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Evidence for a Curvilinear Dose-response Relationship between Avoidance Coping and Drug Use Problems among Women who Experience Intimate Partner Violence

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Abstract

Women who experience intimate partner violence (IPV) are at heightened risk for drug use problems. While prevailing models of drug use suggest that IPV-exposed women use drugs in an effort to escape or avoid negative affect, a dearth of literature has examined the role of avoidance coping in drug use problems within this population. Given recent suggestions that flexible, situationally-appropriate use of avoidance coping may be adaptive, particularly when confronted with highly stressful situations, we hypothesized that avoidance coping and drug use problems would demonstrate a curvilinear, U-shaped dose-response relationship. Participants were 147 community-recruited women experiencing IPV. Consistent with our hypothesis, moderate levels of avoidance coping were associated with lower levels of drug use problems, whereas high *and* low levels of avoidance coping were associated with higher levels of drug use problems. Findings highlight the complex relationship between avoidance coping and drug use problems and suggest that avoidance coping, when used in moderation, may be an adaptive strategy for coping with relational conflict among women who experience IPV.

Keywords

Intimate partner violence; drug use problems; avoidance coping; emotion regulation; dose-response

Intimate partner violence (IPV) is a highly prevalent public health problem (Garcia-Moreno, Jansen, Ellsberg, Heise, & Watts, 2006; Schafer, Caetano, & Clark, 1998) associated with a range of deleterious physical, psychological, economic, and societal costs (Brown,

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Finkelstein, & Mercy, 2008; Golding, 1999; Walby, 2009). One well-established correlate of IPV is drug use problems. Among IPV-exposed women, prevalence rates of drug abuse or dependence are 2–7 times higher than women nationally (Substance Abuse and Mental Health Services Administration, 2009), with 7%–44% of IPV-exposed women reporting drug problems severe enough to be diagnosed with drug abuse or dependence (Golding, 1999). Further, extant research provides support for a significant positive association between women's IPV victimization and their drug use problems (Brewer, Fleming, Haggerty, & Catalano, 1998; Cottler, Compton, Mager, Spitznagel, & Janca, 1992; El-Bassel, Gilbert, Schilling, & Wada, 2000; El-Bassel, Gilbert, Wu, Go, & Hill, 2005). Prevailing models of drug use, such as negative reinforcement (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004) and self-medication (Khantzian, 1997), suggest that drug use problems often develop as a consequence of IPV (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997; Testa & Livingston, 2000; Testa, Livingston, & Leonard, 2003) because drugs facilitate avoidance of arousal and anxiety related to IPV-victimization (Stewart, 1996; Stewart, Pihl, Conrod, & Dongier, 1998). As such, these theories highlight the role of avoidance coping in drug use problems by implicating avoidance of negative affect as a central motive underlying the development, maintenance, and/or exacerbation of drug use problems among IPV-exposed women.

Consistent with this theoretical literature, avoidance coping is associated with a range of negative drug use outcomes within non-IPV populations, including greater drug use severity (Cooper, Russell, Skinner, Frone, & Mudar, 1992; Ouimette, Finney, & Moos, 1997), posttreatment drug use problems (Chung, Langenbucher, Labouvie, Pandina, & Moos, 2001), drug use cravings among individuals in recovery (Cleveland & Harris, 2010), and decreased likelihood of long-term abstinence (Moos & Moos, 2005). In contrast, Straight, Harper, and Arias (2003) found a non-significant relationship between avoidance coping and drug use problems among IPV-exposed women. While preliminary, this interesting finding suggests that the relationship between avoidance coping and drug use problems may be more complex than previously hypothesized – particularly among women who experience IPV.

The relationship between avoidance coping and drug use problems has historically been viewed and tested as linear, wherein avoidance coping is seen as maladaptive and is positively associated with drug use problems. However, an increasing number of theorists have emphasized the importance of considering the context in which coping strategies are used to determine whether the strategies are maladaptive or adaptive, rather than simply classifying strategies (Aldao, 2013; Calvete, Corral, & Estévez, 2008; Gratz & Roemer, 2004; Kocot & Goodman, 2003; Waldrop & Resick, 2004). Further, these theorists have noted the role of (in)flexible use of coping strategies in predicting outcomes, such that *inflexible* and *rigid* use of avoidance coping, whereby an individual relies on avoidance coping strategies without considering the situational demands or her goals, is the strongest predictor of psychopathology (Buss, 2011; Hayes, Strosahl, & Wilson, 1999; Rottenberg, Gross, & Gotlib, 2005). From this perspective, avoidance coping strategies may be considered adaptive within specific contexts.

