

The Effects of Trauma Events on Substance Use and Depressive Symptoms among
Homeless Youth

THESIS

Presented in Partial Fulfillment of the Requirements for the Degree Master of Science in
the Graduate School of The Ohio State University

By

Jasmin Carmona

Graduate Program in Human Ecology

The Ohio State University
2013

Master's Examination Committee:

Master's Examination Committee:

Dr. Natasha Slesnick, Advisor

Dr. Amy Bonomi

Copyrighted by
Jasmin Carmona
2013

Abstract

Research suggests that many homeless youth have a history of childhood abuse, intimate partner violence (IPV), and street victimization. These trauma events are independently linked to risk behaviors, but the effects of multiple trauma events are less understood. The goals of this study were to 1) examine the relationship of each trauma event with substance use and depressive symptoms, 2) examine the relationship of multiple trauma events with substance use and depressive symptoms, and 3) examine the relationship between trauma, substance use, and depressive symptoms using three models for understanding risk: additive, exacerbation and saturation.

Participants were part of a larger longitudinal study, were between the ages of 14 to 20 years, and met criteria for homelessness and substance abuse. The sample ($N = 270$) was primarily male (53%) and African American (66%) with an average age of 18.7 years ($SD = 1.2$). Among participants, 54% of youth reported a history of childhood abuse, 42% of youth reported a history of IPV, and 48% of youth reported a history of street victimization within the past 12 months. Youth were engaged on the streets and through a homeless youth drop-in center. The assessment interview was conducted at the drop-in center and youth were compensated with a \$25 gift card.

In regard to the first goal, findings indicated that substance use was positively associated with the individual trauma events of street victimization and length of

homelessness. Contrary to expectations, substance use was negatively associated with childhood abuse. Depressive symptoms were positively associated with childhood abuse, IPV and length of time homeless. For the second goal, as expected, the experience of multiple trauma events was associated with greater substance use and depressive symptoms. And finally, one-way ANOVAs were used to test the additive, exacerbated and saturated risk models. Findings showed support for a saturation risk model in which alcohol use and depressive symptoms leveled off at a moderate level of risk. Additional risk was not associated with additional problem behaviors, which suggests that youth with a low and a moderate number of trauma events significantly differed in alcohol use and depressive symptoms, but there were no significant differences in risk behaviors among youth with a moderate and a high number of trauma events.

In conclusion, findings suggest that each trauma event and multiple forms of trauma impact risk behaviors differently among homeless youth. Clinicians should screen for different types of trauma experiences and offer tailored and integrated interventions and resources to homeless youth. That is, findings suggest that homeless youth may need on-going treatment services for substance use, depressive symptoms and trauma, with early intervention services critical for prevention of continuing risk experiences and problem behaviors. Future research should explore the longitudinal relationship of trauma events and risk behaviors to better understand this vulnerable and understudied population of youth.

Acknowledgements

I would like to thank my committee members for their encouragement through this learning process.

A special thank you to my advisor, Dr. Natasha Slesnick, for providing me with the opportunity to work with her data, and for her enduring patience and support on becoming a better researcher.

To my lab peers, whose knowledge and friendship has helped through this challenging time.

Finally, thank you to my family, whose unconditional love has always helped me achieve my dreams.

Vita

2004.....Wake Forest-Rolesville High School
2008.....B. A. Psychology, University of North
Carolina at Chapel Hill
2011 – present.....Graduate Research Assistant, The Ohio State
University

Fields of Study

Major Field: Human Ecology

Table of Contents

Abstract.....	ii
Acknowledgements.....	iv
Vita.....	v
List of Tables.....	viii
List of Figures.....	ix
Chapters:	
1: Introduction.....	1
Literature Review.....	1
Current study.....	24
2: Method.....	26
Participants.....	26
Procedure.....	27
Measures.....	27
Overview of Data Analysis.....	31
3: Results.....	34
Correlational Analyses.....	34
Effects of Each Trauma Event.....	34
Cumulative Effect of Trauma Events.....	35
Exploratory Model Testing.....	36
4: Discussion.....	39
Implications.....	49
Limitations and Strengths.....	51
Future Directions.....	52
Conclusions.....	53

Bibliography.....	55
Appendixes	68
A: Instruments.....	68
Demographic Questionnaire.....	69
Beck Depression Inventory II.....	78
Form 90-D	81
B: Tables.....	92
C: Figures.....	103

List of Tables

Table 1. Characteristics of the sample.....	93
Table 2: Sample size of risk factors in cumulative risk index.....	94
Table 3: Sample size of grouped risk factors in cumulative risk index.....	95
Table 4. Pearson chi-square correlational analyses with independent variables.....	96
Table 5. Pearson correlations with control and dependent variables.....	97
Table 6. Multiple linear regression analysis for predicting impact of trauma events with adolescent substance use.....	98
Table 7. Multiple linear regression analysis for predicting impact of trauma events with depressive symptoms.....	99
Table 8: Multiple linear regression analysis for predicting impact of cumulative trauma events with adolescent substance use.....	100
Table 9: Multiple linear regression analysis for predicting impact of cumulative trauma events with depressive symptoms.....	101
Table 10: Means and standard deviations of risk behaviors by level of trauma experience.....	102

List of Figures

Figure 1. Models of cumulative risk.....	104
Figure 2. Trauma experiences with depressive symptoms.....	105
Figure 3. Trauma experiences with alcohol use.....	106

CHAPTER 1

INTRODUCTION

Literature Review

Homeless adolescents are an increasing and vulnerable population (Gaetz, Tarasuk, Dachner, & Kirkpatrick, 2006), with many having a history of childhood abuse (Keeshin & Campbell, 2011), intimate partner violence (IPV; Slesnick, Erdem, Collins, Patton, & Buettner, 2010), and street victimizations (Gaetz, 2004). Childhood abuse is a predictor of adolescent substance use (Lansford, Dodge, Pettit, & Bates, 2006) and may increase the likelihood of adolescent depression (Brown, Cohen, Johnson, & Smailes, 1999). Moreover, childhood abuse increases the likelihood of a homeless youth experiencing IPV (Slesnick et al., 2010) and street victimizations (Baron, 2003), which are associated with substance use and depression (Whitbeck, Hoyt, & Bao, 2000; Salomon, Bassuk, and Huntington, 2002). Thus, childhood abuse, IPV, and street victimization are trauma events linked to, and are independent risk factors for, substance use and depressive symptoms among homeless youth. However, the impact of multiple trauma events on substance use and depressive symptoms among homeless youth is unknown. The current study uses a cumulative risk model to examine the interaction between these six variables in a community sample of homeless youth.

Childhood Abuse

In 2009, approximately 6 million children were reported as victims of childhood abuse in the United States (U.S. Department of Health and Human Services, 2010). Childhood abuse can cause long-term severe physical and psychological consequences (Springer, Sheridan, Kuo, & Carnes, 2007). Women with a history of both physical and sexual childhood abuse are three times more likely to report severe depressive symptoms than women with no history of childhood abuse (Bonomi, Cannon, Anderson, Rivara, & Thompson, 2008). Moreover, childhood abuse is associated with risky behaviors in adolescence such as substance use (Moran, Vuchinich, & Hall, 2004) and juvenile delinquency (Gault-Sherman, Silver, & Sigfúsdóttir, 2009). The literature divides childhood abuse into two types: sexual and physical. Sexual childhood abuse and physical childhood abuse differ in their negative impact on health and risky behaviors for youth.

Physical childhood abuse can have devastating long-term effects on youth, including impairments in cognitive, language, and academic problems (Watts-English et al, 2006). The effects of physical childhood abuse on adolescents are often varied and significantly harmful. Depression, mental health problems, and suicidal attempts are associated with youth who have a history of physical childhood abuse (Fergusson, Boden, & Horwood, 2008). Research on adult populations suggests that women with a history of physical childhood abuse are at-risk for poor physical health and becoming victims of physical IPV (Bensley, Van Eenwyk , & Wynkoop Simmons, 2003). Inmates with a history of physical childhood abuse were significantly more likely to commit homicide,

assaultive violence, robbery, and sexual assaults against adults than inmates with no history of physical childhood abuse (Felson & Lane, 2009), and severe physical childhood abuse may be a predictor of male IPV perpetration against female partners (Caetano, McGrath, Ramisetty-Mikler, & Field, 2005).

Although physical childhood abuse may have long-term effects, sexual childhood abuse may have stronger and more consistent detrimental effects on youth (Fergusson et al., 2008). The available evidence suggests a 2.4 times greater risk of mental health problems among youth who experienced attempted or completed sexual penetration compared to peers with no history of sexual childhood abuse (Fergusson et al., 2008). In the study by Fergusson and colleagues (2008), sexual childhood abuse accounted for 13% of increased depressive moods, anxiety for youth, anti-social personality disorder, and suicidality, while the correlation between physical childhood abuse and these mental health problems were explained by other factors. Women with a history of sexual childhood abuse are twice as likely to use substances as peers with no abuse history (Salomon et al., 2002), and youth with a history of sexual childhood abuse are at an increased risk for committing theft and violent behaviors (Gault-Sherman et al., 2009). Moreover, Felson and Lane (2009) found that inmates with a history of sexual childhood abuse were eight times more likely to commit sexual offenses against children than inmates with no history of sexual childhood abuse.

Despite these differences with physical and sexual childhood abuse, youth may experience the negative consequences of both types of abuse for decades (Springer et al., 2007). Physical childhood abuse is associated with poor mental health (e.g., depression,

anxiety, and anger), physical problems, and medical diagnoses for middle-aged adults (Springer et al., 2007). Compared to peers with no history of sexual childhood abuse, women with a history of sexual childhood abuse are twice as likely to be a victim of rape or sexual assault and four times more likely to attempt suicide or self-mutilation (Noll, Horowitz, Bonanno, Trickett, & Putnam, 2003). Moreover, women with a history of childhood abuse are more likely to experience IPV and later trauma than women with no history of childhood abuse (Noll, et al., 2003).

Intimate Partner Violence

IPV is defined by the following four types of violence: sexual, physical, physical and sexual threats, and psychological/emotional (Saltzman, Fanslow, McMahon, & Shelley, 2002). IPV is characterized as either a discrete, occasional outburst of anger and violence toward an intimate partner, or as the systematic manipulation of power and control enforced by a violent intimate partner (Johnson, 1995). According to the national Youth Risk Behavior Surveillance System Survey conducted in 2009, approximately one in ten youth experienced physical IPV within the past 12 months (Eaton et al., 2010). Other estimates suggest a higher lifetime prevalence of IPV, with 32% of youth experiencing physical IPV and 21% of youth experiencing sexual IPV (Miller et al., 2010). Some common forms of partner violence for adolescents include threats, insults, and intimidation (Carver, Joyner, & Udry, 2003), which can cause severe detrimental effects on an adolescent's physical and psychological development.

Youth who experience IPV are at risk for eating disorders, suicidal attempts, poor emotional health, and low self-esteem (Ackard & Neumark-Szainer, 2002). These youth

have a high likelihood of having academic problems and becoming a victim of IPV in future relationships (Smith, White, & Holland, 2003). Howard and Wang (2003) found an association between adolescent IPV and depressive symptoms, feelings of hopelessness, suicide, and physical fights, and IPV may exacerbate the initiation or engagement in risky sexual behaviors. Adolescent females who experience IPV are less likely to engage in safe sex practices and contraceptive methods, which increases the risk of unwanted pregnancy (Jacoby, Gorenflo, Black, Wunderlich, & Eyler, 1999) and sexually transmitted diseases (Decker, Silverman, & Raj, 2005). Inconsistent condom use, multiple sex partners, and substance use are associated with IPV among youth (Howard & Wang, 2003).

Victimization

Children and youth may experience multiple forms of victimization beyond childhood abuse and IPV. Victimization among sheltered youth can include sexual or physical assaults by adult perpetrators in the community or non-intimate peers at school. However, the literature is inconstant in defining victimization among sheltered youth and some studies may not distinguish between IPV experiences and assault by non-intimate peers. More research is needed to account for the effects and differences between IPV and victimization.

In a nationally representative sample of sheltered youth, Finkelhor, Ormrod, Turner, and Hamby (2005) found that one in eight youth experienced childhood abuse, more than one in four were victims of property damage, one in twelve youth experienced sexual victimization, and one in three youth witness the victimization of other

individuals. The majority of youth experienced physical assault within the past year, and approximately half of youth experienced two or more victimizations (Finkelhor et al., 2005). In another nationally representative sample, youth were more likely to experience victimizations by a peer or a familiar individual than a stranger, and sexual assaults were likely to occur in the youth's home or neighborhood (Kilpatrick, Smith, Saunders, & National Institute of Justice, 2003). The majority of victimizations may be underreported, as results of the study suggest that 86% of sexual assaults and 65% of physical assaults are not reported to the authorities (Kilpatrick et al., 2003).

Further, Kilpatrick and colleagues (2003) found that one in four youth feared severe injuries or death during their sexual assault, and youth who were victims of physical assault were more likely to have this fear than youth who were victims of sexual assault. Victimization were correlated with mental health problems such as Post-Traumatic Stress Disorder (PTSD). Older youth and females had a higher likelihood of having lifetime PTSD than younger youth and males. Indeed, 13.1% of youth aged 17 years old had a history of PTSD, and rates of PTSD were significantly elevated for youth who were physically victimized or experienced physical childhood abuse (Kilpatrick et al., 2003). Other studies suggest a link between victimizations among females and comorbid disorders. Homeless female youth who experience victimization were twice as likely as males to experience co-occurring disorders of depression, conduct disorders, and substance use (Whitbeck et al., 2000).

Adolescent Substance Use

Adolescent substance use is associated with many detrimental consequences including unintentional injuries, neurological impairments, risky sexual behaviors, drunk driving, depression, homicide, violence, academic problems, physical health problems, and suicidal attempts (Office of Juvenile Justice and Delinquency Prevention, 2012; Lansfords et al., 2010). A national study conducted by Monitoring the Future in 2008 detailed risky behaviors of 46,000 adolescents. The study concluded that youth continue to misuse, abuse, and become addicted to illicit substances at high rates (Johnston, O'Malley, Bachman, & Schulenberg, 2009).

A variety of factors can contribute to an adolescent's decision to use substances. Family predisposition to behavioral health disorders and substance use may influence adolescent substance use, in addition to environmental conditions such as low family socioeconomic status and potential for class mobility (Buu et al., 2009). Sibling substance use increases the risk of adolescent substance use, while religious activities and family involvement can protect against adolescent substance use (Vakalahi, 2002). Youth may have an increased likelihood of using substances depending on academic achievement, popularity, and social relationships with antisocial peers (Diego, Field, & Sanders, 2003; Hemphill et al., 2011). Hemphill et al. (2011) noted that the availability of substances and family dysfunction are also significantly associated with adolescent substance use. Moreover, specific substances are associated with attachment styles for youth and adults (Schindler, Thomasius, Peterse, & Sack, 2009). Schindler et al. (2009) found relationships between heroin and coping strategies, marijuana and distancing strategies, and ecstasy and insecure attachments. Adolescents were also at risk for

substance use if they reported favorable attitudes toward substances and perceived substance use as a normal aspect of development (Hemphill et al., 2011).

Adolescents use substances for a multitude of reasons, but the correlation between substance use and trauma is well established (Kingston & Raghavan, 2009). Youth may use substances as a maladaptive coping strategy for poor emotional health and depression (Nyamathi et al., 2010). Some youth may use substances to cope with traumatic experiences such as childhood abuse, and the type of childhood abuse may affect substance use (Moran, Vuchinich, & Hall, 2004).

Childhood abuse and substance use. Moran, Vuchinich, and Hall (2004) found that the type of childhood abuse (e.g., physical/sexual) can affect substance use. In their study, the combination of physical and sexual childhood abuse had a strong cumulative association with adolescent substance use. Sexual childhood abuse had a strong independent association with adolescent substance use, but the association was greater when accounting for both physical and sexual abuse. Physical childhood abuse alone had the weakest association with adolescent substance use (Moran et al., 2004).

