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Predicting Sexual Assault Revictimization in a Longitudinal Sample of Women Survivors:

Variation by Type of Assault

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Abstract

This study used a large community sample of women sexual assault survivors to prospectively assess 17 theorized predictors across four types of sexual assault revictimization: unwanted contact, coercion, substance-involved assault (SIA), and force. Results indicated that predictors varied across types of revictimization: Unwanted contact and coercion appeared more common in social contexts more hostile toward survivors, whereas forcible assaults and SIAs occurred in circumstances where survivors were vulnerable to being targeted by perpetrators. Overall, the strongest predictors were social environments hostile to survivors, race, childhood sexual abuse, decreased refusal assertiveness, and having more sexual partners. We discuss implications for intervention and research.

Keywords

sexual assault; revictimization; women

The majority of female sexual assault survivors are sexually revictimized in their lifetimes (Classen, Palesh, & Aggarwal, 2005). Preventing this revictimization requires understanding the links between prior and future assaults. We use an ecological framework to discuss theorized predictors, focusing primarily on findings from prospective studies. We then compare the ability of these factors to longitudinally predict sexual assault revictimization in a diverse community sample of female survivors.

An Ecological Framework of Revictimization

An ecological framework conceptualizes revictimization occurring through an interplay between individual, situational, structural, and cultural factors (Heise, 1998). To understand predictors, we use a revised version of the ecological model for revictimization created by Grauerholz (2000) and make adaptations based on other related models (see Figure 1; Campbell, Dworkin, & Cabral, 2009; Messman-Moore & Long, 2003; White, 2009). In our model, predictors consist of *ontogenic or individual* factors (survivors' historical and internal

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experiences), the *microsystem* (interactions between survivors and others as well as characteristics of those interactions), the *meso/exosystem* (processes, such as income, that affect survivors' potential connections to informal and formal social systems, as well as the systems themselves), the *macrosystem* (characteristics of the broader culture), the *chronosystem* (life transitions and effects of time), and *meta-constructs* (factors stemming from all levels of the social ecology). As perpetrators are ultimately responsible for victimization, we discuss how each of these survivor-centered predictors affects vulnerability or exposure to perpetrators.

Ontogenic Factors

A history of interpersonal violence is one of the most robust predictors of revictimization (Classen et al., 2005; Mason, Ullman, Long, Long, & Starzynski, 2009). Both childhood sexual abuse (CSA) and adolescent/adult interpersonal violence can affect psychological functioning, beliefs about sexual behavior, coping strategies, health, and economic well-being (Cloitre & Rosenberg, 2006; Messman-Moore, Long, & Siegfried, 2000; Orcutt, Cooper, & Garcia, 2005; Ullman, Najdowski, & Filipas, 2009; Ullman, Peter-Hagene, & Relyea, 2014; Walsh, DiLillo, Klanecky, & Mcchague, 2013), which can in turn increase risk of assault. Alternatively, previous assaults and revictimization may share common causes, such as social contexts that tolerate interpersonal violence.

Researchers have often studied assault sequelae as potential mediators leading to revictimization. Studies show that psychological distress from assault, such as posttraumatic stress disorder (PTSD) or self-blame, increases risk of revictimization (Arata, 2000; Littleton & Ullman, 2013; Mason et al., 2009; Miller, Canales, Amacker, Backstrom, & Gidycz, 2011; Ullman & Najdowski, 2011). These factors may increase vulnerability if perpetrators take advantage of survivors whose numbing or self-blame decreases risk recognition or resistance (Messman-Moore, Ward, & Brown, 2009; Ullman et al., 2009). In addition, distress may increase maladaptive coping strategies associated with revictimization, such as using substances or sex to cope with negative emotions (Katz, May, Sörensen, & DelTosta, 2010; Najdowski & Ullman, 2011; Sigurvinsdottir & Ullman, 2014). These appraisals, behaviors, and distress symptoms should be assessed in models simultaneously to identify the most useful targets for preventing revictimization. So far, studies that have included more than one factor have found mixed results, possibly because the constructs share conceptual overlap and may interact (Arata, 2000; Filipas & Ullman, 2006; Ullman & Najdowski, 2011).

Difficulties with emotion regulation may play a strong role in revictimization by increasing both vulnerability and exposure to perpetrators. For instance, emotion dysregulation both mediates the path from betrayal traumas (such as interpersonal violence) to PTSD and the path from PTSD to substance use and sexual behaviors (Bonn-Miller, Vujanovic, Boden, & Gross, 2011; Goldsmith, Chesney, Heath, & Barlow, 2013; Weiss, Tull, & Gratz, 2014). Also, emotion dysregulation may increase compliance with sexual activity, impulsive behaviors, and maladaptive coping strategies, as well as decrease sexual refusal assertiveness, relationship stability, and the ability to use emotions as information to detect risk (Bonn-Miller et al., 2011; Cloitre & Rosenberg, 2006; Goldsmith et al., 2013; Marx,

Heidt, & Gold, 2005; Messman-Moore, Walsh, & DiLillo, 2010; Orcutt et al., 2005; Walsh, DiLillo, & Messman-Moore, 2012; Walsh, Galea, & Koenen, 2012; Weiss et al., 2014; Zerubavel & Messman-Moore, 2013). Revictimized women report higher rates of emotion regulation difficulties (Walsh, DiLillo, & Scalora, 2011), and emotional dysregulation predicts revictimization (Messman-Moore et al., 2010; Messman-Moore, Ward, & Zerubavel, 2013; Messman-Moore, Ward, Zerubavel, Chandley, & Barton, 2015).

