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## Individual Differences in Personality Predict Externalizing Versus Internalizing Outcomes Following Sexual Assault

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Individual Differences in Personality Predict Externalizing versus Internalizing Outcomes

Following Sexual Assault

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Running head: PERSONALITY AND SEXUAL ASSAULT

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## Abstract

For some women, the experience of being sexually assaulted leads to increases in externalizing behaviors, such as problem drinking and drug use; for other women, the experience of being assaulted leads to increases in internalizing distress like depression or anxiety. It is possible that pre-assault personality traits interact with sexual assault to predict externalizing or internalizing distress; this study tested such a model. We surveyed 750 women during the summer prior to their freshman year at a large public university. Consistent with our hypotheses, at low levels of negative urgency (the tendency to act rashly when distressed), sexual assault exposure had little relationship to problem drinking and drug use. At high levels of negative urgency, being sexually assaulted was highly associated with those externalizing behaviors. At low levels of internalizing personality traits, being assaulted had little relationship to depression and anxiety symptoms; at high levels of the traits, assault experience was highly related to those symptoms. Personality assessment could lead to more person-specific post-assault interventions.

Keywords: sexual trauma, alcohol, substance use, personality

This study addresses the significant impact that sexual assault victimization has on the mental health of college-aged women, integrating personality factors and trauma to predict maladaptive behavioral consequences. One important and unexplained phenomenon is that some women respond to the trauma of sexual assault with symptoms of externalizing disorders, most notably heavy alcohol consumption and illicit drug use, but others respond to the trauma with increases in internalizing dysfunction, such as major depression and generalized anxiety disorder (Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003; Ullman & Nadjowski, 2009a). It is crucial to identify which women are likely to respond to the trauma in which way, given that (a) heavy alcohol consumption and drug use is associated with many problems, including increased risk of re-victimization (Ullman & Nadjowski, 2009b); and (b) there are different empirically supported treatments for the two different kinds of dysfunction (Hayes, Strosahl, & Wilson, 1999; Linehan, 1993; Zapolski, Stairs, Settles, Combs, & Smith, 2010).

#### *Sexual Assault in Pre-College Samples*

Sexual assault is a considerable source of concern for researchers and clinicians. The highest estimates of sexual assault are found in women aged 16-24, who are four times as likely to be sexually assaulted as any other age group (Danielson & Holmes, 2004). A recent study in pre-college girls found a staggering 51% of 7<sup>th</sup>-12<sup>th</sup> graders reporting some form of sexual abuse (unwanted kissing, touching, hugging, or other sexual contact; Young, Grey, & Boyd, 2009). A full 12% of adolescents reported rape, 6% reported forced oral sex, and 1% reported attempted rape. The repercussions of sexual assault are severe and can differ vastly depending on a number of factors; thus, the

prevalence of assault in this group of women is particularly concerning. Major notable maladaptive outcomes of sexual assault are clinical anxiety, clinical depression, drinking problems, and drug use. These outcomes can be understood to reflect externalizing dysfunction (drinking problems, drug use) and internalizing dysfunction (clinical anxiety, clinical depression: Krueger & Markon, 2006; Miller, Greif & Smith, 2003; Miller, Kaloupek, Dillon, & Keane, 2004).

*Outcomes Following Sexual Assault: Externalizing and Internalizing*

Sexual assault is consistently associated with maladaptive drinking and drug abuse. Reports of alcohol dependence in women post-assault range from 13-49% while reports of use of illegal drug use range from 28-61% (Frank & Stewart, 1984; Frank, Turner, Stewart, Jacob, & West, 1981; Kilpatrick, Best, Veronen, Amick, Villepontaux, et al., 1985; Petrak, Doyle, Williams, Buchan, & Forster, 1997). There is evidence that drinking is increased after assault at many different age ranges: childhood sexual abuse tends to lead to problem drinking, and alcohol initiation is more common in those who report sexual abuse (Combs, Smith, & Simmons, 2011; Wu, Bird, Liu, Duarte, Fuller, Fan, et al., 2010). Adult sexual abuse survivors report more overall drinking as well as more drinking problems than other women (Kilpatrick et al., 1997; Koss & Dinero, 1989; Ullman & Nadjowski, 2009).