The type of childhood abuse (physical or sexual) may have different effects on male and female youth. Lansford et al. (2010) found that male youth with a history of physical childhood abuse used more substances at an early age than female youth who also had a history of physical childhood abuse. Alternatively, female substance use was more associated with trauma and coping than male substance use (Lansford et al., 2010). However, male adolescents who experienced both physical and sexual abuse were more likely to use illicit drugs than females who experienced both types of abuse (Moran et al.,

2004). Bergen, Martin, Richardson, Allison, and Roeger (2004) found that sexual childhood abuse is associated with severe substance use for female adolescents at age 13 and male adolescents between the ages of 13 to 15. However, the link between sexual childhood abuse and substance use was not significant for female youth at age 14 or male youth at age 12. This indicates that the relationship between childhood abuse and substance use is variable and may be dependent on the age or gender of the youth (Bergen et al., 2004). In addition to childhood abuse, substance use is correlated with other abuse events, such as IPV (Raiford, Wingood, & Diclemente, 2007).

IPV and substance use. Substance use is associated with an increased risk of experiencing and perpetrating IPV (Raiford et al., 2007). Substances may be used to take advantage of vulnerable partners and to strengthen a power imbalance in a relationship. Indeed, Raiford and colleagues (2007) noted that youth who use tranquilizers, marijuana, and amphetamines may be vulnerable to being dominated and controlled by IPV perpetrating partners. Other substances, such as cocaine, inhalants, and alcohol, are also associated with experiencing IPV among male youth (Howard & Wang, 2003).

Although literature is available on IPV and substance use among adolescents, much of the research has been generalized from studies using adult populations. Chase, O' Farrell, Murphy, Fals-Stewart, and Murphy (2003) found several predictors of IPV among substance using women and their male partners. In their study, men who perpetrate IPV tend to use more alcohol and cocaine than men who do not perpetrate IPV. On the one hand, men who perpetrate IPV tend to believe that drinking by their female partners causes relationship problems. On the other hand, women who perpetrate IPV

tend to believe that relationship problems cause their drinking problems, and they tend to use more cocaine than women who do not perpetrate IPV (Chase et al., 2003). Indeed, Caetano et al. (2005) found that men and women who consume high levels of alcohol are more likely to commit and recommit IPV against their partners than men and women who consume low levels of alcohol. Further, women who experience two or more accounts of sexual IPV are 3.5 times more likely to initiate or increase their use of substances than women who do not experience sexual IPV (McFarlane et al., 2005).

Victimization and substance use. Although some studies may include IPV experiences as a component of victimization experiences, both IPV and victimization are correlated with substance use among sheltered youth. Indeed, substance use may increase the risk of sexual victimization among female youth (Champion et al., 2004). Champion et al. (2004) found that some female youth had consumed alcohol before being sexually victimized, thus suggesting that substance use may be a predictor of victimizations among youth. In the study, earlier onset of drinking was associated with attempted or completed sexual victimization among youth, and 10.2% of female drinkers experienced attempted or completed sexual victimization compared to 1.4% of female nondrinkers. Binge drinking and marijuana use increased the likelihood of youth experiencing victimization (Champion et al., 2004).

However, victimization among both male and female youth is associated with substance use and maladaptive behaviors (Brunstein, Marrocco, Kleinman, Schonfeld, & Gould, 2008; Sullivan, Farrell, & Wendy, 2006; Titus, Dennis, White, Scott and Funk, 2003). Sullivan et al. (2006) found that physical victimization is associated with tobacco

and alcohol use, aggression, and delinquent behaviors among male youth. Among both male and female youth, relational victimization (i.e., behaviors intended to harm an individual's peer relationships) were associated with cigarette use, alcohol use, and alcohol abuse (Sullivan et al., 2006). Titus et al. (2003) conducted a study on victimization experiences among male and female youth entering a substance use treatment facility. Results suggest that female youth were more likely to have a history of victimizations than male youth, and female youth were more afraid of experiencing possible victimizations in the future. Victimization experiences were significantly correlated with co-morbid disorders, including substance use, violent behaviors, and emotional distress. (Titus et al., 2003). In addition to substance use, victimization may be related to other maladaptive outcomes for youth, such as suicidal behaviors and depression (Brunstein et al., 2008)

Depression

Adolescent depression is associated with significant outcomes that can affect youth's mental and physical health for years into adulthood. Body dissatisfaction, guilt, fatigue, feelings of failure, self-blame, self-disappointment, problems with concentration and productivity, appetite problems, loss of pleasure, and suicidal behaviors are correlated with adolescent depression (Bennett, Ambrosini, Kudes, Metz, & Rabinovich, 2005). Moreover, adolescent depression is often co-morbid with psychiatric disorders, conduct disorders, anxiety disorders, and substance use (Angold, Costello, & Erkanli, 1999). Youth who experience adolescent depression have an increased likelihood of experiencing depression in adulthood (Angold et al., 1999), and depression in adulthood

is associated with IPV victimization (Bonomi et al., 2006) and a history of childhood abuse (Gladstone et al., 2004).

Childhood abuse and depression. Childhood abuse may significantly increase the likelihood that a youth experiences depression in adolescence (Brown et al., 1999). Brown and colleagues (1999) found that adolescents and adults who experienced childhood abuse were three to four times more likely to experience depressive symptoms and become suicidal compared to those without childhood abuse. Although physical childhood abuse was associated with suicidal and depressive behaviors, sexual childhood abuse was a more significant risk factor for these outcomes (Brown et al., 1999).

In a study by Martin, Bergen, Richardson, Roeger, and Allison (2004), sexual childhood abuse was associated with depression, suicidal attempts, hopelessness, and family dysfunction for youth. Gladstone et al. (2004) found that in adult populations, depressed women with a history of sexual childhood abuse had an earlier onset of depression, increased likelihood of suicidal attempts and self-harming behaviors, and were more likely to be diagnosed with a panic disorder than depressed women with no history of sexual childhood abuse. Compared to their non-abused peers, depressed women with a history of sexual childhood abuse were more likely to have experienced family dysfunction during childhood, including parental conflict, emotional abuse, and physical abuse (Gladstone et al., 2004). Further, sexual childhood abuse is correlated with physical childhood abuse, and physical childhood abuse is correlated with depression and later victimizations (Fergusson et al., 2008; Gladstone et al., 2004), including IPV (Roberts, Klein, & Fisher, 2003).

IPV and depression. IPV is related to a wide range of internalizing problems including depression among adolescents and adult women (Bonomi et al., 2006; Roberts et al., 2003). Females who are victims of IPV may feel sadness and low satisfaction in life, which can increase their vulnerability to abuse (Vézina & Hébert, 2007). Using a national data set, Roberts and colleagues (2003) found that female adolescents who were victims of IPV had increased rates of depressive symptoms, suicidal behaviors, and antisocial behaviors. In this study, depressed moods were positively correlated with subsequent experiences of IPV, thus serving as a risk factor and consequence of IPV for female adolescents (Roberts et al., 2003).

Similarly, the relationship between IPV and depression is significant in adulthood. Bonomi et al. (2006) conducted a study on histories of IPV exposure and health outcomes for women who were members of a large health plan. Results suggest that women who experienced IPV for more than ten years were 2.3 times more likely to have minor depressive symptoms than women who had never experienced IPV, and women who experienced physical and/or sexual IPV had a four-fold increase in severe depressive symptoms (Bonomi et al., 2006).

Victimization and depression. Analogous to IPV, peer victimization among sheltered youth may be linked to depressive symptoms. Both direct and indirect peer victimizations can lead to increased levels of internalizing problems, such as increased levels of depression, for youth (Brunstein et al., 2008). Results from a study by Brunstein and colleagues (2008) suggest that peer victimization is related to depression and suicidal attempts, with more victimization leading to higher rates of depression and more suicidal

attempts. However, the frequency and type of victimization may affect levels of depression and suicidal behaviors. Among male youth, the frequency of victimizations is related to depression and suicidal behaviors, while depression and suicidal behaviors among female youth were related to the presence of any victimizations (Brunstein et al., 2008). Youth who experience violent victimizations may have depressive symptoms and despondency including concerns of not having a happy or long life, being unloved or uncared for, feeling empty, and being afraid (Howard, Feigelman, Li, Cross, & Rachuba, 2002).

Victimizations are correlated with increased risk of depression, loneliness, self-worth, and anxiety, with victimization having the most significant correlation with depression (Hawker & Boulton, 2000). Ford, Elhai, Connor, and Frueh (2010) found that youth who have a history of multiple forms of victimizations are twice as likely to have depression, three times more likely to have PTSD, five to eight times more likely to have co-morbid disorders, and three to five times more likely to have a substance use disorder (SUD) than youth with a history of one form of victimization. Youth who experienced physical victimization were at an equal or increased risk of major depression disorder (MDD) and SUD than youth who experienced sexual victimization (Ford et al., 2010).

Substance use and depression. Alcohol and drug use may be related to interpersonal violence, sexual behaviors, and depression among youth (Hallfors, Waller, Bauer, Ford, & Halpern, 2005; Kilpatrick et al., 2003). However, findings are mixed on the link between depression, adolescent substance use, and sexual behaviors. Female youth who experiment with substance use and sexual behaviors may be at risk for

depression (Hallfors et al., 2005), while substance use may mediate the relationship between depression and risky sexual behaviors among male youth (Shrier, Harris, Sternberg, & Beardslee, 2001).

Indeed, Poulin et al. (2005) found that the relationship between substance use and depression may differ among female and male youth. Among male youth, marijuana use was related to depressive risk, while both marijuana and alcohol use were related to depressive risk for female youth. Moreover, the relationship between depression and substance use may differ by age for female youth. Depression risk was significantly correlated with high rates of alcohol use among female youth aged 15 and 16 years, but not for younger female youth with high rates of alcohol use. Results of the study suggest that marijuana use may be a risk factor for depression among both male and female youth, but alcohol use may be more closely related to depression for females than males (Poulin et al., 2005). However, Hallfors et al. (2005) found that for male youth, high levels of both alcohol and marijuana use were significantly associated with depression.

Homelessness

Up to this point, childhood abuse, IPV, victimization, substance use, and depression have been considered in general. However, no model has sufficiently addressed these five factors collectively in the homeless population. Adolescence is a stage of development characterized by significant physical, psychological, and emotional change (Stone, 2006). These developmental challenges are stressful for all youth, but especially for runaway and homeless youth, with homeless youth having the greatest difficulty. The physical health and well-being of homeless youth are often negatively

affected by the myriad of problems experienced while living on the streets. These youth report more illnesses related to substance use, more visits to emergency rooms for health care, and less use of emergency shelters than their sheltered peers (Ensign & Bell, 2004). Moreover, homeless youth are challenged with the everyday struggle to survive, which is exacerbated by substance use, sex work, and mental health problems such as depression (Kipke, Montgomery, & Mackenzie, 1993; Whitbeck et al., 2000).

Depression and homelessness. Depressive symptoms are correlated with conduct problems, substance use, and street victimizations for homeless youth (Whitbeck et al., 2000). Homeless youth with depressive symptoms may have co-morbid mental health problems. Rohde, Noell, Ochs, and Seeley (2001) conducted a study on 523 homeless youth. Within this sample, 12.2% had MDD (major depression disorder) and 6.5% had dysthymia. Depression was correlated with STDs, inconsistent condom use, substance use, hopelessness, suicidal ideation, and suicidal attempts. Female youth were more likely to have MDD, unipolar depression, and dysthymia than male youth, and youth of both genders often had multiple depressive episodes. Further, older homeless youth were more likely to have MDD and have an STD than younger youth. Results suggest that youth had depressive symptoms before becoming homeless (Rohde, Noell, Ochs, & Seeley, 2001), which may exacerbate negative experiences while living on the streets.

In a sample of 688 homeless youth, Solorio, Milburn, Andersen, Trifskin, & Rodríguez, (2006) found that 32% of homeless youth perceived needing treatment for their depression/anxiety/mental health problems (Solorio et al., 2006). Whitbeck and colleagues (2000) found that childhood abuse and street victimizations were associated

with depressive symptoms, and depressive symptoms may co-occur with substance use. Substance use may be correlated with depression for female homeless youth but not male homeless youth (MacLean, Paradise, & Cauce, 1999). However, MacLean and colleagues (1999) found that male homeless youth who displayed withdrawn behaviors had decreased alcohol and drug use.

Substance use and homelessness. Homeless youth often have a history of psychological distress and trauma, which is related to cocaine, alcohol, and amphetamines use (Rhule-Louie, Bowen, Baer, & Peterson, 2008). Indeed, Nyamathi et al. (2007) concluded that homeless youth use substances to avoid hurtful memories, self-medicate, and for harm reduction. Homeless youth with high rates of substance use also tend to engage in risky sexual behaviors such as having multiple partners (Nyamathi et al., 2010; Solorio et al., 2008) and inconsistent condom use and barrier methods during sex (Halcón & Lifson, 2004). Some homeless youth trade sex for food, money, shelter, or substances (Haley, Roy, Leclerc, Boudreau, & Boivin, 2004). Other homeless youth have an increased risk of harm due to their method of using substances. These youth use substances at an earlier age and more often than their sheltered peers (Nyamathi et al., 2007).

Peer relationships may be a significant predictor of substance use for homeless youth. Tyler (2008) found that homeless young adults are at risk for using and selling substances if they use substances with social network members (e.g., peers that homeless youth associate with). Moreover, homeless youth have a high likelihood of using

substances if their social network members carry weapons or have been incarcerated (Bousman et al., 2005).

Another predictor of substance use is the degree and quality parental monitoring. While some homeless youth do not communicate with their parents, others maintain contact with them. Homeless youth who have contact with their parents, but lack parental monitoring, are at risk for substance use (Bousman et al., 2005). Parental monitoring may limit the potential for substance use if homeless youth retain their parents in their social network. However, the experience of childhood abuse perpetrated by parents likely influences the decision to maintain contact with parents.

Childhood abuse and homelessness. Childhood trauma among homeless youth is especially prevalent and is often engendered from physical maltreatment, emotional and sexual abuse, and witnessing violence (Sansone, Whitecar, & Wiederman, 2009). In a sample of 372 homeless and runaway youth, Tyler and Cauce (2002) found that youth experienced an average of four different perpetrators as a child, and female youth reported higher rates of sexual childhood abuse than male youth (Tyler & Cauce, 2002). In addition to having high rates of sexual childhood abuse, female homeless youth may experience equivalent rates of physical childhood abuse as male homeless youth (Gwadz, Nish, Leonard, & Strauss, 2007). Physical childhood abuse often occurs over a longer period of time than sexual childhood abuse, and family members most often perpetrate physical childhood abuse while nonfamily members most often perpetrate sexual childhood abuse (Tyler & Cauce, 2002). Tyler (2006) conducted interviews with homeless youth on their family experiences prior to becoming homeless. While some

youth experienced several forms of childhood abuse, the majority of youth experienced significant physical abuse.

Moreover, homeless youth may continue to be affected by their abuse experiences after leaving home (Keeshin & Campbell, 2011). Tyler (2006) notes that physical childhood abuse may be linked to internalizing negative emotions and subsequent association with deviant peers, while sexual childhood abuse may be linked to later victimizations. Indeed, childhood abuse increases the likelihood of homeless youth experiencing symptoms of PTSD, which is associated with traumatic events and victimizations (Gwadz et al., 2007).