Microsystem Factors

While individual characteristics may create vulnerability, factors affecting interactions with others may confer a more proximal risk to perpetration. As most assaults are perpetrated by people known to survivors, researchers have studied survivors' sexual behaviors and found that the risks vary depending on the type of behavior (Messman-Moore & Long, 2003). Activities that increase exposure to potential perpetration (e.g., having more sexual partners), vulnerability (e.g., difficulty refusing unwanted sexual activity), or both (e.g., prostitution) seem to predict revictimization (Arata, 2000; Katz, May, Sörenson, & DelTosta, 2010; Krahé, Scheinberger-Olwig, Waizenhöfer, & Kolpin, 1999; Livingston, Testa, & VanZile-Tamsen, 2007; Messman-Moore & Long, 2003; Messman-Moore et al., 2010; Orcutt et al., 2005; Testa, VanZile-Tamsen, & Livingston, 2004; West, Williams, & Siegel, 2000).

Similarly, researchers have studied substance use as many sexual assaults involve substances, particularly alcohol (Abbey, Zawacki, Buck, Clinton, & McAuslan, 2004). In general, substance use predicts substance-involved assaults (SIAs) and not forcible rape (Littleton & Ullman, 2013; Messman-Moore et al., 2013; Testa et al., 2003). Yet, this depends on the substance. Alcohol problems and coping have a strong relationship with alcohol-involved assaults (Classen et al., 2005; Mason et al., 2009; Messman-Moore et al., 2013, 2015), while illicit drugs, particularly hard drugs such as cocaine and heroin, are related to both substance-involved and forcible assaults (McCauley, Ruggiero, Resnick, & Kilpatrick, 2010; Messman-Moore et al., 2013; Raghavan, Bogart, Elliott, Vestal, & Schuster, 2004; Testa et al., 2003; Walsh, Resnick, et al., 2013). Although combining sexual activity and alcohol would seem to confer greater risk, one study found that engaging in sex while under the effect of alcohol did not predict revictimization (Orcutt et al., 2005).

The social environment may also influence the chances of revictimization. Survivors fearing stigma or who have been blamed have higher rates of revictimization (Mason et al., 2009; Miller et al., 2011). Conversely, those receiving emotional or tangible support report less revictimization (Mason et al., 2009; Ullman & Najdowski, 2011). Social environments that tolerate sexual assault may increase exposure to perpetrators. Also, social environments that blame victims may increase distress and make survivors feel unable to refuse sexual advances, report, or seek help (Smith & Freyd, 2013).

Meso/Exosystem

Economic and contextual factors that influence survivors' interactions with systems may also affect revictimization. Economic hardship and victimization may have a cyclical

relationship as a survivor's low economic status can decrease access to services, create distress, increase pressure to engage in risky behaviors to acquire money (e.g., selling drugs or exchanging sex), and keep the survivor disempowered in relation to others upon whom they depend economically (Loya, 2014). Low economic status may also mean living in areas with community violence that may increase distress, substance use, sexually risky behaviors, and exposure to perpetrators (for a review, see Voisin & Berringer, 2014). However, community violence may not involve the betrayal of interpersonal violence and the subsequent emotion regulation and coping problems associated with revictimization (Goldsmith et al., 2013). In a national sample of adolescent women, past-year violence exposure was not associated with sexual assault controlling for other factors (Raghavan et al., 2004).

Race as Meta-Construct

We include race as a multilevel construct following White's (2009) argument that social identities, and associated historical and social inequalities, are situated within all levels of social ecology. Sociocultural factors and economic status may intersect to put women of color at risk of victimization, as women of color face greater economic disparities and lack linguistic and culturally appropriate services (Loya, 2014). Black women in particular may be less likely to access rape crisis and mental health services (Weist et al., 2014). Also, Donovan and Williams (2002) contend that Black women are less likely to be believed and face cultural rape myths that increase risk of victimization. Conversely, White women face fewer barriers to services and have economic and social privileges that may protect against revictimization (Loya, 2014). Some studies have found higher rates of revictimization for Black women and lower rates of revictimization for White women (Mason et al., 2009; Orcutt et al., 2005; Urquiza & Goodlin-Jones, 1994); yet, one study found no differences (Messman-Moore et al., 2013). The only study to explore racial disparities in multiple types of revictimization found that African American women had higher rates of forcible rape but equal rates of incapacitated rape (Littleton & Ullman, 2013).

Macrosystem

As each of our predictors comes from survivors, we unfortunately lack the data on the broader macrosystemic predictors exogenous to survivors that may contribute to violence, and hence will not focus on them here. However, it is likely that larger cultural myths and systems are partially reflected in social reactions (e.g., victim blaming and adherence to rape myths), economic conditions (e.g., structural and systemic racial inequalities that prohibit access to resources), and contextual stressors.

Chronosystem Factors

Finally, time since the most recent sexual assault is strongly associated with revictimization (Classen et al., 2005). The more recent the assault, the more likely survivors are to have similar levels of exposure to perpetrators and similar vulnerabilities. Recent assaults also could mean that survivors have increased vulnerabilities, such as trauma, and are engaging

in coping behaviors that may increase exposure to perpetrators. Therefore, time may not be predictive once controlling for other factors (Miller et al., 2011).

Although studies have uncovered many predictors of revictimization, research has been limited in two regards. First, researchers have often combined multiple types of assaults into one metric of revictimization or studied only one form of revictimization, rather than comparing predictors across different types. As reported above, the few studies that have looked at revictimization by type have found different predictors. Yet, even these studies have tended to only look at differences between forcible and substance-related assaults (Littleton & Ullman, 2013; Testa et al., 2003; Walsh, Messman-Moore, et al., 2013), leaving a gap in the literature on unwanted sexual contact and coercion. Second, prospective studies have seldom included more than a few predictors, prohibiting analysis of the relative risks of different factors.