The utility of avoidance coping may be particularly salient to women in relationships characterized by IPV. According to Lazarus and Folkman (1984), environmental constraints, personal constraints, and extreme threats are related to the effectiveness of coping strategies (e.g., avoidance coping). However, the vast majority of investigations of the relation between avoidance coping and negative outcomes within IPV-exposed populations have failed to consider these contextual constraints and their consequences (Kocot & Goodman, 2003). Nonetheless, there is some evidence to suggest that, when applied flexibly, avoidance coping may be particularly adaptive for IPV-exposed women. For example, Fine (1992) suggested that IPV-exposed women's use of avoidance coping may be more effective for managing relationship problems than problem-focused coping, as efforts to solve problems within their relationships may result in failure and a sense of hopelessness. Likewise, Lewis et al. (2006) argued that putatively adaptive modes of coping may actually be unsafe for IPV-exposed women, suggesting instead that some degree of avoidance coping in the context of physical threat may reduce conflict and buffer the impact of victimization experiences on psychological outcomes. In fact, extant literature suggests that avoidance coping may be functionally adaptive and protective among populations with exposure to repeated or prolonged stressors (Duncan, 1996; Gonzales & Kim, 1997), such as women who experience IPV (Cattaneo & Goodman, 2005). Specifically, whereas problem-solving coping confers greater beneficial psychological outcomes for individuals in environments perceived as controllable, emotion-focused coping (such as avoidance) is associated with adaptive outcomes within environments perceived as uncontrollable (Valentiner, Holahan, & Moos, 1994; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990), such as in the context of an abusive relationship (Walker, 2009). Likewise, greater reliance on putatively adaptive coping strategies such as problem-focused coping has been associated with greater mental health problems among IPV-exposed women (Kocot & Goodman, 2003).

Given evidence to suggest that some degree of avoidance coping may be adaptive, investigation of alternative models to describe the relationship between avoidance coping and drug use problems among IPV-exposed women is warranted. Consequently, the goal of the present study was to extend extant research by exploring whether the relation between levels of avoidance coping (i.e., dose) and drug use problems (i.e., response) is nonlinear. To ensure that any observed relationships between avoidance coping and drug use problems were not simply due to their shared variance with negative affect (Billings, Folkman, Acree, & Moskowitz, 2000; Wills, Sandy, Shinar, & Yaeger, 1999), a measure of negative affect was included in our analyses as a covariate. Given suggestions that flexible use of avoidance coping strategies may be adaptive (Aldao, 2013; Calvete et al., 2008; Kocot & Goodman, 2003; Waldrop & Resick, 2004), particularly when confronted with highly stressful situations (Linehan, 1993), we hypothesized that avoidance coping and drug use problems would demonstrate a U-shaped dose-response relationship, such that moderate levels of avoidance coping would be associated with the lowest levels of drug use problems, and high *and* low levels of avoidance coping would be associated with higher levels of drug use problems.

Methods

Participants

Participants were 147 women reporting experiences with at least one act of physical victimization by their current male intimate partner in the past 30 days, as measured via phone screen using selected items from the CTS-2 (Straus, Hamby, & Warren, 2003). Additional inclusion criteria were: (a) female gender, (b) age 18 or older, (c) the use of any amount of alcohol or drugs in the previous 30 days, (d) current involvement in a heterosexual intimate relationship of at least six months duration with current contact at least twice a week, and (e) residency in the greater-urban area. Exclusion criteria were (a) inpatient psychiatric hospitalization within the last year, and (b) current residence in a shelter/group home (determined a priori because structured living environments affect women's use of substances).