Victimization and homelessness. Baron (2003) suggests that childhood abuse predisposes homeless youth to violent physical and sexual victimization on the streets. Youth who live in violent homes learn to resolve conflicts with violence, and these tactics are reinforced while living on the streets due to the threat of victimization, violent peers, and an environment where conflicts are predominantly solved by violence (Baron, 2003). Homeless youth are often confronted with situations that jeopardize their health and safety and increase their likelihood of exploitation (Gaetz, 2004). In a study on homeless Canadian youth, Gaetz (2004) noted that these youth are vulnerable to victimization due to inadequate access to housing, lack of academic and employment opportunities, and limited access to safe public areas. Perpetrators often take advantage of homeless youth because this population often has little recourse and resources to mobilize for self-protection (Gaetz, 2004).

Everyday homeless youth live with the fear of being robbed, attacked, sexually assaulted, and being victims of other crimes (Gaetz, 2004). In 2003, 81.9% of these Canadian homeless youth were victims of crime and 79.4% experienced at least two victimizations. Moreover, 62.3% of these homeless youth were victims of physical assault, 31.9% were victims of sexual assault, and 21.9% were victims of theft (Gaetz, 2004). Victimization may cause homeless youth to experience mental health problems, and these youth may detrimentally impact their health by using illegal substances to facilitate psychological or emotional coping (Nyamathi et al., 2007; Rhule-Louie et al., 2008). Moreover, homeless youth may be vulnerable to victimizations by an intimate partner.

IPV and homelessness. Few studies have focused on IPV among homeless youth, despite this population being at high risk for victimization (Tyler, Melander, & Noel, 2009). Approximately 30.0% to 35.4% of homeless youth experience physical and verbal IPV, and approximately 8% to 14% of homeless youth experience sexual IPV (Slesnick et al., 2010). In the study by Slesnick and colleagues (2010), female youth were twice as likely as male youth to experience verbal and physical IPV, and a history of childhood abuse increased the likelihood of experiencing IPV. Tyler et al. (2009) found that the majority of young homeless adults have been involved in a romantic relationship with bidirectional violence. However, other studies suggest that female homeless youth are twice as likely to experience physical IPV as male homeless youth (Slesnick et al., 2010).

Similar to IPV among sheltered youth, IPV among homeless youth is understudied, although more research has examined IPV among homeless adults. In particular, Salomon et al. (2002) found that poor and homeless women with a history of IPV were 4.5 times more likely to use illicit drugs during follow-up assessments than peers with no history of IPV. Homeless women, and extremely low income women, can experience severe physical IPV in addition to emotional and psychological problems due to homicidal and suicidal threats from their partners (Browne & Bassuk, 1997). Brown and Bassuk (1997) note that homicidal and suicidal threats are significant considerations for these women when they decide to remain in their abusive relationship, leave their abusive relationship, have outside intervention, or obtain financial support from their children's fathers. Homeless and low income women often try to leave the relationship, obtain restraining orders, and request police intervention against their abusive partners. However, some of these women are further victimized by their partners after the relationship has ended, thus the women continue to be afraid for their health and safety (Browne & Bassuk, 1997).

Cumulative Risk Models

Although the independent effects of IPV, childhood abuse, and street victimization are well known, the cumulative risk of these variables on substance use and depressive symptoms for homeless youth is less understood. Rauer, Karney, Garvan, and Hou (2008) define a risk factor and how it affects a romantic relationship as “any variable thought to increase the likelihood that the relationship will experience difficulties” (p.1123). Based on this definition, IPV is a risk factor in relationships that leads to

difficulties and can increase the likelihood of partners using substances and having depression. Additionally, childhood abuse is a risk factor that can lead to behavioral problems and depression which can increase the likelihood of later substance use. Street victimization is a risk factor that may preclude or exacerbate depression and substance use for homeless youth.

A cumulative risk theory operates on the assumption that risk is “cumulative in that those (individuals) with more risk factors are more likely to experience negative outcomes than those (individuals) with fewer risk factors” (Rauer et al., 2008, p.1124). In other words, a cumulative risk theory suggests that outcomes are more severe or frequent with multiple risk factors than individual risk factors. The cumulative risk theory is represented by risk models that address the effects of multiple risk factors on negative outcomes. Rutter (1979) applied a cumulative risk model in child development, which assumed that a high frequency of risk factors increases the likelihood of negative outcomes. Further, Taylor et al. (2008) found that exposure to community violence and childhood abuse were cumulative risk factors for IPV victimization, but not IPV perpetration, in a sample of high risk, shelter-dwelling youth. Cumulative lifetime adversities are also associated with the early onset of alcohol dependence (Lloyd & Turner, 2008). Whitbeck, Hoyt, and Yoder (1999) utilized a risk amplification model to suggest that street experiences such as substance use, risky sexual behaviors, and deviant peers, increased the risk of victimization and depressive symptoms more than family abuse among homeless and runaway youth.

The literature identifies three types of cumulative risk models to show possible differences in the relationships between multiple risk factors and outcomes. The first model is an additive model of cumulative risk which demonstrates a linear relationship in that outcomes become more severe or frequent with the addition of each new risk factor (Rauer et al., 2008; See model A). However, Rutter (1979) claimed that the relationship between cumulative variables is interactive instead of additive, which is representative of the second type of cumulative risk model. The exacerbated risk model demonstrates an interactive relationship between individual risk factors and outcomes such that outcomes become significantly or exponentially worse in the presence of cumulative risk factors (Rauer et al., 2008; See model B). The third model is a saturation model of cumulative risk. In a saturated risk model, the effects of cumulative risk factors on outcomes are significant until a threshold in risk factors is reached, and after this threshold is reached, the effects of individual risk factors on outcomes decrease in significance (Rauer et al., 2008; See model C). The three models offer different pathways in which risks and outcomes are related, providing a more in-depth understanding of the relationships between risk factors and outcomes.

Thus, a cumulative risk theory and risk models suggest that outcomes are more detrimental with multiple risk factors than individual risk factors. Therefore, the cumulative risk of IPV, childhood abuse, and street victimization may be especially harmful for homeless youth given the increased likelihood of engaging in risky and unhealthy behaviors, and having fewer resources to cope with trauma than sheltered youth. Moreover, experiencing more than one abuse event may further exacerbate

negative mental and physical problems, and may result in youth feeling less inclined to improve their circumstances. Traumatic experiences can be problematic and inhibiting for homeless youth reintegrating into society as young adults (Gaetz, 2004). Thus, examining cumulative risk models with multiple trauma experiences on risk behaviors, such as substance use and depressive symptoms, might help clinicians better understand the barriers to exiting homelessness among substance using youth.

Current Study

The current study examines the relationship between trauma events (i.e., childhood abuse, IPV, and street victimization), homelessness, depressive symptoms, and substance use among a sample of homeless youth. First, the relationship between each trauma event on substance use and depressive symptoms was examined. Second, the relationships between cumulative (i.e., multiple) trauma events were examined on substance use and depressive symptoms were examined. Third, an exploratory analysis was conducted to examine support for the additive, exacerbated, and saturated risk models for understanding the relationship between multiple trauma events and substance use and depressive symptoms.

Study Objectives and Hypotheses

The current study has three research objectives and four hypotheses:

Research objective 1: Explore the relationship of each trauma event on substance use and depressive symptoms.

H_{1a}: Childhood abuse, IPV, street victimization, and homelessness will be significantly associated with substance use.

H1b: Childhood abuse, IPV, street victimization and homelessness will be significantly associated with depressive symptoms.

Research objective 2: Examine the effect of cumulative trauma events on substance use and depressive symptoms.

H2a: The cumulative effect of childhood abuse, IPV, and street victimization, in addition to the effect of homelessness, will be significantly associated with substance use.

H2b: The cumulative effect of childhood abuse, IPV, and street victimization, in addition to the effects of homelessness, will be significantly associated with depressive symptoms.

Research objective 3: Because the literature does not provide sufficient guidance to suggest a hypothesis that one model will be superior to another model among this population, the third research objective is exploratory. In particular, the additive, exacerbated, and saturated risk models will be tested. Differential support for one model over another will increase our understanding of the relationship between cumulative trauma events on substance use and depressive symptoms.

CHAPTER 2

Method

Participants

Participants ($N = 270$) were part of a larger longitudinal study assessing three substance abuse treatment interventions for homeless youth in Columbus, Ohio. In order to be eligible for the current study, youth were between the ages of 14 to 20 years, met the DSM-IV (American Psychiatric Association, 2000) criteria for alcohol or drug abuse or dependence, and met the McKinney-Vento (2002) definition for homelessness, in which youth lacked a permanent overnight residence, resided in: a) a shelter providing temporary residence, b) an institution providing temporary living accommodations for those intended to be institutionalized, or c) a location not intended for permanent residence by human beings. The majority of the sample was male (52.6%, $n = 142$), with an average age of 18.7 years ($SD = 1.2$). The racial/ethnic composition was primarily African American (65.6%, $n = 177$), followed by White, non-Hispanic (19.6%, $n = 53$), other (12.6%, $n = 34$), and Hispanic (2.2%, $n = 6$). Approximately one-third (29.6%, $n = 80$) of youth reported having children. Few youth (22.6%, $n = 61$) were currently enrolled in school.

Youth's first homeless experience occurred on average at age 15 years ($SD = 3.4$), and youth lacked shelter an average of 6 different times ($SD = 15.2$). The longest period

of homelessness for youth was an average of 118 days. On average, youth reported illicit drug use on 61.5% ($SD = 36.9$) of the prior 90 days, and reported alcohol use on 14.6% days ($SD = 22$). The average BDI score was 14.5 ($SD = 13$), indicating minimal depression. Over half of the sample reported a history of childhood abuse (53.7%, $n = 145$), and slightly less reported a history of IPV (42.2%, $n = 114$), and a history street victimization within the past 12 months (47.8%, $n = 129$).

Procedure

Research assistants (RAs) recruited youth from soup kitchens, libraries, parks, homeless shelters, and through referral by other participants over a 4-year time period. The RAs reviewed the details of the project with the youth and assessed eligibility. Those youth who were interested and eligible continued by signing a research assent/consent form. Youth then continued with the baseline assessment at the local drop-in center. Youth who did not meet the eligibility criteria were provided with referrals for services and invited to utilize the resources at the local drop-in center (i.e., the research site). Eligible youth completed an assessment battery at baseline, 3, 6, and 12 months post-baseline; however, the current study utilizes only baseline data. Youth were compensated with a \$50 gift card for the completion of each assessment. All procedures in the study were approved by the Institutional Review Board at The Ohio State University.

Measures

Demographic Form. Demographic information was recorded for all participants in the current study. The demographic form captured youth's age, gender, ethnicity, family size, income sources, academic history, and legal history. Additionally, the

demographic form captured youth's homeless experiences, mental health treatment, suicide/homicide ideation, and victimization experiences including childhood abuse, IPV, and street victimization.

Childhood abuse. Childhood abuse was assessed from questions on the demographic questionnaire which included two dichotomous (i.e., “yes” or “no”) responses and two follow-up dichotomous (i.e., “yes” or “no”) responses regarding physical and sexual childhood abuse. The questions have been previously validated as successful measures of childhood abuse history (Bonomi et al., 2008). In order to prevent misclassification of childhood abuse with IPV, RAs clarified the relationship of the perpetrator to the youth (e.g., parents, family members, friends of the family), and also instructed the youth to report only those abuse experiences occurring before the age of 18. Researchers measured physical childhood abuse with the question, “Has anyone ever hurt or abused you PHYSICALLY (enough to leave marks or bruises or burns)?” Sexual childhood abuse was determined with the question, “Has anyone ever touched you SEXUALLY in a way that made you feel uncomfortable OR that hurt you OR that was against your will?” Childhood abuse was used as an independent variable in the current study and dummy coded as having values of 0 (absent) or 1 (present).

IPV. IPV was also assessed with questions from the Demographic Form. A series of questions were taken from the Behavioral Risk Factor Surveillance Survey (BRFSS), which is a five question, state-based collection tool with a dichotomous (i.e., “yes” or “no”) response scale. The BRFSS has successfully measured the prevalence of IPV in the United States (CDC, 1994; Saltzman, Johnson, Gilbert, & Goodwin, 2003). Sexual IPV

was determined by the questions, “Has an intimate partner ever forced you to participate in a sex act (oral, vaginal or anal penetration) against your will?” and “Has an intimate partner ever threatened, coerced or physically forced you into any sexual contact that did not include penetration or intercourse?” Physical IPV was determined by the questions, “Has an intimate partner ever hit, slapped, shoved, choked, kicked, shaken or otherwise physically hurt you?” Emotional IPV was determined by the questions, “Has an intimate partner ever put you down, or called you names repeatedly, or controlled your behavior?” and “Have you ever been frightened for your safety or that of your family or friends because of anger or threats of an intimate partner?” IPV was used as an independent variable in the current study and was dummy coded as having values of 0 (absent) or 1 (present).

Street victimization. The demographic questionnaire included 5 questions on street victimization experiences that occurred within the past 12 months of the assessment. Sexual victimization experiences were determined by questions such as “Have you been raped?” and “Have you been sexually assaulted, other than rape?” Physical victimization experiences were determined by asking youth whether they had been “Assaulted or physically attacked.” Youth indicated whether they had experienced being robbed (i.e., “... was something of your taken from you by someone who threatened you with violence if you didn’t give it to them?” or burglarized (i.e., “... has someone broken into a room or apartment of yours and taken some of your property?”). Response items were dichotomous (i.e., “yes” or “no”). Street victimization was used as

an independent variable in the current study and was dummy coded as having values of 0 (absent) or 1 (present).

Substance use. The Form 90-D is a semi-structured interview that assessed adolescent substance use by using a day-by-day calendar approach and weekly grid procedure (Miller, 1996). Youth were asked to recall the frequency and amount of substances (e.g., alcohol, drug, and tobacco) used in the past 90 days, but the current study utilized data on alcohol and drug use only. Participant responses were recorded on a calendar. Interviewers often utilized memory mnemonics that assisted in recalling accurate or approximate substance use frequency. Additionally, the Form 90-D measured the total number of days: incarcerated, in institutions, and in homeless shelters; receiving paid employment, hospital care, medical treatment, and residential treatment; attending religious activities and school; and taking prescribed medications. The measure has been shown to have good-to-excellent test-retest reliability and convergent validity scores for a sample of runaway adolescent substance abusers (Slesnick, & Tonigan, 2004). Frequency of substance use was used as dependent variable in the current study, and values ranged from 0 to 100.

Depressive symptoms. Depressive symptoms were assessed by the Beck Depression Inventory-II (Beck, Steer, Brown, 1996), which is the most widely utilized instrument for measuring severity of depressive symptoms. The BDI is a self-administered questionnaire that consists of 4 subscales (Depression, Anxiety, Hopelessness, and Suicidal Ideation) and 21 items, majority of items are rated on a four point scale from 0 to 3. The BDI-II had high reliability (cronbach alpha = .95) in the

current study and has been successfully utilized with homeless youth (Maxwell, 1992). Total score for depressive symptoms was used as a dependent variable in the current study, and values ranged from 0 to 57.

Overview of Data Analysis

Preliminary analyses included univariate and bivariate analyses to describe the characteristics of the sample and explore the relationships between variables. Frequencies, means, and standard deviations assessed demographic characteristics (e.g., gender, age, and ethnicity) of the participants as well as the distribution of continuous variables (e.g., percent days homeless, substance use, and depressive symptoms). An acceptable range for skewness was ± 1.96 (Field, 2005), and variables that exceeded the range were log transformed. Next, dummy variables were created for childhood abuse, IPV, and street victimization. Chi-square analyses were conducted to determine the relationship between the categorical variables of childhood abuse, IPV, and street victimization. Pearson correlational analyses were run to test the relationship between percent days homeless, substance use, and depressive symptoms.