Current Study

To overcome these limitations, the current study examines multiple predictors of assault across different kinds of revictimization in a longitudinal study of women sexual assault survivors. We state the following hypotheses:

- Hypothesis 1: Different forms of assault (contact, coercion, attempted or completed force, and attempted or completed SIA) will have differential predictors.
- Hypothesis 2: Unwanted contact will be more likely in contexts where general violence is more common (i.e., more dangerous contexts), violence against women is normalized (i.e., more experiences with interpersonal violence, more negative reactions to survivors, and less sexual refusal assertiveness), women are in positions of decreased power (i.e., using substances during sex or exchanging sex for drugs or money), and women have greater exposure to potential perpetrators (i.e., more sexual partners).
- Hypothesis 3: Similarly, survivors will be more likely to face coercion in contexts where violence against women is normalized, when in positions of decreased power, and with greater exposure to perpetrators. In addition, survivors are more likely to be targeted for coercion when they are more vulnerable (i.e., have greater self-blame and emotional regulation difficulties).
- Hypothesis 4: Forced assaults will be more common when women are in violent contexts (i.e., dangerous contexts and interpersonal violence), have greater exposure to perpetrators, and may be less likely to report (i.e., in a social environment negative to survivors or after exchanging money for sex). Although illicit drug use may make survivors hesitant to report forceful assaults, incapacitation may decrease the chances of force; so, we make no predictions about this relationship. Similarly, decreased refusal assertiveness may indicate fear of force and has been associated with revictimization in general (Livingston et al., 2007). Yet, one study found that decreased assertiveness is only related to

sexual coercion and not forcible assault (Testa & Dermen, 1999); so, we make no predictions about this relationship.

- Hypothesis 5: SIAs are expected to be higher in situations where women use substances, have greater exposure to perpetrators, and are more vulnerable to the effects of intoxication through emotion dysregulation and decreased refusal assertiveness.
- Hypothesis 6: Although time and childhood assault have been found in past studies to be common predictors of revictimization, we believe that these are likely mediated through one if not many of the included potential predictors; so, we do not expect them to be predictive once controlling for other variables.

Method

Participants

Female volunteers ($N = 1,863$) from the Chicago metropolitan area were recruited for a 3-year survey study using print and online advertisements as well as flyers. Recruitment materials stated that we were recruiting women for a study to “understand women’s reactions to unwanted sexual experiences” and were looking for women who were “at least 18 years old,” “had an unwanted sexual experience since age 14,” and had told “someone about the experience.” Research assistants sent a mail survey to all women who called expressing interest and confirmed the above three criteria during a brief phone screening. All materials were in English. If the survey was not returned within 4–6 weeks, research assistants called participants to confirm if they received the survey and see if they had any questions. If women had misplaced or not received the survey, we sent another. If women no longer wished to participate, they were thanked for their time. Women who returned surveys were paid US\$25. The return rate of surveys was 85%. Of the women who participated in Wave 1, 72% participated in Wave 2 and 56% in Wave 3.

The current analyses focus on the longitudinal sample $n = 1,012$ (54%) who completed all three waves of data. This longitudinal sample was slightly older ($M = 37.88$, $SD = 12.72$) than the participants who left prior to Wave 3 ($M = 34.89$, $SD = 12.13$). Otherwise, the two samples were similar across demographics (race, Latina/Hispanic ethnicity, sexual orientation, income, employment status, education, parental status, or marital status). The sample was ethnically diverse (47% Black or African American, 35% White, 2% Asian, 6% multiracial, and 10% Other; 13% were Latina or of Hispanic origin, assessed separately). The majority had some college education (32.6% with college degree or higher, 42.0% with some college education), and 23.6% had a high school education or less (1.8% missing). Slightly less than half (41.8%) were currently employed, and 67.7% of women had household incomes of less than US\$30,000.

Measures

All predictors were measured during the Wave 1 survey and are listed in survey order. Revictimization was assessed during Waves 2 and 3.

Substance use

Problem drinking over the past 12 months was assessed using the 25-item Michigan Alcoholism Screening Test (MAST; Selzer, 1971). Items were summed ($M = 3.49$, $SD = 4.34$, $\alpha = .89$). Participants who reported not drinking in the past 12 months were given a 0. The 19% of women with five or more symptoms were rated as problem drinkers (Selzer, 1971). To assess drug use, we asked the frequency of multiple drugs used in the last 12 months on a scale from 0 (*never*) to 5 (*every day*). Hard drug use was dichotomized as 0 (*no cocaine or heroin*) or 1 (*any cocaine or heroin*); 18.3% reported some hard drug use.

Stressful life events

We assessed history of dangerous contexts and interpersonal violence with the Stressful Life Events Screening Questionnaire–Revised (Goodman, Corcoran, Turner, Yuan, & Green, 1998; Green, Chung, Daroowalla, Kaltman, & DeBenedictis, 2006), which includes child and adult stressful and violent experiences, stalking (T. Logan, personal communication, March 5, 2007), and a question we added on neighborhood/community violence, “Have you ever lived in a neighborhood or community where you felt threatened or your life was in danger?” We excluded sexual assault as that was assessed separately. Given that the measure assessed various types of traumas, we performed a principal components analysis with promax rotation and found results similar to past research dividing traumas into interpersonal and non-interpersonal (Ehring, 2010; Freyd, Klest, & Allard, 2005; Green et al., 2000). Both scales were summed. In our analyses, interpersonal trauma included physical child abuse, abuse from a romantic partner, abuse from someone else, emotional abuse, and stalking ($M = 2.84$, $SD = 1.53$). Non-interpersonal traumas, which we have called dangerous contexts, included being in a military combat/war zone, living in a dangerous neighborhood, witnessing extreme violence, having a close friend/family die violently, being threatened with a knife or gun, and having force used against you in a robbery ($M = 2.17$, $SD = 1.57$).