This, along with longitudinal evidence showing that women who abused alcohol and drugs or drugs alone were significantly more likely to be sexually assaulted, suggests a reciprocal relationship between the use of alcohol and drugs and sexual assault (Kilpatrick et al., 1997; Testa and Livingston, 2000). Though the single most consistent predictor of adult sexual assault is childhood sexual abuse, substance abuse is a close

second (Gidycz, Coble, Latham, & Layman, 1993; Ullman, Nadjowski and Fillipas, in press; White & Humphrey, 1998). This suggests that on top of the direct problems caused by substance abuse after sexual assault, there is significant risk of revictimization due to the combination of prior assault and substance abuse.

These forms of dysfunction are examples of what has been called “externalizing” dysfunction, which is often marked by impulsivity, high negative emotionality and aggression. It has been described as a subtype of post-trauma pathology in combat veterans as well as a major subtype of dysfunction in adolescents, normal adults, and alcoholic women (Miller et al., 2003; Miller et al., 2004; Settles, Fischer, Combs, Gunn, & Smith, 2012).

Internalizing dysfunction, on the other hand, is marked by low positive emotionality and high negative emotionality, and is often expressed as anxiety or depressive disorders (Krueger & Markon, 2006; Miller & Resick, 2007; Settles et al., 2012). Sexual abuse is highly associated with subsequent anxiety and depressive disorders (Breslau, 2002, Frazier, Anders, Perera, Tomich, Tennen, Park, et al., 2009; Petter & Whitehill, 1998). Reportedly, 13-51% of women develop depression after an assault, while 73-82% develop fear and/or anxiety (Acierno et al., 2002; Clum, Calhoun, & Kimerling, 2000; Dickinson, deGruy, Dickinson, & Candib, 1999; Frank & Anderson, 1987; Ullman & Siegel, 1993).

As shown here, there have been numerous studies relating sexual assault to both externalizing and internalizing maladaptive outcomes longitudinally; however, these studies have not yet explored the role of personality in the prediction of these outcomes (Campbell, Dworkin, & Cabral, 2009). There is a wealth of evidence for the influence of

personality factors on the differentiation of internalizing and externalizing subtypes, however, and this will be summarized next.

### *Personality Correlates of Maladaptive Outcomes*

The facts that only a portion of women who have experienced a sexual trauma go on to develop dysfunction and that the dysfunction varies in nature suggests the possibility that there are important individual differences contributing to risk for those negative sequelae to sexual trauma exposure. In particular, researchers have distinguished between traits that dispose individuals to externalizing dysfunction and those that dispose individuals to internalizing dysfunction (Settles et al., 2012).

Negative urgency is understood not to just reflect dysregulated emotion, but to reflect the tendency to act rashly in response to distress (Combs & Smith, 2009; Cyders & Smith, 2008). There is increasing evidence that this trait predicts problem drinking and other *externalizing* behavioral dysfunction (Combs, Spillane & Smith, in press; Cyders, Flory, Rainer, & Smith, 2009; Dick, Smith, Olausso, Mitchell, Leeman, O'Malley, et al., 2010; Fink, Anestis, Selby, & Joiner, 2010, Murphy & Mackillop, 2011; Pryor, Miller, Hoffman, & Harding, 2009; Settles et al., 2012).

Other traits within the Neuroticism domain, including trait depression and trait anxiety, have been shown to relate to various forms of *internalizing* dysfunction, including major depression (Settles et al., 2012). This association between these two traits and internalizing dysfunction has been shown in 5<sup>th</sup> grade children, college students, and adult women diagnosed with major depression (Settles et al., 2012).