Two multiple linear regression analyses tested the first research objective. The first research objective included two hypotheses that explored the effects of each trauma event (childhood abuse, IPV, and street victimization) with percent days homeless, substance use, and depressive symptoms. To that aim, each trauma event was assessed as a dichotomous variable as noted earlier in the measures section. For example, if youth had a history of IPV and childhood abuse, but not street victimization, then the youth received a value of 1 for childhood abuse, 1 for IPV, and 0 for street victimization. In this

example, the regression coefficient of childhood abuse indicates the difference between youth with childhood abuse and youth without childhood abuse on depressive symptoms and substance use when other trauma experiences are controlled. The second research objective included two hypotheses. The first and second hypotheses explored the cumulative effect of trauma events and percent days homeless (e.g., control variable) with substance use and depressive symptoms. To test these two hypotheses, each trauma event of childhood abuse, IPV, and street victimization were added to create a “cumulative risk index.” The cumulative risk index ranged in value from 0 (no trauma events) to 8 (8 trauma events). For childhood abuse, youth could have received a total of 2 points (1=sexual, 1 =physical). For IPV, youth could have received a total of 3 points (1=sexual, 1=physical, 1=emotional). For street victimization, youth could have received a total of 3 points (1=sexual, 1=physical, 1= robbery/burglary).The cumulative risk index (e.g., independent variable) and percent of days homeless (e.g., control variable) were used in two multiple linear regression analyses with substance use and depressive symptoms (e.g., dependent variables).

The third research objective tested the additive, exacerbated, and saturated risk models with cumulative trauma events on substance use and depressive symptoms. First, mean, standard deviation, and normality tests were run on the sample distribution. Next, trauma experiences were organized into three groups (e.g., low, moderate, and high) based on the mean and standard deviation of the distribution. The mean of the cumulative risk index was 2.07 trauma events, indicating that youth averaged approximately two trauma events in their lifetime. Those who experienced two and three trauma events were

grouped as having a moderate number of trauma events. Youth who experienced less than two trauma events were grouped as having a low number of trauma events, and youth who experienced more than three trauma events were grouped as having a high number of trauma events. Sample size was small for each trauma event in the cumulative risk index (See Table 2), therefore each trauma event was collapsed and grouped into low number of trauma categories (0 or 1 trauma event), moderate number of trauma categories (2 and 3 trauma events) and high number of trauma categories (4 and more trauma events) to make the sample sizes larger (See Table 3). One-way analysis of variance (ANOVA) was run to compare the three groups of trauma events on substance use and depressive symptoms. The method for determining trauma categories followed the rationale by Rauer et al. (2008).

Support for each of the models was determined as follows. Graded increases in the three trauma categories associated with increased substance use and depressive symptoms indicates support for an additive model of risk (See Model A). If the increase in substance use and depressive symptoms observed between low and moderate trauma categories is lower than that observed from moderate to high cumulative risk categories, then the exacerbated model is supported (See Model B). Support for the saturated model occurs when substance use and depressive symptoms cease to increase as trauma increases past moderate levels (See Model C).

CHAPTER 3

Results

Correlational Analyses

All variables in the sample distribution were within an acceptable range of skewness except for frequency of alcohol use, and this variable was log transformed to be within the acceptable range. Pearson chi-square analyses revealed that childhood abuse, and IPV ($\chi^2(1) = 13.24, p < .001$), childhood abuse and street victimization ($\chi^2(1) = 5.70, p < .05$), and street victimization and IPV ($\chi^2(1) = 15.15, p < .001$) have significant, positive relationships (See Table 4). That is, youth who experienced childhood abuse were more likely to have experienced IPV and street victimization later. Youth who experienced IPV were also more likely to have experienced street victimization. Pearson correlational analyses suggested that depression ($r = .14, p < .05$) was positively associated with percent days without shelter and substance use ($r = .14, p < .05$; See Table 5). Youth who used more substances or had higher depressive symptoms were more likely to have a higher percentage of days homeless.

Effects of Each Trauma Event

H_{1a}: Childhood abuse, IPV, street victimization, and homelessness will be significantly associated with substance use. First, multiple regression analyses assessed the effect of each trauma event on substance use. The presence of any street victimization

within the past 12 months ($\beta = .17, p = .007$) and percent days homeless within the past 90 days ($\beta = .12, p = .04$) were positively associated with a higher frequency of substance use among homeless youth (Table 6). That is, homeless youth who experienced street victimization and higher percentage of days homeless also had higher frequency of substance use. A history of any childhood abuse was negatively associated with frequency of substance use among homeless youth ($\beta = -.14, p = .03$), which suggested that homeless youth who experienced childhood abuse had lower frequency of substance use. No association was found for a history of any IPV and substance use among homeless youth ($p > .05$). The total variance explained by the model was 7%, [$F(4, 262) = 4.81, p < .01$].

H_{1b}: Childhood abuse, IPV, street victimization, and homelessness will be significantly associated with depressive symptoms. Second, multiple regression analyses assessed the effect of each trauma event on depressive symptoms. A history of any childhood abuse ($\beta = .20, p = .001$), IPV ($\beta = .16, p = .013$), and percent days homeless within the past 90 days ($\beta = .16, p = .007$) were positively associated with depressive symptoms (Table 7). That is, homeless youth who experienced childhood abuse, IPV, and higher percentage of days homeless also had higher depressive symptoms. No association was found for the presence of any street victimization within the past 12 months and depressive symptoms among homeless youth ($p > .05$). The total variance explained by the model was 10%, [$F(4, 254) = 7.10, p < .001$].

Cumulative Effect of Trauma Events

H_{2a}: The cumulative effect of childhood abuse, IPV, and street victimization in addition to the effect of homelessness will be significantly associated with substance use. Third, multiple regression analyses assessed the cumulative effects of trauma events in addition to homelessness on substance use. Cumulative risk ($\beta = .13$, $p = .046$) and percent days homeless within the past 90 days ($\beta = .15$, $p = .018$) were positively associated with substance use (Table 8). That is, homeless youth with multiple trauma events had high frequency of substance use, and homeless youth with high percentage of days homeless also had high frequency of substance use. The total variance explained by the model was 4%, $F(2, 246) = 4.82$, $p = .009$.

H_{2b}: The cumulative effect of childhood abuse, IPV, and street victimization, in addition to the effects of homelessness, will be significantly associated with depressive symptoms.

Fourth, multiple regression analyses assessed the cumulative effects of trauma events in addition to homelessness on depressive symptoms. Cumulative risk ($\beta = .33$, $p = .000$) and percent days homeless within the past 90 days ($\beta = .15$, $p = .014$) were positively associated with depressive symptoms (Table 9). That is, homeless youth who experienced multiple trauma events also had high depressive symptoms, and homeless youth with high percentage of days homeless had high depressive symptoms. The total variance explained by the model was 13%, $F(2, 239) = 17.59$, $p < .001$.

Exploratory Model Testing

The additive, exacerbated, and saturated risk models were tested to understand the relationship between cumulative trauma events on substance use and depressive symptoms.

Fifth, multiple regression analyses tested the three risk models and assessed the cumulative effects of low, moderate, and high number of trauma experiences on substance use and depressive symptoms. One-way independent ANOVAs were run on the cumulative risk index to compare the means of depressive symptoms and substance use among the three groups of low, moderate, and high number of trauma experiences (Table 10).

Depressive symptoms. The analysis showed significant differences in low, moderate, and high levels of trauma experiences on depressive symptoms [$F(2, 239) = 16.27, p < 0.01$], and a follow-up post hoc test (Tukey) showed significant group differences between low and moderate numbers of trauma experiences ($M = -7.79, SD = 1.81, p < 0.01$) and low and high number of trauma experiences ($M = -10.17, SD = 1.98, p < 0.01$, See Figure 2). That is, youth with the low number of trauma experiences reported significantly lower depressive symptoms than youth with a moderate and high number of trauma experiences. Although the high number of trauma experiences was associated with more depressive symptoms than the moderate number of trauma experiences, the differences were not statistically significant ($M = -2.38, SD = 2.08, p > .05$).

Substance use. Additionally, analyses did not show significant differences in low, moderate, and high number of trauma experiences on substance use. Exploratory analyses

further examined the relationship between the three trauma experiences and substance use by separating substance use into illicit drug use and alcohol use. Results of one-way independent ANOVAs showed no significant differences between the three trauma categories on illicit drug use ($p > 0.05$), but significant differences were found for alcohol use [$F(2, 246) = 4.57, p < 0.05$, See Figure 3]. Findings from a follow-up post hoc test (Tukey) showed significant differences between a low and high number of trauma experiences on alcohol use only ($M = -.26, SD = .09, p < 0.05$). That is, youth with the low number of trauma experiences reported a significantly lower frequency of alcohol use than youth with the high number of trauma experiences. Further, differences approached significance ($p < .10$) between low and moderate levels of trauma experiences, but no differences were observed between moderate and high levels of trauma experiences ($M = -.07, SD = .10, p > 0.05$).

In summary, findings showed support for a saturated risk model. While a significant difference in depressive symptoms was found between those reporting a low number and moderate number of trauma experiences, the difference in depressive symptoms for those with a moderate versus high number of trauma experiences was not significant. Similarly, for alcohol use, the difference between depressive symptoms among those with a low versus moderate number of trauma experiences approached significance, but the difference in depressive symptoms between those with a moderate and high number of trauma experiences was not significant. In other words, severity of depressive symptoms and alcohol use appear to “level off” at a moderate level of trauma events.

CHAPTER 4

Discussion

The aim of the current study was to examine the relationship between prior experiences of trauma (e.g., childhood abuse, IPV, and street victimization) and severity of substance use and depressive symptoms among homeless youth. Of interest was whether each experience of trauma versus multiple experiences of trauma influence substance use and depressive symptoms differently. Homelessness was examined as a control variable in this study and was estimated as the percent days homeless within the past 90 days. Findings showed that different types of trauma behaviors resulted in different patterns of risk behavior, and the experience of multiple trauma events was consistently associated with greater risk behaviors. Models for understanding risk also appeared to be supported differently depending upon the targeted outcome. Results show partial evidence for the additive and saturated risk models on alcohol use and depressive symptoms. Below, each research objective is reviewed.

H_{1a}: Childhood abuse, IPV, street victimization, and homelessness will be significantly associated with substance use.

Childhood abuse. Findings suggest that homeless youth who experienced childhood abuse were more likely to have lower frequencies of substance use than

homeless youth who did not experience childhood abuse. This finding does not support other findings indicating that childhood abuse is associated with higher levels of substance use compared to those without a history of childhood abuse (Brems & Namyniuk, 2002). For example, Brems and Namyniuk (2002) found that among their sample of 192 pregnant substance abusers, 138 women (71.9%) reported a history of childhood abuse, and they had a higher frequency of drug use and more severe alcohol use compared to a matched sample with no history of childhood abuse. The differences in findings from this sample and that found in other studies may be due to differences in the population under study. For example, this sample had substance use as an eligibility requirement, therefore, all youth had a relatively high frequency of substance use, especially compared to samples of non-homeless youth (Johnston et al., 2009). Homeless youth with a history of childhood abuse may show less severe patterns of substance use overall compared to other homeless youth (but not when compared to non-homeless youth), because homeless youth, in general, have very high levels of substance use.

IPV. Also, contrary to expectation, IPV was not associated with substance use. Possibly, power at .69 (G Power 3.1.5) was not sufficient to detect statistical differences for the regression model, and a larger sample size is needed. Indeed, several studies suggest a link between substance use and IPV (Caetano et al., 2005; Chase et al., 2003; McFarlane et al., 2005; Raiford et al., 2007). IPV may not be related to substance use among this sample given the multiple other stressors experienced by this population. This is one of the first studies to examine IPV separately from other types of victimization, and clearly more research is needed to replicate and extend this finding.

Street victimization. As predicted, street victimization was significantly related to substance use. That is, homeless youth who experienced street victimization had a higher frequency of substance use than peers who did not experience street victimization. Similarly, Tyler, Whitbeck, Hoyt, and Cauce (2004) found that substance use was associated with an increased risk of street victimization among a sample of 372 homeless and runaway youth. Tyler and colleagues (2004) offer an explanation in that homeless youth may be easy targets for street victimization while intoxicated or high, and substance use may hinder youth's ability to protect themselves. Homeless youth may use drugs as an escape from experiencing painful feelings of hopelessness and being trapped (Kidd, 2004). However, temporal ordering of events cannot be determined by this study as a cross-sectional design was used. Therefore, drug and alcohol use might result from street victimization experiences, but substance use might also increase the likelihood of street victimization.

Length of homelessness. As expected, length of homelessness was positively associated with higher frequency of substance use. Indeed, youth who were homeless for longer time spans had more severe substance use than youth who were homeless for shorter time spans. This finding compares to other findings that substance use frequency and dependence increase with the length of time homeless (Fountain, Howes, Marsden, Taylor, & Strang, 2003). Possibly, youth are more likely to experience street victimization the longer they live on the streets. As noted earlier, street victimization is associated with increased substance use. Perhaps youth with longer periods of homelessness use a higher frequency of substance use in order to cope with life on the streets.

H_{1b}: Childhood abuse, IPV, street victimization and homelessness will be significantly associated with depressive symptoms.

Childhood abuse. As predicted, and consistent with other studies (Brown et al., 1999), youth who experienced childhood abuse have higher depressive symptoms than youth who did not experience childhood abuse. Indeed, Brown and colleagues (1999) suggested that sheltered youth and young adults with a history of childhood abuse were three to four times more likely to have depressive symptoms than peers with no history of childhood abuse. Possibly, childhood abuse negatively affects how youth interpret events in their lives, thereby increasing the likelihood of depression (for review, See Gibb, 2002). Gibb suggested that childhood maltreatment may influence people's cognitive processes in that they develop a sense of learned helplessness and hopelessness that can impact the onset of depression. Indeed, youth who were abused as children could have developed depressive symptoms that became worse with street experiences, thereby exacerbating their feelings of helplessness and hopelessness.

IPV. As expected, IPV was positively associated with depressive symptoms. Findings suggest that homeless youth who experienced IPV had more severe depressive symptoms than peers who had not experienced IPV. This finding was consistent with Bonomi et al. (2006), who found an increased risk for both minor and severe depressive symptoms among women with a history of IPV compared to women with no history of IPV. One interpretation of the relationship between IPV and depressive symptoms relates to self-worth. Depression among battered women is associated with being criticized, ridiculed, and ignored by perpetrating partners and leads to feelings of low self-worth (Sackett & Saunders, 1999). Youth with high depressive symptoms may have low self-

worth because of their interactions with intimate partners, which can be further perpetuated by stressful experiences while living on the streets. Alternatively, youth may blame themselves for experiencing IPV because of their feelings for the perpetrating partner, which may also be associated with low self-worth and higher depressive symptoms.

Street victimization. Findings did not suggest a relationship between street victimization and depressive symptoms, which is surprising given the observed association in other studies. For example, Whitbeck et al. (2000) found that street victimization was a powerful predictor of depressive symptoms among a sample of 603 homeless and runaway youth. Perhaps the differences between this study's findings and findings with other studies are due to measurement constructs. The current study separates street victimization (e.g., victimization by a non-romantic partner) and IPV (e.g., victimization by a romantic partner) into two different experiences of trauma. Prior studies do not clearly differentiate between IPV and street victimization among homeless youth, possibly combining these two trauma experiences into a broader category of victimization experiences. This study's findings might mirror the literature if street victimization and IPV were combined into one trauma experience.

Length of homelessness. Additionally, findings from the current study suggest that youth who were homeless for longer periods of time had more severe depressive symptoms. Similarly, La Gory, Ritchey, and Mullis (1990) found that chronic homelessness was directly related to increased severity of depressive symptoms among a sample of 150 homeless adults. Using the same interpretation as discussed earlier, homeless youth may have high depressive symptoms due to their experiences of trauma

and stress while living on the streets. Homeless youth live in stressful environments that increase their vulnerability to trauma experiences, and youth may develop depressive symptoms as a response to their trauma experiences. While research is needed to confirm this hypothesis, youth might experience more trauma and higher depressive symptoms as a consequence of living in a stressful, high risk environment. Further, these experiences likely increase over time.