CSA

CSA was measured using the modified version of the 11-item revised Sexual Experiences Survey (SES-R; Testa, VanZile-Tamsen, Livingston, & Koss, 2004). Responses were dichotomized as 0 (*no CSA*) or 1 (*any CSA*) with 60.7% reporting CSA.

Psychological symptoms

We assessed *posttraumatic stress numbing symptoms* related to participants’ most serious sexual assault using the five numbing symptoms from the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995). Participants rated how often they experienced symptoms over the past 12 months on a scale from 0 (*never or only one time*) to 3 (*almost always*). Items are summed ($M = 5.38$, $SD = 4.31$, $\alpha = .83$). We measured *characterological self-blame* with the Rape Attribution Questionnaire (RAQ; Frazier, 2003), a five-item scale assessing whether participants over the past 12 months felt their own character traits were to blame for their assault. Items, rated from 1 (*strongly disagree*) to 5 (*strongly agree*), are averaged ($M = 2.56$, $SD = 0.98$, $\alpha = .77$). *Emotional dysregulation* was assessed with a modified six-item version of the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; T.

Messman-Moore, personal communication, May 4, 2010). Participants rated how often over the past 12 months they had experienced emotional difficulties (e.g., confusion about how they felt) in relation to their assault. Items, assessed with a 5-point scale from 0 (*almost never*) to 4 (*almost always*), were averaged with higher scores indicating greater difficulties ($M = 2.72$, $SD = 0.94$, $\alpha = .74$).

Maladaptive coping

Following a factor analysis (see Relyea & Ullman, 2015, for details), we used eight items from Carver's (1997) Brief COPE scale to assess maladaptive coping. Participants rated how often over the past 12 months they used four types of strategies (denial, behavioral disengagement, substance use, and self-blame) to cope with sexual assault. Items were rated on a scale from 1 (*I didn't do this at all*) to 4 (*I did this a lot*) and were summed. Higher scores indicate more maladaptive coping ($M = 16.05$, $SD = 5.75$, $\alpha = .81$).

Negative social environment

We measured social reactions participants received after disclosing sexual assault using the Social Reactions Questionnaire (SRQ; Ullman, 2000). Survivors reported how often they received reactions over the past 12 months on a scale from 0 (*never*) to 4 (*always*). Although the scale is often divided into the 20 positive and 26 negative social reactions, we were interested in assessing a global rating of how non-supportive social environments were toward survivors. Therefore, we created a composite variable by assessing the percentage of negative reactions received out of all reactions received. On average, 37.6% of the reactions survivors received were negative ($M = 0.38$, $SD = 0.20$). The novel way of calculating survivors' social environment had skew less than 1.5 and kurtosis less than 2.0.

Sexual behaviors

We assessed four sexual behaviors. Participants indicated their *sexual refusal assertiveness* on the six-item Refusal Assertiveness subscale of the Sexual Assertiveness Scale (SAS; Morokoff et al., 1997). Participants rated items reflecting their likelihood of refusing unwanted sexual contact from their partner on a scale from 1 (*strongly disagree*) to 4 (*strongly agree*). Items were averaged ($M = 3.35$, $SD = 0.98$, $\alpha = .81$). *Number of sexual partners* in the past 12 months was assessed on a scale from 0 (*no partners*) to 5 (*five or more*; $M = 1.98$, $SD = 1.71$). Participants' frequency of *using alcohol and/or drugs during sexual activity* was assessed on a scale from 0 (*never*) to 5 (*every time*) ($M = 0.90$, $SD = 1.15$). Finally, participants rated how often they *exchanged sex for money* from 0 (*never*) to 5 (*every time*) ($M = 0.31$, $SD = 0.81$).

Time

Time since the most serious sexual assault was calculated based on the age at Wave 1 minus the age of their most serious sexual assault ($M = 15.86$, $SD = 12.35$, range = 0–59).

Race

Participants were asked what race(s) they consider themselves to be out of six categories (White, Black/African American, Asian, Pacific Islander/Native Hawaiian, American Indian

or Alaska Native, Other). Due to sample size and power, race was dummy coded with the largest group, Black or African American ($n = 473$), as the reference group with dummy codes for White ($n = 358$) and Other ($n = 181$), a combined category of other groups.

Income

Total household income before taxes was assessed in six ordinal categories of “\$10,000 or less” to “over \$50,001.”

Revictimization

Revictimization was assessed at Waves 2 and 3 using the 11-item revised Sexual Experiences Survey (SES-R; Testa, VanZile-Tamsen, Livingston, & Koss, 2004). We created five dichotomized outcomes to record whether participants at Wave 2 or 3 reported *any revictimization* (sexual *contact*, sexual *coercion*, attempted or completed *forcible* assault, and attempted or completed SIA). Contact (three items) and coercion (two items) were coded as usual on the SES-R. Typically, the remaining items are divided into attempted and completed assaults; force and SIA are not divided. Yet, as force and SIA likely occur in different contexts, we separated these perpetrator tactics. Also, as we had no data on why assaults were completed versus attempted, and reasons may not relate to the survivor (e.g., did a bystander prevent it); we combined attempts and completed assaults to more conservatively assess for risk of revictimization. *Force* was recorded as any sex acts, sexual intercourse, or attempts when the perpetrator threatened or used actual force. *SIA* was coded as any sex acts, sexual intercourse, or attempts when the perpetrator gave the survivor alcohol or drugs without their knowledge or consent, or when the survivor was incapacitated due to alcohol or drugs.