### *The Current Study*



Because negative urgency is consistently associated with externalizing dysfunction and trait anxiety/trait depression are consistently associated with internalizing dysfunction, our model holds that individual differences on those traits predict whether assaulted women are more likely to respond to the trauma with engagement in externalizing or internalizing behaviors. To date, research has not investigated whether negative urgency, trait anxiety, or trait depression interact with a specific traumatic event to predict dysfunction.

The current study is the first cross-sectional test of this model. We tested two hypotheses. First, that negative urgency would interact with assault victimization to concurrently predict higher levels of drinking problems and illicit drug use, but that trait anxiety and trait depression would not. Second, that trait anxiety and trait depression would interact with assault victimization to predict higher levels of clinical anxiety and depression, but that trait negative urgency would not. If this cross-sectional test is successful, there would be reason to test this model using a longitudinal design in which personality was assessed prior to victimization, to determine if pre-morbid personality interacts with assault victimization to predict subsequent dysfunctional behavior.

## Method

### *Sample*

The sample consisted of women who participated in the study during the summer before they began college: all had been admitted to the University of Kentucky. In July, all incoming freshman women (1,800) received an e-mail with instructions for completing the web-based study. Of the 1,800 approached via email, 750 or 42% agreed to participate. The mean age of participants was 18-years-old. Almost 90% of participants

identified as Caucasian, 7.7% identified as African-American, 2.8% identified as Asian, 0.4% identified as Native American, and 0.3% identified as Pacific Islander.

### *Procedure*

The study was available online and took place in July prior to the participants' first day of move-in to the University. Eligibility was determined by questions regarding gender, nature of enrollment (traditional, defined as within three years of completing high school, or otherwise), and English-speaking ability. The questionnaire took 1-2 hours to complete. Upon completion, participants were entered in a raffle to win one of 8 \$250 gift cards to a local store.

### *Measures*

*Demographic Information.* The participants filled out a demographic questionnaire obtaining information on socioeconomic status, age, ethnicity, extracurricular activities, and other characteristics.

*Sexual Experiences Survey (SES; Koss & Oros, 1982).* The SES is a 14-item measure of different dimensions of sexual assault and rape. The experiences asked about range from unwanted touching to rape with a foreign object, and the questions reflect the participant's age at which the experience occurred and number of times the experience has occurred. All participants received information about various ways to receive help from community or university clinics; those who disclosed a history of sexual assault received additional reminders about community resources.

*Drinking Styles Questionnaire, Alcohol-Related Problems subscale (DSQ; Smith, McCarthy, & Goldman, 1995).* The Alcohol-Related Problems subscale of the DSQ includes problems related to arrests, vandalism, and fights with friends and family.

Cronbach's alpha in that sample was .84, and scores correlated .40 with collateral reports (Smith et al., 1995).

*Risky Behaviors Scale, Drug Use Items (RBS: Fischer & Smith, 2004).* The RBS is an 83 item Likert-type scale designed to assess frequency of engagement in risky behaviors. Seven items from the RBS were used that assess the target behavior of illegal drug use: used marijuana, cocaine, LSD, heroin, ecstasy, misused prescriptions, or other illegal drugs. To create a drug use score, responses for each drug were summed.

*Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996).* The BDI-II is a self-report measure that consists of 21 items used to assess depressive symptoms. The reliability and stability of the BDI have been reviewed extensively (Beck, Steer, & Garbin, 1988; Beck, Steer, & Brown, 1996).

*Beck Anxiety Inventory (BAI; Beck & Steer, 1990).* The BAI is a 21-item measure of different symptoms of anxiety. Each item describes a somatic, panic-related, or subjective symptom.

*UPPS-P Impulsivity Scale (Lynam, Smith, Whiteside, & Cyders, 2007).* The UPPS-P is a 44 item Likert type scale designed to assess five distinct personality traits that are related to impulsive behavior: negative urgency, positive urgency, lack of perseverance, lack of planning, and sensation seeking. In this study, we used the negative urgency scale only, which has been shown to have good internal consistency (in this study,  $\alpha = .89$ ).