Women ranged in age from 18 to 57 (*M* = 38.2, *SD* = 10.6). In terms of racial/ethnic background, 80.3% of participants self-identified as Black/African American, 9.5% as White, 6.1% as Latina, 2% as Native American, and 2.1% as another or multiple racial/ethnic backgrounds. Most women were unemployed for over a month prior to the study (58.5%), with a mean level of education of 12 years (*SD* = 1.3) and a mean annual household income of $14,323 (*SD* = $12,832). Fourteen (9.5%) women were married although over half (59.2%) were living with their partner or saw him on a daily basis (*M* = 6.4 days a week, *SD* = 1.3). Mean years in the current relationship was 6.5 years (ranging from 6 months to 27 years; *SD* = 6 years) and 82.1% of women had children.

Procedures

All procedures were reviewed and approved by Yale University's Institutional Review Board. Data were collected as part of a larger study examining the efficacy and comparability of different methods of daily reporting among IPV-exposed women (T. P. Sullivan, Khondkaryan, Dos Santos, & Peters, 2011). Recruitment materials were posted in local businesses, selected state/public agencies, primary care clinics, and emergency departments, and eligibility was determined via a phone screen. Following informed consent, interviews were administered face-to-face by a trained master- or doctoral-level female research associate. All participants were remunerated $45.

Measures

The *Drug Abuse Screening Test* (DAST; Skinner, 1982) is a 10-item self-report questionnaire designed to assess drug problems experienced over the previous three months. Items assess the presence of problems related to participants' drug use, such as occupational or relational problems, illegal activities, or regret. Responses to each item have 1 (*yes*) 1 and 0 (*no*) options. A total drug use problems score was obtained by summing all items (α = .76).

The *Coping Strategies Indicator* (CSI; Amirkhan, 1990) is a 33-item self-report measure that assesses strategies for coping with conflict in a current intimate relationship. The CSI assesses individuals' typical levels of coping across three domains: avoidance (e.g., avoided

being with people in general, daydreamed about better times), problem-solving (e.g., brainstormed all possible solutions before deciding what to do), and social support (e.g., confided fears and worries to a friend or a relative). Each subscale is composed of 11 items that are summed to create a subscale score. To orient participants to coping strategies they used to deal with recent conflict in their current intimate relationships, they were instructed to describe a conflict with their intimate partner in the past three months that was important to them and caused them to worry. Participants were then asked to rate each item using a 3-point Likert-type scale (1 = *not at all*, 3 = *a lot*). The CSI demonstrates adequate psychometric properties (Amirkhan, 1990, 1994), including convergent validity with Vitaliano, Russo, Carr, Maiuro, and Becker's (1985) Ways of Coping Checklist Wishful Thinking and Avoidance subscales (Amirkhan, 1994). For the purposes of the present study, only the avoidance coping domain was examined (α = .79).

The *Multidimensional Anxiety Questionnaire* (MAQ; Reynolds 1999) is a 40-item self-report questionnaire used to evaluate the severity of anxiety symptoms over the previous three months. The MAQ assesses individuals' anxiety severity across four factorially derived subscales: physiological-panic (e.g., shaky hands), social phobia (e.g., nervous with people), worry-fears (e.g., afraid of being alone), and negative affectivity (e.g., irritable). Given past findings of a strong relationship between negative affectivity and both avoidance coping (Billings et al., 2000) and drug use severity (Wills et al., 1999), the negative affectivity scale was included as a covariate in this study to ensure that any observed relationships between avoidance coping and drug use severity are not due simply to their shared variance with negative affectivity (α = .81).

Results

The mean avoidance coping score (M = 23.83, SD = 4.80, scores ranged from 11-32) was approximately one standard deviation higher than reported in Amirkhan's (1990) original community sample (i.e., M = 19.03, SD = 4.37). Drug use problems scores ranged from 0 to 10 (M = 3.20, SD = 2.71), and negative affect scores ranged from 9 to 34 (M = 20.39, SD = 4.96).

In analyzing the relationship between avoidance coping and drug use problems, we used hierarchical polynomial regression analyses to model the potential curvilinear nature of the relationship. Specifically, we utilized a quadratic regression model to test for a hypothesized U-shaped relation between avoidance coping and drug use problems where moderate levels of avoidance coping were expected to be associated with lower drug use problems. Prior to analysis, the predictor variables (avoidance coping and negative affect) were centered as recommended by Cohen, Cohen, West, and Aiken (2003).