H_{2a}: The cumulative effect of childhood abuse, IPV, and street victimization in addition to the effect of homelessness will be significantly associated with substance use.

As predicted, and consistent with prior research (Wu, Schairer, Dellor, & Grella, 2009), the current study found an association between multiple trauma events and frequency of substance use in that homeless youth with multiple trauma experiences reported higher frequencies of substance use than those without multiple trauma events. Similarly, Wu et al. (2009) found that a clinical sample of adults had higher rates of childhood traumatic events than a primary health care sample, and more exposure to traumatic events was related to an increased risk of substance abuse. The use of alcohol and illicit drugs has been reported to dull emotional pain from past trauma experiences and to prevent traumatic stress reactions such as flashbacks (Stewart, 1996). However, alcohol and drug use also increases the vulnerability and likelihood of youth experiencing trauma (Nyamathi et al., 2007; Tyler et al., 2004). In other words, homeless youth who use substances before and after experiencing multiple trauma events might be caught in a vicious cycle in that youth are trying to prevent and stop their trauma symptoms but are

also increasing the likelihood of experiencing more trauma. Thus, substance use may be a key intervention target for service providers.

H_{2b}: The cumulative effect of childhood abuse, IPV, and street victimization, in addition to the effects of homelessness, will be significantly associated with depressive symptoms.

This study found that homeless youth who experienced multiple trauma events also had more severe depressive symptoms. Findings are consistent with other studies showing that multiple adverse childhood events are associated with depressive disorders (Chapman et al., 2004). Possibly, youth's feelings of helplessness and hopelessness continue to increase with additional trauma events. Homeless youth feel more helpless and hopeless after they experience multiple trauma events, and these feelings contribute to overall depressive symptoms.

Exploratory Model Testing

The additive, exacerbated, and saturated risk models were tested to understand the relationship between cumulative trauma events on substance use and depressive symptoms.

Of note is that none of the models was useful for understanding the relationship between trauma experiences and substance use. Upon further exploration, when illicit drug use was separated from alcohol use, none of the models was significant in understanding illicit drug use. However, the models were more useful for understanding the relationship between trauma and alcohol use. In fact, some literature notes differences in triggers and consequences associated with alcohol versus drug use (McGue, Slutske, &

Iacono, 1999), and the findings of this exploratory analysis support examining alcohol and drug use separately when testing models of risk in this population of youth.

Saturated risk model and alcohol use. To indicate support for the saturated risk model, there would be a significant difference in alcohol use between youth who experienced a low and a moderate number of trauma events, but no significant difference in alcohol use between youth who experienced a moderate and high number of trauma events. Findings showed some support for a saturated risk model for alcohol use. That is, even though youth with a low number of trauma experiences reported significantly less severe alcohol use than youth with a high number of trauma experiences, the difference in alcohol use between those who reported low versus moderate trauma only approached significance. In support of the saturation model, no differences in alcohol use were observed among those with moderate and high levels of trauma experiences. This finding suggests that youth's alcohol use levels off as trauma increases. Inasmuch as alcohol is used by youth to cope with trauma, possibly, high frequencies of alcohol use might cease to ameliorate the negative effects of trauma, thus resulting in the lack of observed increase in use between moderate and high levels of trauma experiences. In fact, a significant body of research indicates that high rates of alcohol use are associated with negative physical and emotional side effects (Nolen-Hoeksema, 2004). It is also possible that youth begin to employ alternative, and more adaptive, coping strategies once a certain level of trauma is endured, given their increased experience associated with coping with trauma. Relatedly, youth may become inured to the effects of high levels of trauma.

Saturated model testing and depressive symptoms. Support for the utility of the saturation model for understanding depressive symptoms among homeless youth was provided. Specifically, depressive symptoms increased among those experiencing low versus moderate levels of trauma, but no change was observed in depressive symptoms among those experiencing moderate versus high levels of trauma. Again, this suggests that depressive symptoms ‘level off’ as trauma symptoms increase to high levels. These findings are similar to those of Sameroff (1998), who found that mental health problems increased with the number of environmental risk factors until children reached five risk factors. Five risk factors was a threshold in that additional risk factors had less of an effect on children’s mental health. There are several possible explanations for this finding. Unlike the use of alcohol, depressive symptoms are not usually considered coping strategies. Therefore, in this case, depressive symptoms might have reached a ceiling with learned helplessness at its peak. That is, following the experience of a moderate level of trauma, additional trauma ceases to impact depressive symptoms because youth are already highly depressed. However, the data do not support that hypothesis since the BDI scores for those experiencing moderate ($M = 16.98$) and high ($M = 19.36$) rates of trauma were in mild range. Therefore, it is more likely that youth developed coping strategies from their earlier experiences of trauma, resulting in the lack of increased depressive symptoms at higher levels of trauma. This observed pattern could indicate that youth are becoming resilient to trauma. Clearly, however, more research is needed to understand why depressive symptoms level off at moderate levels of trauma.

Additive model testing, alcohol use, and depressive symptoms. In the current study, an additive risk model would indicate that multiple trauma experiences had a linear

relationship with alcohol use and depressive symptoms. In other words, there would be significant differences in alcohol use and depressive symptoms between youth with a low and a moderate number of trauma experiences, and youth with a moderate and a high number of trauma experiences. Findings showed no significant differences between youth who experienced a moderate and a high number of trauma events, thus, an additive model was not supported. As noted by Rutter (1979), this finding suggests the relationship between trauma experiences and substance use and depressive symptoms is more complicated than an additive model would suggest. Instead of a one-to-one correspondence between trauma and risk, the findings suggest that higher levels of trauma cease to have a linear relationship with risk. Other factors, such as coping, resiliency, and social capital, might interact with an individual's experience of trauma resulting in the pattern of depressive symptoms and substance use observed in this study.

Exacerbated model testing, alcohol use, and depressive symptoms. In an exacerbation risk model, multiple risk factors combine to have an exponential effect on outcomes and are more detrimental than the summation of individual risk factors. To indicate an exacerbated risk model, there would be no significant differences between youth with a low and a moderate number of trauma events on substance use or depressive symptoms. However, youth with a moderate number of trauma events would have significantly less severe depressive symptoms and alcohol use than youth with a high number of trauma events. Similar to the additive risk model, findings did not support an exacerbated risk model because there were no significant differences on substance use or depressive symptoms between youth who experienced a moderate and a high number of trauma events. In this study, it appears that the highest levels of trauma are not associated

with the highest levels of substance use and depressive behaviors, as would be expected from an exacerbated model. Although support for an exacerbated model has been found among non-homeless youth (Rutter, 1979), homeless youth show a different relationship (which supports the saturated model) between trauma and problem behaviors. It is clear that one model of risk cannot be applied across populations, and that risk factors (or trauma events) interact differently on outcomes depending upon the population under study. Homeless youth are a unique population with different resources, living context, levels of trauma and risk behaviors compared to other populations of youth. This research suggests that a one-size-fits-all approach to understanding this vulnerable group is inadequate. More research is needed to identify models that help understand and predict behaviors in this population so that treatments can be improved and health disparities reduced.

To summarize, the current study found that the type and number of trauma experiences were associated with different severities of substance use and depressive symptoms among homeless youth. Substance use and depressive symptoms did not increase with the number of trauma events as suggested by the additive risk model, and risk behaviors did not increase exponentially with the number of trauma events as suggested by the exacerbation risk model. Instead, support was shown for a saturated risk model, suggesting that substance use and depressive symptoms ‘level off’ after the experience of moderate levels of trauma.

Implications

This study has several implications for clinicians and service providers. Clinicians who treat homeless youth with alcohol use and depressive symptoms should also address

presenting trauma symptoms and vice versa. Individualized assessment is necessary as youth with different levels and types of trauma experience will likely present with different patterns of substance use and depressive symptoms. The findings imply that clinicians who successfully treat trauma symptoms immediately following a traumatic event might prevent the onset of alcohol use or depressive symptoms. And, as more trauma experiences are associated with higher depressive symptoms and greater alcohol use, each with significant negative health consequences (Bennett et al., 2005; Office of Juvenile Justice and Delinquency Prevention, 2012), identifying and implementing evidence-based interventions that prevent future trauma is especially imperative for this population. Because alcohol and drug use and depressive symptoms are likely to occur with commonly reported trauma experiences among homeless youth, any intervention program will need to integrate a focus on multiple areas of risk. That is, a focus on trauma but not substance may be less effective than one that addresses both problems.

Perhaps youth with a moderate or high number of trauma events are in the beginning stages of developing resiliency to trauma symptoms as evidenced by a lack of increased substance use or depressive symptoms. Other studies suggest that homeless youth develop resilient characteristics to endure trauma experiences and negate the hardships of street living (Kidd & Davidson, 2007). Clinicians can work with homeless youth to improve resiliency and develop healthy coping skills in order to buffer against the symptoms of trauma. Moreover, Williams, Lindsey, Kurtz, and Jarvis (2001) suggest that resiliency among homeless youth is linked to self-efficacy and self-esteem, and these factors are related to opportunities for self-growth. Therefore, homeless youth who

develop resiliency to trauma symptoms might develop higher self-esteem and self-efficacy, which may be associated with reduced alcohol use and depressive symptoms.

Limitations and Strengths

Limitations of the current study should be noted when interpreting the findings. First, the current study is cross sectional and causality between trauma experiences (e.g., childhood abuse, IPV, and street victimization) and substance use and depressive symptoms cannot be determined. Longitudinal data are necessary to provide more conclusive support for the utility of different risk models for understanding the relationship between trauma events, substance use, and depressive symptoms.

Second, the severity of trauma events, the number of perpetrators, and the relationship between perpetrators and victims (e.g., family friend, relative, stranger, etc.) were not assessed. This information could influence and further explain the relationship of trauma events on risk behaviors. Tyler (2002) noted that although the literature is mixed, some studies on childhood abuse suggested that the severity of abuse, number of perpetrators, and relationship between the perpetrators and children were related to mental health problems among youth. For example, some studies suggested a relationship between depression, low self-worth, and sexual childhood abuse by a parental figure, while other studies found no relationship between self-worth, depression, and sexual childhood abuse by a parental figure (Tyler, 2002).

A final limitation of the current study is the limited generalizability of the findings. This study's sample was based on convenience, and youth were recruited from a single city. The findings may not be generalizable to homeless youth in other geographical locations. Moreover, homeless youth in the current study met criteria for

substance abuse or dependence, and findings might not be replicated among homeless youth who do not use substances. Youth who use substances may be more vulnerable to different types of victimization while living on the streets than non-substance using youth. For instance, homeless youth who use substances might be more likely to experience street victimization because they have a higher likelihood of interacting with perpetrators through buying and seeking substances than homeless youth who do not use substances.

Despite these limitations, several strengths of the current study should be noted. This study contributes to the literature on the effects of different trauma experiences among substance using, homeless youth, and is one of the first studies to examine IPV and street victimization, separately, on risk behaviors among this population. Additionally, exploratory analyses on the additive, saturated, and exacerbated risk models revealed support for a saturated risk model for understanding the relationship between multiple trauma events on substance use, and depressive symptoms among homeless youth.

Future Directions

This study addressed several gaps in the literature on homeless, substance using youth with different forms of trauma and multiple trauma experiences, but more research is needed to better understand the needs and challenges of this population. Future research should assess the effect of each trauma experience and multiple trauma experiences on other risk behaviors, such as risky sexual behaviors. To mirror prior literature (Gwadz et al., 2007), other types of trauma such as physical or emotional neglect should be assessed to determine their impact on substance use and depressive

symptoms. Knowing how specific trauma events are related to negative outcomes may help clinicians offer more tailored interventions to homeless youth. For example, clinicians who know that a youth is experiencing IPV and that IPV is associated with increased depressive symptoms might target intervention towards preventing depressive symptoms.

And finally, longitudinal research is needed in order to document how substance use and depressive symptoms develop over time in conjunction with trauma events.

Conclusions

The current study provides a unique contribution to the literature on the relationship between trauma events and risk behaviors among an understudied, high risk population. Several conclusions from this study are offered. First, the type of trauma event affects risk behaviors differently. Of perhaps greatest surprise was that the experience of IPV was not associated with increased substance use in this sample, and the experience of street victimization was not associated with increased depressive symptoms. These findings might be attributed to the unique sample of substance abusing homeless youth, as well as methodological differences. Prior studies (Whitbeck et al., 2000), did not differentiate between IPV and street victimization, therefore potentially overlooking differences associated with each type of trauma. The findings here highlight the importance of examining IPV and street victimization separately in future studies given the divergent effects on depressive symptoms.

Second, multiple trauma events (cumulative trauma) were associated with increased substance use and depressive symptoms, supporting the findings of a significant number of prior studies (Chapman et al., 2004; Dube et al., 2006; Follette,

Polusny, Bechtle, Naugle, 1996; Lloyd & Turner, 2008; Wu et al., 2009). In order to further explore the relationship between multiple trauma experiences and risk behavior, three risk models were tested, leading to the final conclusion. Specifically, data support the saturation model of risk in which alcohol use and depressive symptoms level off with the experience of moderate amounts of trauma. Future research will need to examine whether youth have learned how to cope with trauma, resulting in no additional problem behaviors as trauma increases. This interpretation suggests that lower levels of trauma allow coping skills to develop, possibly facilitating the development of resilience. Alternatively, problem behaviors may not have increased simply because they reached a ceiling at the moderate level of trauma. This study provides a step toward clarifying our understanding of the relationship between trauma and risk among this understudied and underserved population of youth but much more research, especially using a longitudinal design, is needed.

BIBLIOGRAPHY

- Ackard, D. M., & Neumark-Sztainer, D. (2002). Date violence and date rape among adolescents: Associations with disordered eating behaviors and psychological health. *Child Abuse & Neglect, 26*(5), 455-473.
- American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders*, 4th edn, (Text Revision). Arlington, VA: American Psychiatric Association.
- Angold, A., Costello, E. J., & Erkanli, A. (1999). Comorbidity. *Journal of Child Psychology and Psychiatry, 40*(1), 57-87.
- Baron, S. W. (2003). Street youth violence and victimization. *Trauma, Violence & Abuse, 4*(1), 22-44.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *BDI-II, Beck Depression Inventory: Manual* (2nd ed.). Boston, MA: Harcourt Brace.
- Bennett, D. S., Ambrosini, P. J., Kudes, D., Metz, C., & Rabinovich, H. (2005). Gender differences in adolescent depression: Do symptoms differ for boys and girls?. *Journal of Affective Disorders, 89*, 35-44.
- Bensley, L., Van Eenwyk, J., & Wynkoop Simmons, K. (2003). Childhood family violence history and women's risk for intimate partner violence and poor health. *American Journal of Preventive Medicine, 25*(1), 38-44.
- Bergen, H. A., Martin, G., Richardson, A. S., Allison, S., & Roeger, L. (2004). Sexual abuse, antisocial behavior and substance use: Gender differences in community adolescents. *Australian & New Zealand Journal of Psychiatry, 38*(1), 34-41.
- Bonomi, A. E., Cannon, E. A., Anderson, M. L., Rivara, F. P., & Thompson, R. S.