*Revised NEO Personality Inventory, Neuroticism domain (NEO-PI-R; Costa & McCrae, 1992).* The NEO-PI-R is a 240-item measure assessing the personality traits in the FFM. The NEO-PI-R has demonstrated good internal and external validity (Costa &

McCrae, 1992). In the present study, we used the Depression and Anxiety facets of the Neuroticism domain ( $\alpha = .82$  and  $.75$  respectively; when combined,  $\alpha = .87$ ).

### *Data Analysis*

In order to test whether different personality traits provide differential prediction of adverse outcomes after sexual assault, we performed three primary multiple regressions, each with a different criterion variable: alcohol use, illegal drug use, and anxiety/depression symptom level. Predictors were the same for each regression: in the first step we entered negative urgency, trait anxiety/trait depression (the two were combined because they correlated  $r = .70$ ), and a dichotomous indicator of whether sexual assault has occurred since age 14. At step 2, we entered the interaction of time 1 negative urgency (centered) and the dichotomous sexual assault exposure variable, and also the interaction of time 1 trait anxiety/trait depression and the dichotomous sexual assault exposure variable.

## Results

### *Descriptive Statistics*

When asked to report mood disorder symptoms, 76.7% of participants endorsed at least one symptom of depression while 72.2% of participants endorsed at least one symptom of anxiety. In this sample, clinical anxiety and depression were significantly correlated at  $r = .68$ . When asked to report drinking problems, 49.7% of participants reported having experienced at least one problem due to drinking. When asked to report illegal drug use, 21.1% of participants reported engaging in at least one type of illegal substance use.

Sexual assault history was also reported: 58.9% of participants reported no sexual assault history, 17.6% of participants reported having experienced unwanted touching, 7.1% reported attempted unwanted intercourse, 5.8% of participants reported being pressured into unwanted intercourse, and 10.6% of participants reported having been forced by physical means into unwanted intercourse. These prevalence rates are consistent with past estimates of sexual assault history in pre-college women (Young et al., 2009). Correlation coefficients describing the relationships between the variables are available in Table 1.

#### *Prediction of Alcohol Problems and Drug Use from Personality*

A full description of all multiple regression results can be found in Table 2. When trait anxiety/depression and negative urgency were first entered in the regression equation to predict drinking problems, only negative urgency significantly predicted drinking problems ( $\beta = .35, p < .01$ ). When sexual assault was added, negative urgency remained a significant predictor, as did sexual assault ( $\beta = .28, p < .01$ ). When the interaction terms (negative urgency X sexual assault, trait anxiety/depression X sexual assault) were entered, only negative urgency and the interaction between sexual assault and trait negative urgency significantly predicted drinking problems (negative urgency:  $\beta = .17, p < .01$ ; negative urgency X sexual assault:  $\beta = .54, p < .01$ ). The nature of the interaction between negative urgency and sexual assault is such that at low levels of negative urgency, presence or absence of sexual assault had little impact on the mean levels of drinking problems. At high levels of negative urgency, having been assaulted led to significantly greater risk for drinking problems (see Figure 1 for a visual depiction of the interaction). The interaction between trait anxiety/depression and

sexual assault did not significantly predict drinking problems.

When trait anxiety/depression and negative urgency were first entered in the regression equation to predict drug use, only negative urgency significantly predicted drug use ( $\beta = .24, p < .01$ ). When sexual assault was added, negative urgency remained a significant predictor, as did sexual assault ( $\beta = .16, p < .01$ ). When the interaction terms were entered, only the interaction between sexual assault and trait negative urgency significantly predicted drug use ( $\beta = .76, p < .01$ ). The nature of the interaction between negative urgency and sexual assault is such that at low levels of negative urgency, presence or absence of sexual assault had little impact on the mean levels of substance abuse. At high levels of negative urgency, having been assaulted led to significantly greater risk for substance abuse (see Figure 1 for a visual depiction of the interaction). The interaction between trait anxiety/depression and sexual assault did not significantly predict substance abuse.