The results of the regression analyses are presented in Table 1. The initial step of the model included the lower order terms for avoidance coping and negative affect and was statistically significant, F (2, 144) = 11.48, p < .001, R^2 = 0.14. In this simple, rectilinear component of the model, avoidance coping was not related to drug use problems, b = 0.03, 95% *CI* [-0.06, 0.12] whereas negative affect predicted higher drug use problems, b = 0.19, 95% *CI* [0.10, 0.28]. The second step of the model included the lower order terms for avoidance coping

and negative affect in addition to the squared avoidance variable to measure the curvilinear effects of avoidance coping on drug use problems. The second step (i.e., the quadratic component) was also statistically significant when compared to the null model, F (3, 143) = 10.07, $p < .001$, but more importantly, it provided a statistically significant improvement in fit ($\Delta R^2 = 0.04$) when compared to the simple linear component of the model (i.e., step 1), $F = 6.39$, $p < .05$. The quadratic term for avoidance coping (i.e., avoidance^2) was statistically significant, $b = 6.35$, 95% CI [1.38, 11.32] and, as is apparent in Figure 1, represents a U-shaped relationship between avoidance coping and drug use problems where the lowest levels of drug use problems are observed at moderate levels of avoidance coping in contrast to the higher levels of drug use problems observed at both the high and low ends of the avoidance coping continuum.

Discussion

The goal of the present study was to examine whether the relationship between avoidance coping and drug use problems among IPV-exposed women is best characterized as nonlinear. Specifically, given evidence to suggest that flexible use of avoidance coping may be adaptive among women whose relationships are characterized by IPV (Fine, 1992; Kocot & Goodman, 2003; Lewis et al., 2006), we examined whether there was a U-shaped dose-response effect of avoidance coping on drug use problems. Consistent with study hypotheses, moderate levels of avoidance coping were associated with lower levels of drug use problems, whereas high *and* low levels of avoidance coping predicted higher levels of drug use problems. While preliminary, this finding highlights the role of contextual factors in the relationship between avoidance coping and drug use problems, and suggests that avoidance coping strategies, when used in moderation, may be an adaptive strategy for coping with distress stemming from relational conflict among IPV-exposed women.

Given evidence of a significant positive association between avoidance coping and drug use problems in other trauma-exposed samples (Ouimette, Finney, & Moos, 1999; Ullman, Filipas, Townsend, & Starzynski, 2006), it is possible that the results of this study reflect the unique experiences of IPV-exposed women (versus individuals with traumatic exposure more broadly). Upwards of 93% of IPV-exposed women report repeated victimization by their intimate partners (Cattaneo & Goodman, 2005). Further, attempts to leave abusive relationships are often unsuccessful (Campbell, Miller, Cardwell, & Belknap, 1994; Herbert, Silver, & Ellard, 1991), and, when successful, may result in continued threats, physical assault, and stalking (C. M. Sullivan, Campbell, Angelique, Eby, & Davidson, 1994; Wilson, Johnson, & Daly, 1995) . Thus, IPV-exposed women may experience relational conflict as particularly unpredictable and uncontrollable (Walker, 2009). Importantly, use of avoidance coping strategies in contexts perceived as unpredictable or uncontrollable has been shown to confer greater adaptive psychological outcomes (Valentiner et al., 1994; Vitaliano et al., 1990). For example, because women who experience IPV are not able to control their partner's behavior, use of avoidance coping strategies may redirect attention toward pleasurable activities, subsequently increasing positive affect and decreasing risk for depression or posttraumatic stress. Under these circumstances, avoidance coping could be viewed as functionally adaptive and protective (Gonzales & Kim, 1997). Future research is

needed to elucidate specific situational contexts in which avoidance coping may be adaptive for IPV-exposed women.