Data Analysis Plan

First, we calculated frequencies of revictimization across Waves 2 and 3 and ran chi-square analyses to assess for differences across race. We then performed correlations of all predictor variables. Finally, to run prospective analyses, we performed logistic regressions using Wave 1 variables to predict revictimization across Waves 2 and 3. Revictimization was coded 1 if they reexperienced that form of revictimization across Waves 2 or 3, and 0 if they did not. Separate logistic regressions were run for each type of revictimization (unwanted contact, coercion, attempted or completed SIA, and attempted or completed forcible assault) as well as for revictimization in general.

Results

Frequency of Revictimization

The rates of various forms of revictimization are provided in Table 1. Notably, almost half (49%) of female survivors experienced some form of revictimization over the 2 years since completing Wave 1. The rates of assault were slightly lower at Wave 3 than at Wave 2 for all forms of revictimization. Across both waves, unwanted sexual contact was the most common, followed by coercion, then attempted or completed forcible assault, and finally attempted or completed SIA. Chi-square tests showed that White women showed much lower rates of all forms of revictimization than other women, with 39% of White women

revictimized, compared with 55% of Black women and 52% of Other women. However, it is important to note that there was great variation in the Other category. Although very small sample sizes mean that results should be interpreted with great caution, Native American women ($n = 5/8$, 63%) and those that marked some other race or left race blank ($n = 51/81$, 63%) had higher rates than Asian women ($n = 8/19$, 42%) and those who marked more than one race ($n = 28/61$, 46%). Ethnicity was not included in regressions as chi-square tests showed no difference between Hispanic and non-Hispanic women in rates of revictimization (50–48%, respectively).

Correlations

Correlations are reported in Table 2. Due to sample size, most correlations were significant. Using Cohen's (1988) criteria (.10 = weak, .30 = moderate, .50 = strong), most predictors had weak to moderate correlations. The only strong associations were between numbing symptoms and both emotion dysregulation ($r = .56$) and maladaptive coping ($r = .54$); emotion dysregulation with maladaptive coping ($r = .64$); and interpersonal traumas with dangerous contexts ($r = .50$). None were high enough to indicate collinearity. Maladaptive coping had the highest average bivariate association (.26) with all four forms of revictimization, while time since the most serious assault had the lowest average correlation (–.03).

Predicting Revictimization

In support of hypotheses, the pattern of predictors varied by type of assault (see Table 3). Only one predictor was significant across all four types of revictimization; in comparison with Black women, White women had lower rates of assault. Two predictors (less sexual refusal assertiveness and more sexual partners) increased odds of experiencing three forms of revictimization, yet did not predict SIA. Notably, seven predictors were not significant across any forms of assault: years since the most serious assault, household income, numbing symptoms, maladaptive coping, hard drug use, interpersonal violence, and characterological self-blame.

Significant risk factors for unwanted sexual contact included a history of CSA, exposure to dangerous contexts, a greater number of sexual partners, and, the strongest predictor, receiving a greater proportion of negative reactions when disclosing assault. In addition to White women having lower rates of assault, protective factors included having greater sexual refusal assertiveness. Results were in mixed support of hypotheses. Although social and contextual factors were significant risk factors, a greater history of interpersonal violence was not predictive of unwanted sexual experiences.

Predictors of coercion were in partial support of hypotheses. As expected, emotion dysregulation and negative reactions predicted coerced assault; however, against hypotheses neither numbing, a history of interpersonal violence, nor self-blame predicted coercion. Other risk factors included CSA history and a greater number of sexual partners. In addition to White participants having lower rates of coercion, protective factors included sexual refusal assertiveness and being under the influence of substances during sex. While using substances during sex was not expected to be protective, it may be that those using

substances were more vulnerable due to intoxication, and thus the perpetrators did not have to use pressure or arguments.

Results for predicting attempted or completed forcible assault were again in mixed support of hypotheses. A history of interpersonal violence was not associated with a greater chance of force. Dangerous contexts were only marginally ($p = .051$) associated with force, yet such contexts were significant when we ran a model that did not include income (the strongest correlate of dangerous contexts). So, income and a history of contextual traumas may both indicate dangerous contexts. Other risk factors included having alcohol problems, participating in more transactional sex, and having a greater number of sexual partners. Sexual refusal assertiveness and using substances during sexual activity were protective factors. Again, this last finding was not anticipated, yet it stands to reason that perpetrators were less likely to use force on those incapacitated. Finally, results showed that Black women had higher chances of forcible assault in comparison with White women or survivors of other races.

Predictors for SIA were also in partial support of hypotheses. Although alcohol problems increased the chances of assault, neither hard drug use nor using substances during sex were significant predictors. Other risk factors included greater emotion dysregulation and transactional sex. Being White was the only protective factor. In contrast to other types of assaults, sexual refusal assertiveness and number of sexual partners did not affect the likelihood of SIA.

Finally, results for experiencing any form of revictimization were in line with hypotheses. Revictimization was predicted by experiencing CSA, a more negative social environment, and having more sexual partners, while greater sexual refusal assertiveness was a protective factor. Emotion dysregulation was marginally significant ($p = .055$). Against hypotheses, interpersonal violence and dangerous contexts were not associated with revictimization.