- (2008). Association between self-reported health and physical and/or sexual abuse experienced before age 18. *Child Abuse & Neglect*, 32(7), 693-701.
- Bousman, C. A., Blumberg, E. J., Shillington, A. M., Hovell, M. F., Lehman, S., Ji, M., & Clapp, J. (2005). Predictors of substance use among homeless youth in San Diego. *Addictive Behaviors*, 30(6), 1100-1110.
- Brems, C., & Namyniuk, L. (2002). The relationship of childhood abuse history and substance use in an Alaska sample. *Substance Use & Misuse*, 37(4), 473-494.
- Browne, A., & Bassuk, S. S. (1997). Intimate violence in the lives of homeless and poor housed women: Prevalence and patterns in an ethnically diverse sample. *American Journal of Orthopsychiatry*, 67(2), 261-278.
- Brown, J., Cohen, P., Johnson, J. G., & Smailes, E. M. (1999). Childhood abuse and neglect: Specificity of effects on adolescent and young adult depression and suicidality. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38(12), 1490-1496.
- Brunstein, K. A., Marrocco, F., Kleinman, M., Schonfeld, I. S., & Gould, M. S. (2008). Peer victimization, depression, and suicidality in adolescents. *Suicide and Life-Threatening Behavior*, 38(2), 166-180.
- Buu, A., DiPiazza, C., Wang, J., Puttler, L. I., Fitzgerald, H. E., & Zucker, R. A. (2009). Parent, family, and neighborhood effects on the development of child substance use and other psychopathology from preschool to the start of adulthood. *Journal of Studies on Alcohol and Drugs*, 70(4), 489-498.
- Caetano, R., McGrath, C., Ramisetty-Mikler, S., & Field, C. A. (2005). Drinking, alcohol problems and the five-year recurrence and incidence of male to female and female to male partner violence. *Alcoholism, Clinical and Experimental Research*, 29(1), 98-106.
- Carver, K., Joyner, K., & Udry, J. R. (2003). National estimates of adolescent romantic relationships. In P. Florsheim (Ed.), *Adolescent romantic relations and sexual behavior: Theory, research, and practical implications* (pp. 23–56). University of Utah: Department of Psychology.

- Centers for Disease Control and Prevention. (1994). *Behavioral Risk Factor Surveillance System Survey Questionnaire*. Atlanta, GA: Author.
- Champion, H. L. O., Foley, K. L., Durant, R. H., Hensberry, R., Altman, D., & Wolfson, M. (2004). Adolescent sexual victimization, use of alcohol and other substances, and other health risk behaviors. *Journal of Adolescent Health, 35*(4), 321-328.
- Chapman, D. P., Whitfield, C. L., Felitti, V. J., Dube, S. R., Edwards, V. J., & Anda, R. F. (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. *Journal of Affective Disorders, 82*(2), 217-225.
- Chase, K. A., O'Farrell, T. J., Murphy, C. M., Fals-Stewart, W., & Murphy, M. (2003). Factors associated with partner violence among female alcoholic patients and their male partners. *Journal of Studies on Alcohol, 64*(1), 137-149.
- Decker, M. R., Silverman, J. G., & Raj, A. (2005). Dating violence and sexually transmitted disease/HIV testing and diagnosis among adolescent females. *Pediatrics, 116*, 272–276.
- Diego, M. A., Field, T. M., & Sanders, C. E. (2003). Academic performance, popularity, and depression predict adolescent substance use. *Adolescence, 38*(149), 35-42.
- Dube, S. R., Miller, J. W., Brown, D. W., Giles, W. H., Felitti, V. J., Dong, M., & Anda, R. F. (2006). Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *Journal of Adolescent Health, 38*(4), 444.e1– 444.e10.
- Eaton, D. K., Kann, L., Kinchen, S., Shanklin, S., Ross, J., Hawkins, J., ...Center for Disease Control and Prevention (CDC). (2010). Youth risk behavior surveillance—United States, 2009. *Morbidity and Mortality Weekly Report Surveillance Summaries, 59*(5), 1-142.
- Ensign, J., & Bell, M. (2004). Illness experiences of homeless youth. *Qualitative Health Research, 14*(9), 1239-1254.
- Felson, R. B., & Lane, K. (2009). Social learning, sexual and physical abuse, and adult crime. *Aggressive Behavior, 35*(6), 489-501.

- Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2008). Exposure to childhood sexual and physical abuse and adjustment in early adulthood. *Child Abuse & Neglect*, 32(6), 607-619.
- Field, A. P. (2005). *Discovering statistics using SPSS: (and sex, drugs and rock 'n' roll)*. London: Sage Publications.
- Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment*, 10(1), 5-25.
- Follette, V. M., Polusny, M. A., Bechtle, A. E., & Naugle, A. E. (1996). Cumulative trauma: The impact of child sexual abuse, adult sexual assault, and spouse abuse. *Journal of Traumatic Stress*, 9(1), 25-35.
- Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents. *Journal of Adolescent Health*, 46(6), 545-552.
- Fountain, J., Howes, S., Marsden, J., Taylor, C., & Strang, J. (2003). Drug and alcohol use and the link with homelessness: Results from a survey of homeless people in London. *Addiction Research & Theory*, 11(4), 245-256.
- Gaetz, S. (2004). Safe streets for whom? Homeless youth, social exclusion, and criminal victimization. *Canadian Journal of Criminology & Criminal Justice*, 46(4), 423-455.
- Gaetz, S., Tarasuk, V., Dachner, N., & Kirkpatrick, N. (2006). "Managing" homeless youth in Toronto: Mismanaging food access and nutritional well-being. *Canadian Review of Social Policy*, 58, 43-61.
- Gault-Sherman, M., Silver, E., & Sigfúsdóttir, I. (2009). Gender and the associated impairments of childhood sexual abuse: A national study of Icelandic youth.

Social Science and Medicine, 69(10), 1515-1522.

- Gibb, B. E. (2002). Childhood maltreatment and negative cognitive styles: A quantitative and qualitative review. *Clinical Psychology Review*, 22(2), 223-246.
- Gladstone, G. L., Parker, G. B., Mitchell, P. B., Malhi, G. S., Wilhelm, K., & Austin, M. P. (2004). Implications of childhood trauma for depressed women: An analysis of pathways from childhood sexual abuse to deliberate self-harm and revictimization. *The American Journal of Psychiatry*, 161(8), 1417-25.
- Gwadz, M. V., Nish, D., Leonard, N. R., & Strauss, S. M. (2007). Gender differences in traumatic events and rates of post-traumatic stress disorder among homeless youth. *Journal of Adolescence*, 30(1), 117-129.
- Halcón, L. L., & Lifson, A. R. (2004). Prevalence and predictors of sexual risks among homeless youth. *Journal of Youth & Adolescence*, 33(1), 71-80.
- Haley, N., Roy, E., Leclerc, P., Boudreau, J., & Boivin, J. (2004). HIV risk profile of male street youth involved in survival sex. *Sexually Transmitted Infections*, 80(6), 526-530.
- Hallfors, D. D., Waller, M. W., Bauer, D., Ford, C. A., & Halpern, C. T. (2005). Which comes first in adolescence—sex and drugs or depression?. *American Journal of Preventive Medicine*, 29(3), 163-170.
- Hawker, D. S., & Boulton, M. J. (2000). Twenty years' research on peer victimization and psychosocial adjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology & Psychiatry*, 41, 441–455.
- Hemphill, S. A., Heerde, J. A., Herrenkohl, T. I., Patton, G. C., Toumbourou, J. W., & Catalano, R. F. (2011). Risk and protective factors for adolescent substance use in Washington State, the United States and Victoria, Australia: A longitudinal study. *Journal of Adolescent Health*, 49(3), 312-320.
- Howard, D. E., Feigelman, S., Li, X., Cross, S., & Rachuba, L. (2002). The relationship among violence victimization, witnessing violence, and youth distress. *Journal of Adolescent Health*, 31(6), 455-462.

- Howard, D. E., & Wang, M. Q. (2003). Psychosocial factors associated with adolescent boys' reports of dating violence. *Adolescence*, 38(151), 519-533.
- Jacoby, M., Gorenflo, D., Black, E., Wunderlich, C., & Eyler, A. E. (1999). Rapid repeat pregnancy and experiences of interpersonal violence among low-income adolescents. *American Journal of Preventive Medicine*, 16, 318-321.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2008* (NIH Publication No. 09-7401). Bethesda, MD: National Institute on Drug Abuse.
- Keeshin, B. R., & Campbell, K. (2011). Screening homeless youth for histories of abuse: Prevalence, enduring effects, and interest in treatment. *Child Abuse & Neglect*, 35(6), 401-407.
- Kidd, S. A. (2004). "The walls were closing in, and we were trapped": A qualitative analysis of street youth suicide. *Youth & Society*, 36(1), 30-55.
- Kidd, S. A., & Davidson, L. (2007). "You have to adapt because you have no other choice": The stories of strength and resilience of 208 homeless youth in New York City and Toronto. *Journal of Community Psychology*, 35(2), 219-238.
- Kilpatrick, D. G., Smith, D. W., Saunders, B. E., & National Institute of Justice (U.S.). (2003). *Youth victimization: Prevalence and implications*. Washington, DC: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice.
- Kingston, S., & Raghavan, C. (2009). The relationship of sexual abuse, early initiation of substance use, and adolescent trauma to PTSD. *Journal of Traumatic Stress*, 22(1), 65-68.
- Kipke, M. D., Montgomery, S., & MacKenzie, R. G. (1993). Substance use among youth seen at a community-based health clinic. *Journal of Adolescent Health*, 14, 289-294.
- La Gory, M., Ritchey, F. J., & Mullis, J. (1990). Depression among the homeless.

Journal of Health and Social Behavior, 31(1), 87-102.

- Lansford, J. E., Dodge, K. A., Pettit, G. S., & Bates, J. E. (2010). Does physical abuse in early childhood predict substance use in adolescence and early adulthood? *Child Maltreatment*, 15(2), 190-194.
- Lloyd, D. A., & Turner, R. J. (2008). Cumulative lifetime adversities and alcohol dependence in adolescence and young adulthood. *Drug & Alcohol Dependence*, 93(3), 217-226.
- MacLean, M. G., Paradise, M. J., & Cauce, A. M. (1999). Substance use and psychological adjustment in homeless adolescents: A test of three models. *American Journal of Community Psychology*, 27(3), 405-427.
- Martin, G., Bergen, H. A., Richardson, A. S., Roeger, L., & Allison, S. (2004). Sexual abuse and suicidality: Gender differences in a large community sample of adolescents. *Child Abuse & Neglect*, 28(5), 491-503.
- Maxwell, B. E. (1992). Hostility, depression, and self-esteem among troubled homeless adolescents in crisis. *Journal of Youth and Adolescence*, 21(2), 139-150.
- McFarlane, J., Malecha, A., Gist, J., Watson, K., Batten, E., Hall, I., & Smith, S. (2005). Intimate partner sexual assault against women and associated victim substance use, suicidality, and risk factors for femicide. *Issues in Mental Health Nursing*, 26(9), 953-967.
- McGue, M., Slutske, W., & Iacono, W. G. (1999). Personality and substance use disorders: II. Alcoholism versus drug use disorders. *Journal of Consulting and Clinical Psychology*, 67, 394-404.
- McKinney-Vento Homeless Assistance Act, Re-Authorized (2002). 42 U.S.C.11431 et seq 725.
- Miller, E., Decker, M. R., Raj, A., Reed, E., Marable, D., & Silverman, J. G. (2010). Intimate partner violence and health care-seeking patterns among female users of urban adolescent clinics. *Maternal & Child Health Journal*, 14(6), 910-917.

- Miller, W. R. (1996). Form 90 a structured assessment interview for drinking and related problem behaviors. *Project MATCH Monograph Series, 5*, U.S. Dept. of Health: Bethesda, MD.
- Moran, P. B., Vuchinich, S., & Hall, N. K. (2004). Associations between types of maltreatment and substance use during adolescence. *Child Abuse & Neglect, 28*(5), 565-574.
- Nolen-Hoeksema, S. (2004). Gender differences in risk factors and consequences for alcohol use and problems. *Clinical Psychology Review, 24*(8), 981-1010.
- Noll, J. G., Horowitz, L. A., Bonanno, G. A., Trickett, P. K., & Putnam, F.W. (2003). Revictimization and self-harm in females who experienced childhood sexual abuse: Results from a prospective study. *Journal of Interpersonal Violence, 18*(12), 1452-1471.
- Nyamathi, A., Hudson, A., Greengold, B., Slagle, A., Marfisee, M., Khalilifard, F., ... Leake, P. D. B. (2010). Correlates of substance use severity among youth. *Journal of Child and Adolescent Psychiatric Nursing, 23*(4), 214-222.
- Nyamathi, A., Hudson, A., Mutere, M., Christiani, A., Sweat, J., Nyamathi, K., Broms, T. (2007). Drug use and barriers to and facilitators of drug treatment for homeless youth. *Patient Preference and Adherence, 1*, 1-8.
- Office of Juvenile Justice and Delinquency Prevention, Crowe, A. H., Mullins, T.G., Cobb, K. A., & Lowe, N. C. (2012). Effects and consequences of underage drinking. *Juvenile Justice Bulletin*. Retrieved from <http://www.ojjdp.gov/pubs/237145.pdf>
- Poulin, C., Hand, D., Boudreau, B., & Santor, D. (2005). Gender differences in the association between substance use and elevated depressive symptoms in a general adolescent population. *Addiction, 100*(4), 525-535.
- Raiford, J. L., Wingood, G. M., & DiClemente, R. J. (2007). Prevalence, incidence, and predictors of dating violence: A longitudinal study of African American female adolescents. *Journal of Women's Health, 16*(6), 822-832.

- Rauer, A. J., Karney, B. R., Garvan, C. W., & Hou, W. (2008). Relationship risks in context: A cumulative risk approach to understanding relationship satisfaction. *Journal of Marriage and Family, 70*(5), 1122-1135.
- Rhode, P., Noell, J., Ochs, L., & Seeley, J. (2001). Depression, suicidal ideation and STD-related risk in homeless older adolescents. *Journal of Adolescence, 24*(4), 447-460.
- Rhule-Louie, D., Bowen, S., Baer, J., & Peterson, P. (2008). Substance use and health and safety among homeless youth. *Journal of Child & Family Studies, 17*(3), 306-319.
- Roberts, T. A., Klein, J. D., & Fisher, S. (2003). Longitudinal effect of intimate partner abuse on high-risk behavior among adolescents. *Archives of Pediatrics & Adolescent Medicine, 157*(9), 875-881.
- Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M.W. Kent & J.E. Rolf (Eds.), *Primary prevention of psychopathology: Social competence in children* (Vol.3, pp.49-74). Hanover, NH: University Press of New England.
- Sackett, L. A., & Saunders, D. G. (1999). The impact of different forms of psychological abuse on battered women. *Violence and Victims, 14*(1), 105-117.
- Salomon, A., Bassuk, S. S., & Huntington, N. (2002). The relationship between intimate partner violence and the use of addictive substances in poor and homeless mothers. *Violence Against Women, 8*(7), 785-815.
- Saltzman, L. E., Fanslow, J. L., McMahon, P. M., & Shelley, G. A. (2002). Intimate partner violence surveillance: Uniform definitions and recommended data elements, version 1.0. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Prevention and Control.
- Saltzman, L. E., Johnson, C. H., Gilbert, B. C., & Goodwin, M. M. (2003). Physical abuse around the time of pregnancy: An examination of prevalence and risk factors in 16 states. *Maternal and Child Health Journal, 7*, 31-43.

