unable to make claims of causality from these findings. Though it makes theoretical sense that personality predicts behavior (i.e., PBS use), we cannot completely rule out the alternative. Finally, it is important to note that responses provided by participants were self-report. While an element of psychopathy is manipulation (Mokros et al., 2015), and some have posited that psychopathy could be related to poor insight (Cleckley, 1941; Olver & Wong, 2011), research also suggests individuals high in psychopathy do not inherently have poor insight and will not lie on self-report measures when there is no consequence in being honest (Miller et al., 2011).

Clinical Implications

Previous research has shown that PBS are malleable intervention targets (Dvorak et

al., 2015, 2016) that can reduce negative outcomes related to alcohol consumption (Pearson, 2013). Based on the findings of the present study, clinicians may wish to assess for psychopathic traits when treating patients with an alcohol use disorder. The benefits of considering psychopathy amongst individuals in treatment may help identify patients who would be responsive to increasing PBS use. Future research should examine possible differences between individuals higher in primary psychopathy and individuals higher in secondary psychopathy. Such research may help inform interventions regarding PBS use.

CONCLUSION

The present study examined the relationship between primary and secondary psychopathy, protective behavioral strategies, and alcohol consumption and problems. Results suggest that both primary and secondary psychopathy have inverse relationships with PBS subtypes. In turn, PBS mediates the relationships between primary and secondary psychopathy and alcohol consumption and problems, though in subtly different ways. Future studies should aim to both replicate and extend these findings to diverse and clinical populations.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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