Interestingly, and consistent with our hypotheses, lower levels of avoidance coping were associated with higher levels of drug use problems. This finding provides support for the utility of avoidance coping, when used in moderation, in IPV-exposed populations (Fine, 1992; Kocot & Goodman, 2003; Lewis et al., 2006). Further, it highlights one potential strategy for intervening with IPV-exposed women who exhibit drug use problems. In fact, several empirically-supported treatments incorporate avoidance coping strategies. For example, in Dialectical Behavioral Therapy (Linehan, 1993), distraction, which entails noticing aversive emotions and then *temporarily* redirecting one's attention toward something other than the emotion, is recommended when the patient's goal is to tolerate or survive a highly stressful situation, such as IPV victimization. Likewise, Emotion Regulation Group Therapy (Gratz & Gunderson, 2006; Gratz & Tull, 2011; Gratz, Tull, & Levy, 2013) teaches women how to use distraction in a flexible and situationally-appropriate manner to modulate the intensity and/or duration of their emotions. Notably, although treatments that teach effective use of distraction have been found to reduce substance use (Axelrod, Perepletchikova, Holtzman, & Sinha, 2011; Gratz & Tull, 2011), few studies have examined the effects of these treatments outside the context of borderline personality pathology. Future investigations are needed to examine the utility of these treatments in reducing substance use within other populations, such as women who experience IPV.

In evaluating the implications of our findings, it is important to take into account study limitations. First, the cross-sectional and correlational nature of the data precludes determination of the precise nature and direction of the relationships examined. For example, it is possible that this association is bidirectional and that drug use problems may lead to or exacerbate avoidance coping. Future research should investigate the nature and direction of this relationship through prospective, longitudinal investigations. Second, while drawn from a well-established and empirically-validated assessment (Amirkhan, 1990), our measure of avoidance coping does not differentiate between the various functions avoidance behaviors may serve (i.e., permanent or temporary redirection away from emotions). Thus, it is unclear whether or not we were assessing more adaptive forms of avoidance coping, such as distraction, which is theorized to reduce the intensity and/or duration of aversive emotions or behavioral urges (e.g., drug use; Linehan, 1993). Third, avoidance coping is associated with mental disorders prevalent among IPV-exposed women, such as depression (Amirkhan, 1994). As such, future research would benefit from examination of the role of mental disorders in avoidance coping and drug use problems. Fourth, future studies would benefit from examination of whether the relation between levels of avoidance coping and drug use problems is nonlinear when controlling for positive affect (which is associated with substance use outcomes; Cooper, Frone, Russell, & Mudar, 1995). Fifth, although our focus on community-recruited substance using women who experience IPV may be considered a strength of this study, findings may not generalize to other IPV populations (including men who experience IPV and women recruited from IPV shelters) or non-IPV populations. For example, women were only eligible for this study if they reported past 30 day alcohol or drugs use; thus, future research is needed to examine whether our findings vary as a function

of current substance use status (present vs. absent). Lastly, replication and extension of the curvilinear dose-response effect of avoidance coping on other clinically-relevant behaviors (e.g., risky sexual behavior, deliberate self-harm) is warranted.

Despite these limitations, results of this study contribute to the extant literature examining the role of avoidance coping in drug use problems among women who experience IPV. Specifically, moderate levels of avoidance coping were associated with lower levels of drug use problems, whereas high *and* low levels of avoidance coping were associated with higher levels of drug use problems. As such, our results suggest the potential utility of teaching women who experience IPV how to *effectively* reduce the intensity of emotional arousal through adaptive forms of avoidance coping, such as distraction.