- Sameroff, A. J., Seifer, R., Barocas, R., Zax, M., & Greenspan, S. (1987). Intelligence quotient scores of 4-year-old children: Social environmental risk factors. *Pediatrics*, 79, 343-350.
- Sansone, R. A., Whitecar, P., & Wiederman, M. W. (2009). The prevalence of childhood trauma among those seeking buprenorphine treatment. *Journal of Addictive Diseases*, 28(1), 64-67.
- Schindler, A., Thomasius, R., Petersen, K., & Sack, P. -M. (2009). Heroin as an attachment substitute? Differences in attachment representations between opioid, ecstasy and cannabis abusers. *Attachment and Human Development*, 11(3), 307-330.
- Shrier, L., Harris, S. K., Sternberg, M., & Beardslee, W. (2001). Associations of depression, self-esteem, and substance use with sexual risk among adolescents. *Preventive Medicine*, 33(3), 179-189.
- Slesnick, N., Erdem, G., Collins, J., Patton, R., & Buettner, C. (2010). Prevalence of intimate partner violence reported by homeless youth in Columbus, Ohio. *Journal of Interpersonal Violence*, 25(9), 1579-1593.
- Slesnick, N., & Tonigan, J. S. (2004). Assessment of alcohol and other drug use by runaway youths: A test-retest study of the form 90. *Alcoholism Treatment Quarterly*, 22(2), 21-34.
- Smith, P. H., White, J. W., & Holland, L. J. (2003). A longitudinal perspective on dating violence among adolescent and college-age women. *American Journal of Public Health*, 93(7), 1104-1109.
- Solorio, M., Milburn, N., Andersen, R., Trifskin, S., & Rodríguez, M. (2006). Emotional distress and mental health service use among urban homeless adolescents. *The Journal of Behavioral Health Services & Research*, 33(4), 381-393.
- Solorio, M. R., Rosenthal, D., Milburn, N. G., Weiss, R. E., Batterham, P. J., Gandara, M., & Rotherham-Borus, M. J. (2008). Predictors of sexual risk behaviors among newly homeless youth: A longitudinal study. *Journal of Adolescent Health*, 42, 401-409.
- Springer, K. W., Sheridan, J., Kuo, D., & Carnes, M. (2007). Long-term physical and

mental health consequences of childhood physical abuse: Results from a large population-based sample of men and women. *Child Abuse & Neglect*, 31(5), 517-530.

Stewart, S. H. (1996). Alcohol abuse in individuals exposed to trauma: A critical review. *Psychological Bulletin*, 120(1), 83-112.

Stone, R. (2006). Adolescence: A time of growth and change. *Psych Central*. Retrieved from <http://psychcentral.com/lib/2006/adolescence-a-time-of-growth-and-change>.

Sullivan, T. N., Farrell, A. D., & Wendy, K. (2006). Peer victimization in early adolescence: Association between physical and relational victimization and drug use, aggression, and delinquent behaviors among urban middle school students. *Development and Psychopathology*, 18(1), 119-137.

Taylor, C. A., Boris, N. W., Heller, S. S., Clum, G. A., Rice, J. C., & Zeanah, C. H. (2008). Cumulative experiences of violence among high-risk urban youth. *Journal of Interpersonal Violence*, 23(11), 1618-1635.

Titus, J., Dennis, M., White, W., Scott, C., & Funk, R. (2003). Gender differences in victimization severity and outcomes among adolescents treated for substance abuse. *Child Maltreatment*, 8(1), 19-35.

Tyler, K. A. (2002). Social and emotional outcomes of childhood sexual abuse: A review of recent research. *Aggression & Violent Behavior*, 7(6), 567-589.

Tyler, K. A. (2006). A qualitative study of early family histories and transitions of homeless youth. *Journal of Interpersonal Violence*, 21(10), 1385-1393.

Tyler, K. A. (2008). Social network characteristics and risky sexual and drug related behaviors among homeless young adults. *Social Science Research*, 37(2), 673-685.

Tyler, K. A., & Cauce, A. M. (2002). Perpetrators of early physical and sexual abuse among homeless and runaway adolescents. *Child Abuse & Neglect*, 26(12), 1261-1274.

- Tyler, K. A., Melander, L. A., & Noel, H. (2009). Bidirectional partner violence among homeless young adults: Risk factors and outcomes. *Journal of Interpersonal Violence, 24*(6), 1014-1035.
- Tyler, K. A., Whitbeck, L. B., Hoyt, D. R., & Cauce, A. M. (2004). Risk factors for sexual victimization among male and female homeless and runaway youth. *Journal of Interpersonal Violence, 19*(5), 503-520.
- U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. (2010). *Child Maltreatment 2009*. Available from <http://archive.acf.hhs.gov/programs/cb/pubs/cm09/cm09.pdf>
- Vakalahi, H. (2002). Family-based predictors of adolescent substance use. *Journal of Child & Adolescent Substance Abuse, 11*(3), 1-15.
- Vézina, J., & Hébert, M. (2007). Risk factors for victimization in romantic relationships of young women: A review of empirical studies and implications for prevention. *Trauma, Violence, & Abuse, 8*(1), 33-66.
- Watts-English, T., Fortson, B. L., Gibler, N., Hooper, S. R., & De Bellis, M. D. (2006). The psychobiology of maltreatment in childhood. *Journal of Social Issues, 62*(4), 717-736.
- Whitbeck, L. B., Hoyt, D. R., & Bao, W. -N. (2000). Depressive symptoms and co-occurring depressive symptoms, substance abuse, and conduct problems among runaway and homeless adolescents. *Child Development, 71*(3), 721-732.
- Whitbeck, L. B., Hoyt, D. R., & Yoder, K. A. (1999). A risk-amplification model of victimization and depressive symptoms among runaway and homeless adolescents. *American Journal of Community Psychology, 27*(2), 273-296.
- Williams, N., Lindsey, E., Kurtz, P. D., & Jarvis, S. (2001). From trauma to resiliency: Lessons from former runaway and homeless youth. *Journal of Youth Studies, 4*(2), 233-253.
- Wu, N. S., Dellor, E., Schairer, L. C., & Grella, C. (2010). Childhood trauma and health

outcomes in adults with comorbid substance abuse and mental health disorders.
Addictive Behaviors, 35(1), 68-71.

APPENDIX A

MEASURES

Demographic Interview Baseline

DEMOGRAPHICS:

1. Gender: M / F 2. Date of Birth: _____ 3. Age: _____

4. Ethnic Group (Check one for subject, subject's birth mother, and subject's birth father):

Adolescent _____ (1)	Adolescent's Birth Mother _____ (1)	Adolescent's Birth Father _____ (1)	
_____ (2)	_____ (2)	_____ (2)	American Indian or Alaskan Native
_____ (3)	_____ (3)	_____ (3)	Black or African- American
_____ (4)	_____ (4)	_____ (4)	Hispanic, Cuban
_____ (5)	_____ (5)	_____ (5)	Hispanic, Mexican
_____ (6)	_____ (6)	_____ (6)	Hispanic, New Mexican (or Spanish-American)
_____ (7)	_____ (7)	_____ (7)	Hispanic, Puerto-Rican
_____ (8)	_____ (8)	_____ (8)	Hispanic, Other Latin American
_____ (9)	_____ (9)	_____ (9)	White, not of Hispanic origin
			Other, please specify: _____

5. Last grade completed in school: _____
 Current GPA: _____
 Special Ed: LD, BD _____
 Currently enrolled? Yes / No
 Current grade _____
 School: _____

6. For the most part, how many persons, including yourself were living in the home where you grew up _____ persons

7. For how many years were you raised by: [Total should years = client's age but not more than age 18]

- A. _____ **Both** of your birth parents
- B. _____ Birth mother only
- C. _____ Birth mother plus partner (not birth father)
- D. _____ Birth father only
- E. _____ Birth father plus partner (not birth mother)
- F. _____ Other relatives (grandparents, aunt or uncle, etc.)
- G. _____ Adoptive parents

- H. _____ Foster parents
- I. _____ Institutions (group home, hospital, detention, shelter)
- J. _____ Other, please specify: _____

8. How many brothers or half-brothers do you have?

_____ Number of full brothers (both parents in common)

_____ Number of half brothers (one common parent)

9. How many sisters or half-sisters do you have?

_____ Number of full sisters (both parents in common)

_____ Number of half sisters (one common parent)

10. How many children do you have?

_____ Biological sons

_____ Age son Ever been taken out of your custody? Yes___ No___
 If yes, for how long? _____
 In your custody now? Yes___ No ___
 If no, where? ___relatives ___other parent ___foster
 care _____Other

_____ Age son Ever been taken out of your custody? Yes___ No___
 If yes, for how long? _____
 In your custody now ? Yes___ No ___
 If no, where? ___relatives ___other parent ___foster
 care _____Other

_____ Age son Ever been taken out of your custody? Yes___ No___
 If yes, for how long? _____
 In your custody now? Yes___ No ___
 If no, where? ___relatives ___other parent ___foster
 care _____Other

_____ Biological daughters

_____ Age daughter
 Ever been taken out of your custody? Yes___ No___
 If yes, for how long? _____
 In your custody now? Yes___ No ___
 If no, where? ___relatives ___other parent ___foster
 care _____Other

_____ Age daughter
 Ever been taken out of your custody? Yes___ No___
 If yes, for how long? _____
 In your custody now? Yes___ No ___
 If no, where? ___relatives ___other parent ___foster

care _____ Other

_____ Age daughter

Ever been taken out of your custody? Yes ___ No ___

If yes, for how long? _____

In your custody now? Yes ___ No ___

If no, where? _____ relatives ___ other parent ___ foster care _____ Other

11. How many times have you been married? _____ time(s).

12. Current Marital Status (Check one):

Adolescent	Primary Caretaker -most recent (parent or guardian)	Adolescent ' s Birth Parents
___ 1) Single, never been married	___ 1) Single, never been married	___ 1) Never married
___ 2) Legally married – # years _____	___ 2) Legally married- # years _____	___ 2) Legally married- # years _____
___ 3) Cohabiting with partner	___ 3) Cohabiting with partner	___ 3) Cohabiting with partner
___ 4) Separated but still married	___ 4) Separated but still married	___ 4) Separated but still married
___ 5) Divorced	___ 5) Divorced	___ 5) Divorced
___ 6) Widowed	___ 6) Widowed	___ 6) Widowed

13. Current Employment Status (Please check one):

- (1) Work 40+ hours a week _____
- (2) Work fewer than 40 hours a week _____
- (3) Homemaker _____
- (4) Unemployed _____

What is the your primary occupation (whether or not you are currently employed)?

14. What is your total annual family income? \$ _____
 What is your personal monthly income? \$ _____
 Personal income for last 12 months? \$ _____

15. What is your highest level of education? _____ years _____ degree/GED
 What was your mother ' s highest level of education? _____ years _____ degree/GED
 What was your father ' s highest level of education? _____ years _____ degree/GED
 If raised by someone other than your biological mother/father, what was their highest level of education?
 Relationship to you _____ years _____ degree/GED
 Relationship to you _____ years _____ degree/GED

LEGAL

16. Have you ever been ARRESTED? Yes / No

How many times have you been arrested in your life? _____

How many times have you been arrested in the last 12 months? _____

How many times have you been arrested in the last 3 months? _____

List incidents (from most recent); include charges, date, status (conviction, probation), and whether alcohol or other drugs were involved (if more than 4 times, please list on a separate sheet of paper and attach):

	<u>Charge</u>	<u>Date</u>	<u>Status</u>	<u>Alcohol/Drugs Involved</u>
A.				Yes / No
B.				Yes / No
C.				Yes / No
D.				Yes / No

17. Do you currently have a JPPO/Case Worker/Case manager? Yes / No Which?

18. Have you ever been in a GANG? Yes / No
Are you currently in a GANG? Yes / No
Have you ever been ranked in? Yes / No

Have you been ranked out? Yes / No
Which gang are/were you a member of? _____
How often are you involved in fights? _____

MENTAL HEALTH TREATMENT:

19. Have you ever been hospitalized, INPATIENT, for Alcohol/Drug abuse treatment? Yes / No
Describe : How many times? _____
Where, when, duration of stay:

20. Have you ever been hospitalized, INPATIENT, for EMOTIONAL difficulties? Yes / No
Describe : How many times? _____
Where, when, duration of stay:

21. Have you ever received OUTPATIENT treatment for ALCOHOL/DRUG issues? Yes / No
Describe where, when, duration of treatment:

22. Have you ever received OUTPATIENT treatment for other EMOTIONAL problems? Yes / No
Describe where, when, duration of treatment:

23. Have there been times when you couldn't remember what you did while drinking? Yes / No
(e.g., your friends told you later what you did, or you woke up not knowing how you got somewhere)

About how often has this happened to you?

almost every time I drink

about half of the times that I drink

once in a while

most of the times that I drink

less than half of the times that I drink

once or twice in my lifetime

24. Is there evidence that DETOX is needed? Yes / No

ASSESSMENT OF DANGER:

25. Have you ever tried to harm yourself, commit SUICIDE, or have you placed yourself in dangerous or life-threatening situations? Yes / No

26. How many times in your life have you attempted suicide? _____

27. Have you had any thoughts of harming yourself recently (in the last few weeks)? Yes / No

[If yes for any reason, complete HARM TO SELF OR OTHERS ASSESSMENT]

Which therapist/staff member was contacted? _____

Date contacted _____

Form completed AND signed Form placed in confidential file

28. HOMICIDAL IDEATION: Is there anyone you seriously want to harm? Yes / No

If yes, complete HARM TO SELF OR OTHERS ASSESSMENT

Which therapist/staff member was contacted? _____

Date contacted _____

Form completed AND signed Form placed in confidential file

29. Has anyone ever touched you SEXUALLY in a way that made you feel uncomfortable OR that hurt you OR that was against your will? Yes / No

29a. Is this happening currently? Yes / No

29b. Was it reported to authorities? Yes / No

If yes, complete ABUSE ASSESSMENT

Which therapist/staff member was contacted? _____

Date contacted _____ Form completed AND signed Form placed in confidential file

30. Has anyone ever hurt or abused you PHYSICALLY (enough to leave marks or bruises or burns)? Yes / No

(Include parents, family members, friends of the family and such, but not fights with same age friends or gang fights)

30a. Is this happening currently? Yes / No

30b. Was it reported to authorities? Yes / No

If yes, complete ABUSE ASSESSMENT

Which therapist/staff member was contacted? _____

Date contacted _____ Form completed AND signed _____ Form placed in confidential file

HOMELESS EXPERIENCES:

31. Have you ever been:

- a. Placed in a foster home? Yes / No Age 1st time _____
How many lifetime placements? _____
- b. Placed in a group home? Yes / No Age 1st time _____
- c. Kept in juvenile detention? Yes / No Age 1st time _____
- d. Kept in jail or D-home overnight? Yes / No Age 1st time _____
- e. A ward of the state? Yes / No Age 1st time _____
- f. In a homeless shelter overnight? Yes/ No Age 1st time _____

31a. In the last 12 months have you been:
(Check one):

- a. Placed in a foster home? Yes / No
- b. Placed in a group home? Yes / No
- c. Kept in juvenile detention? Yes / No
- d. Kept in jail overnight? Yes / No
- e. A ward of the state? Yes / No

31b. How about in the last 3 months?