#### *Prediction of Depression and Anxiety from Personality*

Regression analyses were performed with BDI and BAI scores separately, and results were virtually unchanged, so the internalizing outcomes were combined for ease of interpretation. When trait anxiety/depression and negative urgency were first entered in the regression equation to predict clinical depression/anxiety, both personality traits significantly predicted clinical anxiety/depression (negative urgency:  $\beta = .12, p < .01$ ; trait anxiety/depression:  $\beta = .56, p < .01$ ). When sexual assault was added, both personality traits remained significant predictors, as did sexual assault ( $\beta = .15, p < .01$ ). When the interaction terms were entered, only trait anxiety/depression and the interaction between sexual assault and trait anxiety/depression significantly predicted clinical

anxiety/depression (trait anxiety/depression:  $\beta = .46$ ,  $p < .01$ ; trait anxiety/depression X sexual assault:  $\beta = .51$ ,  $p < .01$ ). The nature of the interaction between trait anxiety/depression and sexual assault is such that at low levels of trait anxiety/depression, presence or absence of sexual assault had little impact on the mean levels of clinical anxiety/depression. At high levels of trait anxiety/depression, having been assaulted led to significantly higher clinical anxiety/depression (see Figure 2 for a visual depiction of the interaction). The interaction between negative urgency and sexual assault did not significantly predict clinical anxiety and depression.

### Discussion

The impact of sexual assault can be long lasting and lead to further distress; in some cases, certain outcomes are heavily correlated with revictimization. Thus, having the ability to predict different sequelae of assault based on person-specific traits may have important implications for treatment and prevention. This cross-sectional study suggests the value of studying transactions between personality characteristics and assault victimization to understand maladaptive post-assault behaviors.

Women who were high on negative urgency and who were assaulted were significantly higher on drinking problems as well as on reports of illegal drug use than were other women. The finding of an interaction between negative urgency and victimization is quite important: to understand externalizing behavior post-assault it is important to consider both the fact of the assault and the personality make-up of the victim. The negative urgency – assault interaction was specific to externalizing dysfunction: it did not predict increased clinical anxiety/depression scores. In contrast, the interaction of trait anxiety/trait depression and assault victimization concurrently

predicted depression and anxiety symptom level, but did not predict externalizing behaviors. To understand internalizing behavior post-assault one must again consider both the fact of the assault and the personality structure of the victim.

The acquired preparedness model (Combs & Smith, 2009; Corbin, Iwamoto, & Fromme, 2011; Settles et al., 2010; Smith & Anderson, 2001) holds that personality traits lead individuals to be predisposed to react in specific ways to learning events and then to develop learning-specific dysfunction according to person-environment transactions. For example, people who are high on negative urgency who also hold positive expectancies about alcohol use tend to binge drink, those who hold positive expectancies about the mood-altering benefits of eating tend to binge eat, and those who hold positive expectancies about smoking tend to smoke (Combs et al., 2010; Combs et al., 2012; Pearson et al., in press; Settles et al., 2010). It is thus possible that the experience of sexual assault acts as an acute traumatic learning experience, predisposing women to develop symptomatology related to their personality traits (internalizing or externalizing). Thus, it is possible that women who are high in negative urgency already typically act in rash ways when they are upset while women who are high in trait anxiety and depression already withdraw or display high arousal when they are upset, and that these dispositions combine with the experience of sexual assault to lead to maladaptive levels of externalizing or internalizing behaviors. This set of possibilities should be investigated with longitudinal designs.

Many, if not all, of interventions for women after trauma focus on the trauma itself without addressing personality and its role in the development of maladaptive outcomes; treatment approaches that also consider personality may well be beneficial.



There currently are well-validated treatments for emotion-driven externalizing dysfunction (Linehan, 1993) and for internalizing dysfunction (Chambless & Ollendick, 2001) that could be incorporated into existing post-assault treatments as a function of victim personality. In the long run, provision of personality-specific post-assault interventions could reduce maladaptive outcomes, perhaps even reducing the rate of revictimization (Angelo, Miller, Zoellner, & Feeny, 2008).