Discussion

This is the first study to assess multiple prospective predictors across four types of sexual assault revictimization in community-residing women sexual assault victims. Results indicate that different types of revictimization are associated with different predictors. Risk factors were present at multiple levels of social ecology, yet occurred predominantly at the microsystem level. Broadly speaking, risks included increased exposure to potential perpetrators (a dangerous context, having more sexual partners, transactional sex), social environments more hostile to survivors, and increased vulnerability to being targeted by perpetrators (emotional dysregulation, sexual refusal assertiveness, problem drinking). Notably, several psychological and behavior factors, including posttraumatic numbing, self-blame, and maladaptive coping, were not significant controlling for other variables. Overall, the predictors from the literature show a bias toward predicting force (Nagelkerke $R^2 = .34$) and the least ability to predict unwanted sexual contact (.23), despite it being the most common form of revictimization survivors reported.

Our prospective study of survivors finds very similar findings to a recent longitudinal study of male college perpetrators (Zinzow & Thompson, 2015). In that study, college men who perpetrated coercion and unwanted contact were more likely to be single-time offenders. Such offenders reported higher rates of harmful norms and beliefs, compared with non-offenders, as well as more adverse events in childhood, compared with repeat offenders. Similarly, we found that the factors that predicted these forms of revictimization seemed to reflect contexts where such violence was more normative: more negative social reactions to survivors, high rates of contextual violence, higher CSA, and survivors' decreased likelihood of refusing sexual advances. Therefore, programs that target social norms seem warranted. While researchers often search for factors that mediate the link between CSA and later assault, CSA was predictive after controlling for individual factors in both Zinzow and Thompson's (2015) study of perpetrators and our sample of survivors. Either important individual variables were not included (e.g., risk recognition), or CSA and these forms of assault are related through common causes, such as familial or social contexts, that normalize sexual assault. However, even in such environments, greater exposure to perpetrators through more sexual partners and greater vulnerability through both emotional dysregulation and decreased refusal assertiveness were still predictive and may be useful targets for intervention, a call similarly echoed by Gidycz and Dardis (2014).

The results concerning force and SIA also echo Zinzow and Thompson's (2015) work. In their study, force and SIA were more likely to be perpetrated by repeat offenders who had more antisocial traits. As repeat offenders may be more likely to target vulnerable women (Lisak & Miller, 2002; Zinzow & Thompson, 2015), it is not surprising that women who had more sexual activity, alcohol problems, or transactional sex were more likely to be assaulted. Unlike unwanted contact or coercion, CSA was not predictive of force or SIA after controlling for other potentially mediating factors.

Although SIA was the least common type of assault in our sample, studies show that women with alcohol-involved assaults have greater rates of revictimization than women with non-alcohol-involved assaults (Bedard-Gilligan, Kaysen, Desai, & Lee, 2011). The reciprocal relationship between alcohol-involved assault and alcohol may leave such women open to revictimization by perpetrators who target inebriated women (Messman-Moore et al., 2015). In support of this, alcohol problems were predictive of SIA. Although we expected using substance during sex to be predictive of SIA, the null finding could indicate that at least some of those who report using substances during sex are indicating consensual substance-involved sex rather than simply being under the influence of substances. Furthermore, SIA was the only form of assault that was not predicted by having more sexual partners or sexual refusal assertiveness. This combination of findings seems to imply that those who perpetrate SIA target someone in an intoxicated state who has not consented to substance-involved sexual activity. Such findings stand in support of bystander programs that teach community members to look for perpetrators targeting inebriated women (McMahon & Banyard, 2012).

Only one predictor was significant across all four types of revictimization—White women had lower rates of revictimization compared to Black women. While the rates of revictimization were high for all survivors in our sample, this disparity calls for a greater need for research. As stated above, women of color may have decreased access to services

that are culturally or linguistically appropriate (Weist et al., 2014). Conversely, White women may have greater privilege and access to resources that confer greater protection. It is possible our results are specific to the Chicago area, where historical and de facto neighborhood segregation mean that many women of color live in contexts with numerous systemic risk factors (e.g., decreased access to services, greater neighborhood poverty, reported police mistreatment). Although national statistics on revictimization are not available by race, the National Intimate Partner and Sexual Violence Survey (Black et al., 2011) found rates of lifetime rape victimization (in decreasing order of rate) for multiracial (34%), Native American or Alaska Native (27%), Black (22%), White (19%), and Hispanic women (15%). Given that much sexual assault research occurs in predominantly White college campuses, more quantitative studies are critical in diverse community samples to determine whether these disparities exist elsewhere. Qualitative or mixed methods studies could help uncover the structural, social, and systemic factors related to such victimization.

Several commonly discussed predictors of assault were not significant predictors of any form of revictimization. Time since the most recent assault and interpersonal violence are normally considered robust predictors (Classen et al., 2005). It is possible that our metric of time since the most “serious” assault, rather than “recent,” was responsible for this difference as the most recent assault could be more predictive of current functioning and context. Yet, given that time has small to moderate correlations with revictimization, we may have included all mediating factors. The null findings for interpersonal violence were surprising; however, in a study of college women, a history of emotional abuse, physical abuse, rape, and CSA did not fit in a model predicting prospective rape and/or revictimization (Messman-Moore et al., 2009). Interpersonal violence may not be significant as a predictor once controlling for other factors. Alternatively, emotional and physical violence may only be a concurrent risk factor, such as being in a violent relationship, rather than a prospective risk factor. Finally, it is possible that our sample of survivors of sexual assault that disclosed assault had such high rates of distress that interpersonal violence did not have an additive effect.