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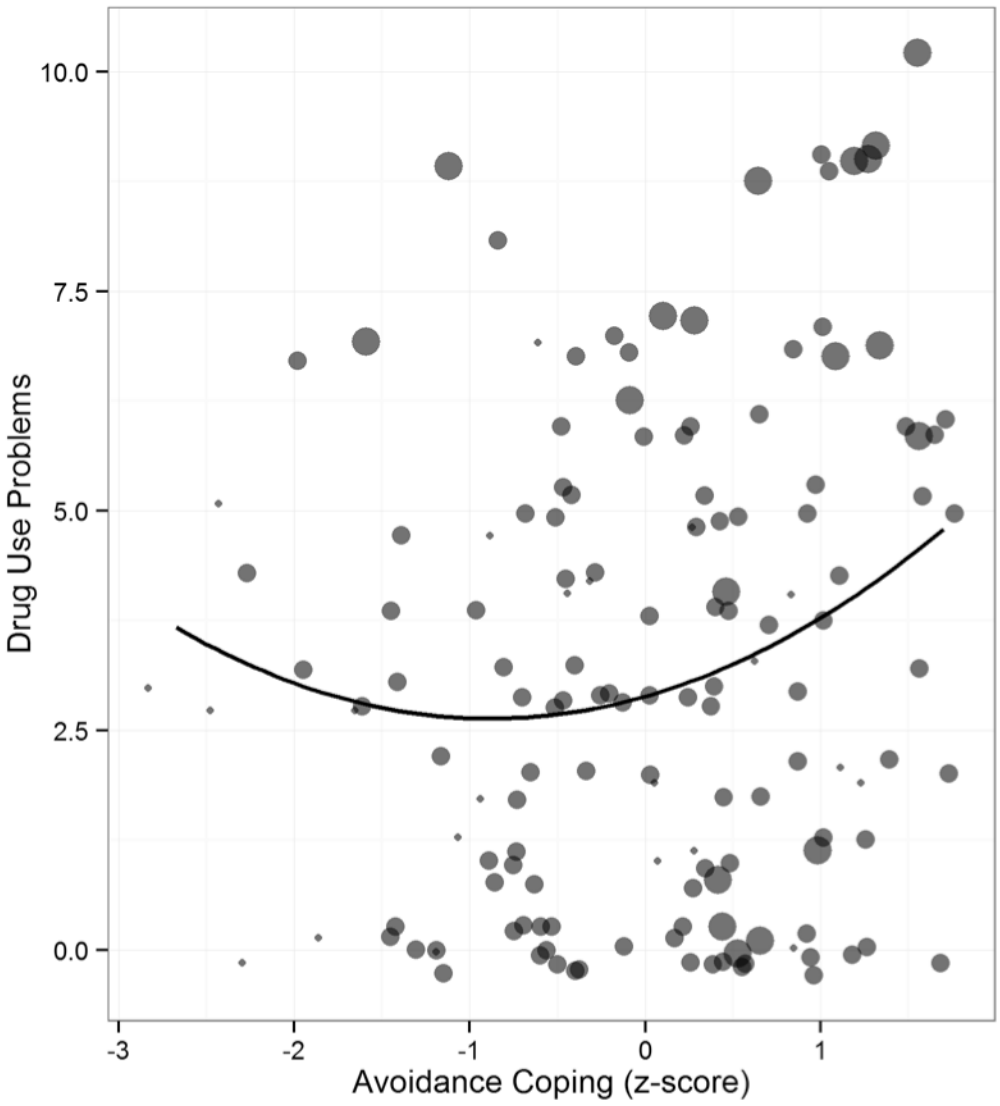

Figure 1.

Scatter plot of drug use problems and avoidance coping scores (jittered) with the size of each point mapped onto negative affect levels superimposed with the curvilinear relation between avoidance and drug use severity.

Table 1

Hierarchical quadratic regression analyses of avoidance and drug use problems.

	B	95% CI	B_{se}	β	t value	p	VIF
Step 1: R^2 = 0.14, p < .001							
Intercept	3.20	[2.79, 3.62]	0.209		15.35	< .001	
Negative Affect	0.19	[0.10, 0.28]	0.045	0.35	4.29	< .001	1.12
Avoidance Coping	0.03	[-0.06, 0.12]	0.046	0.05	0.61	0.5403	1.12
Step 2: ΔR^2 = 0.04, p = .013							
Intercept	3.20	[2.79, 3.61]	0.205		15.63	< .001	
Negative Affect	0.21	[0.12, 0.30]	0.044	0.38	4.70	< .001	1.15
Avoidance Coping	1.31	[-3.90, 6.52]	2.634	0.48	0.50	0.620	1.19
Avoidance Coping^2	6.35	[1.38, 11.32]	2.514	2.35	2.53	0.013	1.13

Note. VIF = variance inflation factor.