There are, of course, limitations to this study. First, the model we described involves hypotheses concerning prospective prediction; however, this study is cross-sectional. This initial cross-sectional test is valuable, because the findings (a) indicate the merit of investigating the model using more expensive longitudinal designs and (b) suggest new avenues for intervention development. Clearly, more rigorous longitudinal tests will prove useful. Second, all data were collected by self-report questionnaire using a web-based format; there was thus no opportunity to clarify questions or responses. However, confidential self-report is likely the most effective way to get valid and valuable data for several reasons: 1) Women are more likely to underreport sexual assaults in a face-to-face or interview situation (Ongena & Wil Dijkstra, 2007); 2) Questionnaire data is highly reliable and often more so than interview data (Testa, Livingston, & VanZile-Tamsen, 2005); 3) As this is a difficult topic for many women, being able to answer the questions and receive information on therapeutic services in their own home may have provided stronger feelings of security and safety than if they had been asked to come in, either for questionnaire data collection or for an interview.

Sexual assault is an issue that creates significant acute and lasting harm for women of all ages, but particularly for young women. The women in this study were

about to enter college, an environment in which maladaptive externalizing behavior like substance abuse is common, perhaps even nurtured rather than extinguished, and maladaptive internalizing symptoms of anxiety and depression often go unnoticed. By better understanding the mechanisms through which different women develop these different dysfunctions after assault, we can hopefully work toward preventing such outcomes. Though the best-case scenario would be to prevent assault in the first place, we can also target predicted behaviors and personality traits to reduce post-assault distress as much as possible.

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Table 1. Pearson correlations between study variables.

	Trait NU	Trait Anx/Dep	SA	Drink Probs	Drug Use	Clinical A/D
Trait NU		.57**	.31**	.28**	.23**	.44**
Trait A/D			.23**	.08	.14**	.62**
SA				.36**	.28**	.32**
Drink Probs					.33**	.15**
Drug Use						.26**

Note. N = 750. Trait NU = trait negative urgency, Trait A/D = trait anxiety/depression,

SA = sexual assault, Drink Probs = drinking problems, Drug Use = illegal substance use;

Clinical A/D = clinical reports of anxiety and depression. \*\*p<.01.

Table 2. Multiple regression predicting outcomes from traits, sexual assault, and interaction between sexual assault and traits.

		Drinking Problems			Drug Use			Clinical Anxiety/Depression		
		Beta	<i>Model R<sup>2</sup></i>	<i>Model R<sup>2</sup> Δ</i>	Beta	<i>Model R<sup>2</sup></i>	<i>Model R<sup>2</sup> Δ</i>	Beta	<i>Model R<sup>2</sup></i>	<i>Model R<sup>2</sup> Δ</i>
Step	NU	.36**	.10	--	.24**	.07	--	.12**	.40	--
1	T A/D	-.13			.03			.56**		
Step	NU	.28**	.18	.09**	.18**	.10	.04**	.07*	.43	.03**
2	T A/D	-.15			.01			.55**		
	SA	.31**			.22**			.18**		
Step	NU	.22**	.19	.01	.05	.14	.03**	.01	.45	.01**
3	T A/D	-.14			.01			.52**		
	SA	.03			-.52			-.37		
	SA x NU	.37*			.79**			.35*		
	NU									
	SA x TA/D	-.29			.02			.25		

Note. N=750. NU= trait negative urgency; T A/D= trait anxiety/depression; SA = sexual assault; SA x NU= interaction of sexual assault and trait negative urgency; SA x TA/D= interaction of sexual assault and trait anxiety/depression. \*p<.05, \*\*p<.01.

Figure 1. Visual representation of interaction between negative urgency and sexual assault in the prediction of mean levels of drinking problems and substance use.