Notably, neither numbing, maladaptive coping, nor self-blame were predictive of revictimization. Given that these common sequelae of assault are often theorized as mediators, this was surprising. However, it is possible that these factors are mediated by more proximal factors such as sexual refusal assertiveness, having more sexual partners, or problem drinking (Walsh, Galea, & Koenen, 2012). This is a likely explanation at least for maladaptive coping, which had the strongest bivariate correlations to almost all forms of revictimization in comparison with other predictors. Future studies should examine the links between these factors and potential mediators across different types of revictimization.

Against hypotheses and contrary to prior research, household income and hard drug use were not predictive of revictimization. We may have included other variables that mediated this risk. Hard drug use may expose survivors to dangerous contexts and make them vulnerable through increased financial reliance on others. For instance, transactional sex predicted SIAs. In our sample, 44% of hard drug users engaged in transactional sex compared with only 11% of those not using. Advocacy organizations and case workers should screen for and help survivors transition out of more exploitative or violent

circumstances, and find alternative routes of economic resources. Similarly, household income may not be predictive once accounting for dangerous contexts. Women's income relative to their partners may be a more useful metric for risk of violence (Schewe, Riger, Howard, Staggs, & Mason, 2006).

There are several limitations to the present study. The study used Wave 1 predictors to predict revictimization across Waves 2 and 3. Although such prospective analysis is a strength, the predictors were measured during the same time point at Wave 1. Predictors may be more proximally or distally related to the assault, vary in predictive strength over time, or interact with each other. For instance, while emotional dysregulation may make one more vulnerable, the primary effect on assault might be mediated through coping strategies to deal with affect, such as engaging in sex to cope with negative affect. Therefore, future studies should tease out how these factors relate to each other over time. Also, we combined attempted and completed assaults for SIA and force because we do not have information on what occurred that prevented attempts from being completed. Although this may more conservatively predict risk of perpetrators attempting assault, some variables such as refusal assertiveness may differentially affect the chances of completion and attempts. Also, we should note that SIA was assessed using the SES and relied on survivors' reports of whether substances were related to their assault. Many more survivors may have been targeted while drinking but did not report this on the SES because they consumed the alcohol voluntarily and did not know this is why they were targeted. Finally, the present sample used a population of survivors of adult sexual assault who disclosed assaults and therefore may not represent survivors of CSA or survivors who did not disclose.

Our study continued to show that sexual assault survivors face high rates of revictimization. As risk varied by the type of revictimization, researchers should continue to look at predictors by type. Our findings also indicate a need to uncover more predictors of unwanted sexual contact, the most common form of assault experienced, and understand factors that place women of color at higher risk of revictimization. Promisingly, our findings support the recent increase in programs that target social norms for violence and encourage bystanders to intervene in situations where women may be vulnerable to targeting by perpetrators. Also, our findings support healthy sexuality programs and programs aimed at increasing women's sexual refusal assertiveness. Hopefully, by understanding which factors are predictive for which women in which circumstances, interventionists can begin to decrease the rates of revictimization.

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Figure 1.
Social ecological model.
Source. Adapted from White (2009).

Table 1

Revictimization at Wave 2 or 3.

	Wave 2	Wave 3	Either
Any revictimization	367 (37%)	310 (32%)	474 (49%)
Contact	304 (30%)	254 (27%)	413 (43%)
Coercion	283 (28%)	223 (23%)	369 (38%)
Force	181 (18%)	123 (13%)	236 (25%)
Substance involved	139 (14%)	106 (11%)	196 (21%)

Note. Revictimization was dichotomized as any experiences reported.

Table 2

Pairwise Zero-Order Correlations Between Predictors.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Revictimization		.90	.81	.59	.53	-.14	-.07	.19	.20	.14	.19	.20	.17	.21	-.25	.25	.17	.11	.19	.12	.09
2. Contact			.77	.58	.46	-.14	-.05	.18	.19	.17	.19	.17	.18	.17	-.23	.22	.14	.11	.18	.14	.08
3. Coercion				.61	.50	-.16	.00	.20	.21	.16	.19	.16	.17	.21	-.23	.25	.19	.09	.22	.12	.07
4. Force					.59	-.18	-.01	.22	.22	.21	.15	.20	.17	.23	-.17	.28	.13	.06	.24	.14	.11
5. SIA						-.18	-.07	.14	.18	.14	.13	.22	.13	.25	-.14	.30	.16	.18	.30	.24	.18
6. Income							.06	-.18	-.23	-.25	-.08	-.17	-.18	-.17	.00	-.21	-.05	-.06	-.18	-.11	-.13
7. Time								.14	.12	.14	.01	-.06	-.11	-.11	-.01	-.08	-.21	-.14	.01	-.08	.06
8. CSA									.29	.30	.10	.19	.15	.18	-.12	.22	.02	.08	.19	.10	.06
9. Int viol										.50	.23	.34	.22	.28	-.14	.32	.08	.13	.19	.20	.14
10. Danger cont											.17	.21	.11	.18	-.05	.24	.00	.10	.23	.14	.16
11. Neg react												.35	.29	.28	-.15	.38	.03	.10	.11	.12	.06
12. Numbing													.37	.56	-.15	.54	.05	.17	.16	.20	.11
13. Self-blame														.43	-.23	.46	.07	.09	.09	.16	.05
14. DERS															-.21	.64	.13	.15	.18	.23	.08
15. Refusal																-.24	-.11	-.13	-.15	-.08	-.07
16. Mal coping																	.16	.33	.29	.33	.26
17. # Partners																		.35	.28	.14	.09
18. Sub use sex																			.35	.30	.32
19. Transact sex																				.24	.35
20. Alc prob																					.22
21. Hard drugs																					

Note. $n = 854-1,012$. All correlations equal to or above $|.07|$ were $p < .05$, $|.09|$ were $p < .01$, and $|.12|$ were $p < .001$. SIA = substance-involved assaults; Time = years since most serious assault; CSA = childhood sexual abuse; Int viol = interpersonal violence; Danger cont = dangerous context; Neg react = negative social reactions; DERS = Difficulties with Emotional Regulation Scale; Refusal = sexual refusal assertiveness; Mal. coping = maladaptive coping; # Partners = number of sexual partners; Sub use sex = using substances during sex; Transact sex = transactional sex; Alc prob = alcohol problem.