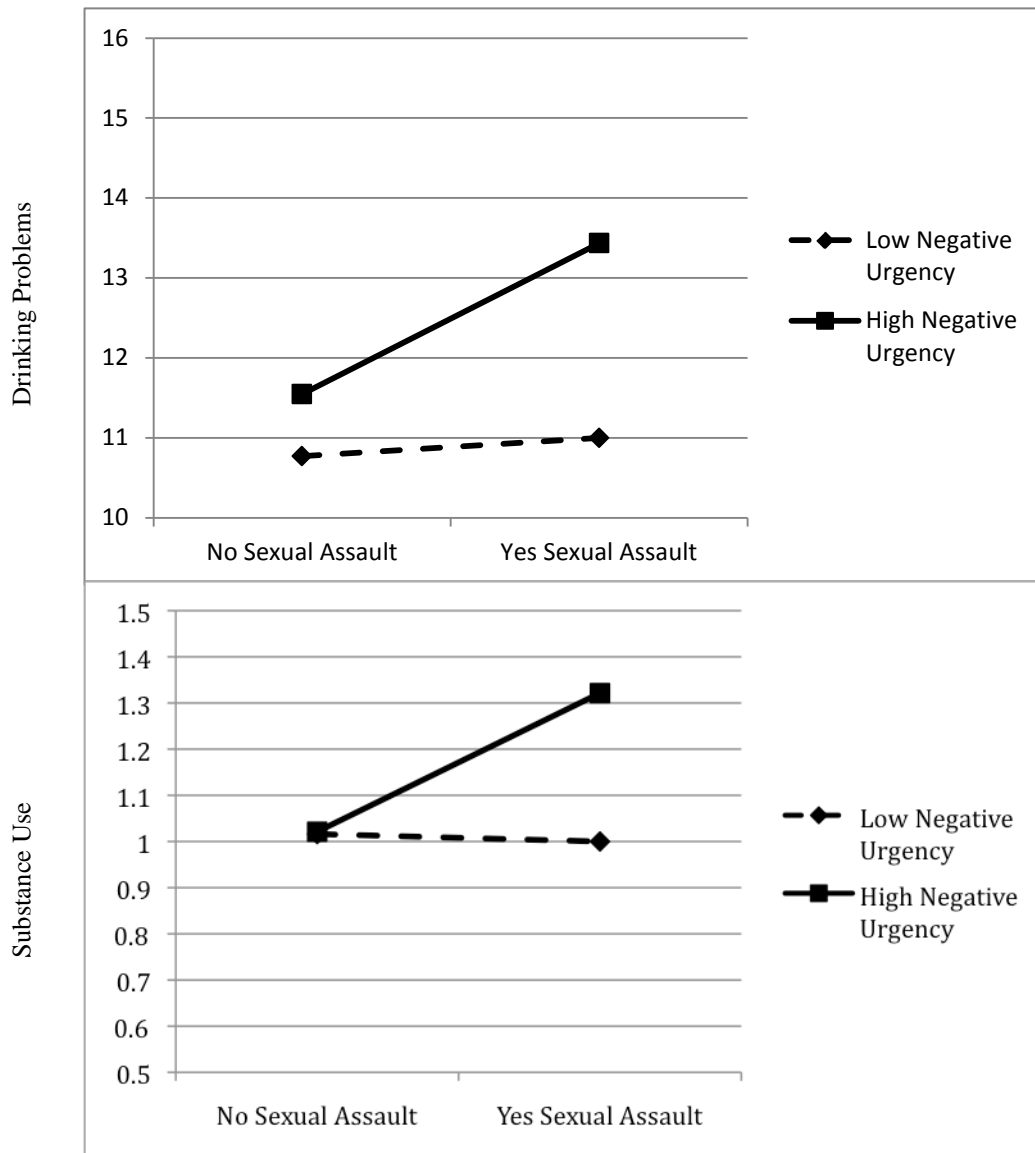


Figure 2. Visual representation of interaction between trait anxiety/depression and sexual assault in the prediction of mean levels of clinical anxiety/depression.