Table 3

Logistic Regression Predicting Revictimization.

	Contact (<i>n</i> = 618)		Coerce (<i>n</i> = 617)		Force (<i>n</i> = 613)		SIA (<i>n</i> = 610)		Any SA (<i>n</i> = 621)	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Chronosystem										
Time	0.99	[0.98, 1.01]	1.00	[0.98, 1.02]	1.00	[0.98, 1.02]	1.00	[0.98, 1.02]	0.99	[0.97, 1.00]
Meta-construct										
Race: White	0.55**	[0.35, 0.84]	0.37***	[0.23, 0.59]	0.24***	[0.14, 0.44]	0.35***	[0.19, 0.63]	0.49**	[0.32, 0.76]
Race: Other	0.85	[0.50, 1.44]	0.74	[0.43, 1.29]	0.47*	[0.24, 0.91]	0.61	[0.30, 1.22]	0.81	[0.48, 1.38]
Meso/exosystem										
Income	0.94	[0.84, 1.05]	0.94	[0.84, 1.06]	1.01	[0.88, 1.17]	0.95	[0.82, 1.11]	0.95	[0.85, 1.05]
Danger cont	1.16*	[1.01, 1.34]	1.03	[0.89, 1.19]	1.19 ^f	[1.00, 1.42]	1.05	[0.88, 1.25]	1.05	[0.92, 1.21]
Microsystem										
Neg react	3.95***	[1.49, 10.52]	5.51**	[1.96, 15.53]	2.56	[0.77, 8.51]	2.12	[0.62, 7.30]	3.15*	[1.20, 8.30]
# Partners	1.15*	[1.02, 1.30]	1.26***	[1.11, 1.43]	1.21*	[1.04, 1.40]	1.14 ^f	[0.99, 1.32]	1.16*	[1.04, 1.31]
Sub use sex	0.91	[0.76, 1.09]	0.81*	[0.66, 0.98]	0.68***	[0.54, 0.86]	0.92	[0.75, 1.14]	0.91	[0.76, 1.09]
Transact sex	1.19	[0.90, 1.56]	1.27	[0.95, 1.68]	1.48**	[1.12, 1.97]	1.41*	[1.07, 1.86]	1.29 ^f	[0.95, 1.75]
Refusal	0.66***	[0.55, 0.80]	0.66***	[0.54, 0.80]	0.70**	[0.55, 0.89]	0.83	[0.66, 1.06]	0.66***	[0.55, 0.79]
Prob. drink	1.52 ^f	[0.94, 2.45]	1.32	[0.80, 2.18]	1.85*	[1.06, 3.18]	2.10**	[1.23, 3.61]	1.12	[0.69, 1.83]
Hard drugs	1.38	[0.82, 2.31]	1.38	[0.80, 2.38]	1.24	[0.67, 2.29]	1.53	[0.84, 2.80]	1.22	[0.72, 2.05]
Ontogenic										
Mal. coping	0.97	[0.93, 1.02]	0.99	[0.94, 1.04]	1.01	[0.95, 1.06]	1.01	[0.96, 1.07]	0.98	[0.94, 1.03]
Numbing	1.02	[0.96, 1.07]	0.99	[0.93, 1.04]	1.05	[0.98, 1.12]	1.05	[0.98, 1.12]	1.03	[0.98, 1.08]
Self-blame	1.08	[0.87, 1.34]	1.01	[0.81, 1.27]	0.97	[0.75, 1.26]	0.79 ^f	[0.61, 1.03]	0.95	[0.77, 1.18]
DERS	1.20	[0.92, 1.56]	1.48**	[1.11, 1.96]	1.34 ^f	[0.96, 1.87]	1.63**	[1.16, 2.29]	1.30 ^f	[0.99, 1.69]
CSA	1.57*	[1.03, 2.39]	1.94**	[1.22, 3.06]	1.79 ^f	[0.99, 3.25]	0.98	[0.55, 1.74]	1.65*	[1.10, 2.50]
Int violence	0.96	[0.83, 1.10]	1.06	[0.91, 1.23]	1.02	[0.85, 1.23]	1.05	[0.88, 1.27]	1.06	[0.92, 1.22]
Nagelkerke <i>R</i> ²	.23		.31		.34		.29		.25	

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Note. SIA = substance-involved assaults; SA = sexual assault; CI = confidence Intervals; Time = years since most serious assault; Danger cont = dangerous social reactions; # Partners = number of sexual partners; Sub use sex = using substances during sex; Transact sex = transactional sex; Refusal = sexual refusal assertiveness; Prob. drink = problem drinker; Mal. coping = maladaptive coping; DERS = Difficulties with Emotional Regulation Scale; CSA = childhood sexual abuse; Int violence = Interpersonal violence.

$t < .10,$
* $p < .05,$
** $p < .01,$
*** $p < .001.$