- a. Placed in a foster home? Yes / No
- b. Placed in a group home? Yes / No
- c. Kept in juvenile detention? Yes / No
- d. Kept in jail overnight? Yes / No
- e. A ward of the state? Yes / No

32. How old were you the first time that you did not have a place to live? _____ years old. How long did you go without shelter at that time? _____ days

33. What is the longest number of days you have been without shelter? _____

34. How many days have you currently been without shelter? _____

35. Altogether, how many different times have you not had a place to live? That is, times when you didn't have a room, apartment or home where you could sleep. _____ times

36. How many times had you runaway from home, including from foster care or other supervised setting? _____ times

37. What was the reason that you first left your family of origin (mom or dad's)?

_____ Physical abuse _____ Verbal abuse _____ Sexual abuse
_____ Arguments with parents

_____ Thrown out of the house _____ Substance Abuse (mine) _____ Substance Abuse (parents)

_____ Legal Problems (mine) _____ Legal Problems (parents) _____ School Problems

38. What is the reason that you don't go back home? _____ Fear for my own safety

_____ **Not welcome**

Other:

39. If you do not have a place to stay right now, what is the main reason?

40. Please list all the times that you did not have a place to stay (couch surfing, on the streets, in a shelter):

	<u>Your age</u>	<u>Date</u>	<u>How many days were you homeless?</u>	<u>Reason?</u>
1 st time	<u>Where stayed?</u>			
2 nd time				
3 rd time				
4 th time				
5 th time				
6 th time				

41. Over the last 12 months (365 days), how many nights did you spend:

	<u>Nights</u>
a. In your own room or apartment?	_____
b. With family members in their home?	_____
c. With friends in their home?	_____
d. In a shelter of mission?	_____
e. In an abandoned building or as a squat?	_____
f. In jail?	_____
g. Someplace else indoors, such as in a bus or train station, or at an airport?	_____
h. Someplace outdoors, such as on the street, or in a park or alley?	_____
i. Foster family?	_____
j. In a residential treatment program?	_____
k. Anyplace I haven't mentioned?	_____

42. During the past 3 months (90 days), how many nights did you spend:

	<u>Nights</u>
a. In your own room or apartment?	_____
b. With family members in their home?	_____
c. With friends in their home?	_____
d. In a shelter of mission?	_____
e. In an abandoned building or as a squat?	_____
f. In jail?	_____
g. Someplace else indoors, such as in a bus or train station, or at an airport?	_____
h. Someplace outdoors, such as on the street, or in a park or alley?	_____
i. Foster family?	_____

- j. In a residential treatment program? _____
- k. Anyplace I haven't mentioned? _____

43. In the past 12 months was:

- a. Getting enough to eat a problem for you? Yes / No
- b. Getting clothes a problem for you? Yes / No
- c. Getting medical care a problem for you? Yes / No
- d. Finding a place where you could clean up a problem for you? Yes / No

44. What about the past 3 months?

- a. Getting enough to eat a problem for you? Yes / No
- b. Getting clothes a problem for you? Yes / No
- c. Getting medical care a problem for you? Yes / No
- d. Finding a place where you could clean up a problem for you? Yes / No

INCOME SOURCES AND OTHER SUPPORTS:

45. During the last 12 months, did you get any money from:

- a. A full or part-time job? Yes / No
- b. Doing any other kind of work, including day labor, seasonal, minimum wage or pick up work? Yes / No
- c. Friends? Yes / No
- d. Relatives? Yes / No
- e. Spanging (spare change)? Yes / No
- f. Clothing and other personal possessions that you sold? Yes / No
- g. Collecting and selling bottles and cans? Yes / No
- h. The sale of your blood or plasma? Yes / No
- i. Dealing drugs? Yes / No
- j. Prostitution? Yes / No
- k. An agency or program? Yes / No
- l. Stealing? Yes / No
- m. Anything else I haven't mentioned? Yes / No Specify: _____

46. Only during the last 3 months, did you get any money from:

- a. A full or part-time job? Yes / No
- b. Doing any other kind of work, including day labor, seasonal, minimum wage or pick up work? Yes / No
- c. Friends? Yes / No
- d. Relatives? Yes / No
- e. Panhandling? Yes / No
- f. Clothing and other personal possessions that you sold? Yes / No
- g. Collecting and selling bottles and cans? Yes / No
- h. The sale of your blood or plasma? Yes / No
- i. Dealing drugs? Yes / No
- j. Prostitution? Yes / No
- k. An agency or program? Yes / No
- l. Stealing? Yes / No
- m. Anything else I haven't mentioned? Yes / No Specify: _____

VICTIMIZATION EXPERIENCES:

Now I'd like to ask about any crimes that may have been committed against you.

47. In the last 12 months, have you been:

- a. Assaulted or physically attacked? Yes / No
- b. Robbed, that is, was something of your taken from you by someone who threatened you with violence if you didn't give it to them? Yes / No
- c. Burglarized, that is, has someone broken into a room or apartment of yours and taken some of your property? Yes / No
- d. Have you been raped? Yes / No
- e. Have you been sexually assaulted, other than rape? Yes / No
- f. Have you been the victim of another crime? Yes / No

Specify: _____

48. How about in the last 3 months, have you been:

- a. Assaulted or physically attacked? Yes / No
- b. Robbed, that is, was something of your taken from you by someone who threatened you with violence if you didn't give it to them? Yes / No
- c. Burglarized, that is, has someone broken into a room or apartment of yours and taken some of your property? Yes / No
- d. Have you been raped? Yes / No
- e. Have you been sexually assaulted, other than rape? Yes / No
- f. Have you been the victim of another crime? Yes / No

Specify: _____

49. Has an intimate partner:

- a. Ever forced you to participate in a sex act (oral, vaginal or anal penetration) against your will? Yes/No
- b. Ever threatened, coerced or physically forced you into any sexual contact that did not include penetration or intercourse? Yes/No
- c. Ever hit, slapped, shoved, choked, kicked, shaken or otherwise physically hurt you? Yes/No
- d. Ever been frightened for your safety or that of your family or friends because of anger or threats of an intimate partner? Yes/No
- e. Ever put you down, or called you names repeatedly, or controlled your behavior? Yes/No

50. In order to keep yourself from being harmed in any way, do you:

- a. Carry a weapon? Yes/No Specify: _____
- b. Stay away from certain places? Yes/No
- c. Stay away from people? Yes/No
- d. Sleep during the day and stay awake at night? Yes/No
- e. Make sure you're always with someone you can trust? Yes/No
- f. Do you do anything else to keep from being harm? Yes/No Specify: _____

The Beck Depression Index is not included as it is copyrighted.

The Beck Depression Index is not included as it is copyrighted.

The Beck Depression Index is not included as it is copyrighted.

Form 90-DI

DRUG USE ASSESSMENT (Baseline)

1. For period from ____/ ____/ ____ through ____/ ____/ ____
2. Number of days in this assessment period: ____/ ____/ ____
3. This is: (0) Pretreatment
4. __ (1) Male __ (2) Female
5. Current body weight in pounds: ____/ ____/
6. Weight was obtained by: __ (1) weighing or __ (2) self-report
7. This interview was conducted:

__ (1) on site	__ (2) by telephone
__ (3) home visit	__ (4) other location
8. Presenting drug _____

"I'd like to begin by reminding you that whatever you say here is confidential. In this first interview, I am going to be asking you some specific questions about your drug use in the 90 days before your last use. I'll be asking about drugs that were prescribed for you as well as others that you have used during this period. [Place calendar in front of client.] Here is a calendar to help you remember this period of time. First of all, when was the last time that you used any drug? [Drug is as defined above; count back 89 days and cross out with Xs the days preceding this period.] So the period I'm going to be asking you about is from [beginning date,] up through [end date]."

"I realize that this is a long period of time to remember things that happened, so we will use this calendar to help you identify events that occurred during this period. Notice that a few events are already printed on the calendar. [Point out some specific events already printed on the calendar.] Were there any particularly memorable things that happened during this time - any birthdays, illnesses or accidents, anniversaries, parties, hospitalizations, vacations, changes in your work or at home, things like that?" [Record on calendar.]

"Now the rest of the questions that I will ask you are also about this time period from up through _____. I'll be asking you about your drug use in a few minutes, but

first I'd like to know about a few other things. Feel free to take your time in answering, since it is important for you to remember as accurately as you can. Let me know if you're not sure what I am asking, or what I mean by a particular question. OK?"

TREATMENT / INCARCERATION / LIVING EXPERIENCES

"During this period, how many days did you spend in a hospital or treatment program where you stayed overnight?" **[Mark days on calendar]**

Hm total number of hospital days for medical problems 9. _____

Htox total number of hospital days for detoxification 10. _____

Rtox total number of non-hospital residential detox days: 11. _____

total number of ambulatory detox treatment days: 12. _____

Rd total number of residential days for other drug problems 13. _____

Ra total number of residential days alcohol treatment 14. _____

Rp total residential days for emotional / psych problems 15. _____

Total days in residential treatment during this period:
[Sum of 9 + 10 + 11 + 13 + 14 + 15. Do not include 12] 16. _____

"During this period, did you spend any time in jail or prison?"
[Mark days on calendar]

Inc total days incarcerated during period 17. _____

Total day in institutions **[add 16 + 17]** 18. _____

"During this period, where did you live? How many days did you live in:"
[Do not record on calendar unless useful as memory aids.]

Total number of days in own house, apartment, room: 19. _____
(non-homeless status, at least 30 days paying rent or if minor,
receiving appropriate supervision/care without paying rent)

Total number of days living in temporary housing (group home): 20. _____

Total number of days homeless (squat, temporary shelters, etc.): 21. _____

Total of lines 18 + 19 + 20 + 21 (must equal Line 2): _____

*"During this period, how many days were there [not including hospital or
detox days] when you saw a doctor, nurse, nurse-practitioner, or
physician's assistant for any kind of medical care?" [Do not record on
calendar unless useful as memory aids.]*

Total days seen for medical care 23. _____

*"During this period, on how many days did you have a session with a
counselor or therapist?" [Do not record on calendar unless useful as
memory aids.]*

total number of days for **DRUG PROBLEMS** (EXCEPT alcohol)
write down the drug or drugs 24. _____

If treatment was received, describe briefly (type, duration, location,
when):

total number of days for **ALCOHOL PROBLEMS** 25. _____

If treatment was received, describe briefly (type, duration, location,
when):

total days for **EMOTIONAL/PSYCHOLOGICAL PROBLEMS** 26. _____

If treatment was received, describe briefly (type, duration, location, when):

*"During this period, on how many days did you attend a **Twelve-Step meeting** like NA, CA, or AA?: Either for you or to support someone else
[Do not record on calendar unless useful as memory aids.]*

total number of days attending 12-step meetings (enter 0 if none):27a. _____

Number of AA (Alcoholics Anonymous) Meetings: 27b. _____
Number of NA (Narcotics Anonymous) Meetings: 27c. _____
Number of CA (Cocaine Anonymous) Meetings: 27d. _____
Number of Ala-teen Meetings 27e. _____
Number of any other 12-step meetings 27f. _____
specify: _____

OTHER ACTIVITIES

[Do not enter activity days on the calendar unless they appear to be of value for recalling drinking.]

WORK: *"How many days have you been paid for working during this period?"* WORK days 28. _____

EDUCATION: *"How many days have you been in school or training during this period?"*
EDUCATION days 29. _____

RELIGIOUS ATTENDANCE: *"On how many days during this time did you attend a worship service or other religious celebration?"*

RELIGIOUS ATTENDANCE days 30. _____

MEDICATIONS

"During this period, on how many days did you take any medications

prescribed by a physician?" [Do not enter medication days on the calendar unless they appear to be of memory value.]

to treat a medical problem 31. _____
specify:

to prevent you from drinking (Antabuse only) 32. _____

to help you detoxify / come off drugs or alcohol 33. _____
specify:

to help you stabilize or change your use of drugs 34. _____
specify:
maintaining / stabilizing drugs (e.g., methadone)
serotonin uptake inhibitors (make sure not for depression)

to help you keep from using drugs 35. _____
specify:
drug antagonists / blockers

for psychological or emotional problems 36. _____
specify:

DRUG ASSESSMENT

Card Sort

"Now I am going to show you this set of cards. Each card names a kind of drug that people sometimes use. I'd like you to sort them into two piles for me. In one pile here [indicate position and use marker card] I'd like you to place those cards that name a kind of drug that you have tried at least once in your life. In the other pile [indicate position and use marker card], place the cards that name the types of drugs that you have never used at all."

[Give cards to client IN NUMERICAL ORDER - with Alcohol on top, Tobacco next, Marijuana next, and so on. When the sorting has been completed, take the pile on the right, and check all these categories a "NO" in the LIFETIME USE column below.

For convenience, record here the client's CURRENT AGE:
 BIRTHDAY: _____

DRUG TYPE	Lifetime Use Ever?	Age at First Use	Lifetime weeks of Use
Alcohol (al)	() 0 No () 1 Yes		
Tobacco (to)	() 0 No () 1 Yes		
Marijuana/Cannabis (ma)	() 0 No () 1 Yes		
Tranquilizers (tr)	() 0 No () 1 Yes		
Sedatives/Downers (do)	() 0 No () 1 Yes		
Steroids (sd)	() 0 No () 1 Yes		
Stimulants/Uppers (up)	() 0 No () 1 Yes		
Cocaine (co)	() 0 No () 1 Yes		
Hallucinogens (ha)	() 0 No () 1 Yes		
Opiates (op)	() 0 No () 1 Yes		
Inhalants (in)	() 0 No () 1 Yes		
Other Drugs (xx)	() 0 No () 1 Yes		
	Total Yes:		

Then continue with the "Yes" pile:

"Now for each of these types of drugs, I'd like you to give me an estimate of how long you have used them in your lifetime. What I will want to know is: about how many weeks during your lifetime have you used each type of drug at least once. Let's start with _____ [Use first YES card from numerical sequence]. How many weeks, during your lifetime, would you say that you used _____ at least once?"

[Record responses on the chart on Page 5. Convert all responses into weeks. Year = 52 weeks if used every week. Month = 4 weeks. etc. Repeat the query for each YES drug card. Then give YES pile back to client.]

Periods of Abstinence

"Now I'd like to ask you about your drug use during this same period we were discussing before. The things already recorded on the calendar here may help you to remember better. I'm not asking here about drugs that were prescribed for you for medical problems, like antibiotics, stomach or blood pressure medicine. I'm asking about drugs not prescribed for you, although I do want to know about any medication prescribed for pain, or to help you relax or sleep. I will also ask you about your use of alcohol. First of all, were there any periods of days during this time when you used no drugs (including alcohol) at all?"

[Mark all abstinent days with a capital "A" on calendar. A day with Tobacco use is not an abstinent day]

37. Date of first drug use during period: ____/____/____

Drug:

38. Date of last drug use during period: ____/____/____

Drug:

Give back the YES pile and say:

Now I'd like you to sort these cards again, to say which kinds of drugs you have used at least once during the period we've been talking about on this calendar, from _____ up through _____. If you used the drug at least once during this time, put it in a pile on the left here, and if you never used it at all during this period, put it on the right." [Alternatively, if there are few cards, simply ask: "Which of these have you used at least once during this period we've been talking about?"]

For each NO card in this sort, print a zero (0) under "Total Days Use in Period" on the USE PATTERN CHART on Page 7. For the remainder, proceed with the CALENDAR instructions on Page 8.

USE PATTERN CHART

Drug Classes		Used in this period?	Total Days	1	2	3	Oral Ingest	Smoke	Nasal Inhale	Needle	Other
Alcohol	al							-----	-----	-----	
Tobacco	to									-----	
Marijuana/ Cannabis	ma									----- -	
Tranquilizer	tr							-----	-----		
Sedatives/ Downers	do							-----	-----		
Steroids	sd							-----	-----		
Stimulants/ Uppers	up										
Cocaine	co										
Hallucinogens	ha										
Opiates	op										
Inhalants	in						-----	-----		-----	
Other Drugs	xx										
Total	12										

Use Categories:

- 1 = Single use
- 2 = Several uses
- 3 = Steady or heavier use

Enter days of each type of use. 1 + 2 + 3 must equal Total Days of use.

Enter days of each route of administration (use rules from manual). These must total at least to the number of days of use, but total may be higher if multiple routes of administration were used on the same day.

If OTHER route of administration, specify drug(s) and route here:

"Now I'd like to ask you about each of the drugs that you have used during this period. I'd want to get an idea of what your pattern of use was during this period of time for each of these drugs. We'll use this calendar to make it easier. Let's start with _____. When were you using during this period?"

Proceed drug by drug, entering drug codes for each day of use. For a day on which alcohol, marijuana, and cocaine were used, for example three codes would be entered into the box for that day: al, ma, co. Using different colored pencils for different drugs can be helpful.

Using the calendar, carefully count the total number of days of use during the assessment period for each drug class, and put this information on the USE PATTERN CHART (Page 5).

"Now I'm going to go back through these drugs once again and ask you two more questions about each. For each one, I will tell you the total number of days that you said you used this drug during this period, and I will want to know how many of those days you think fell into each of these three categories." [Show use categories]

"According to the calendar we did, you used _____ on a total of ____ days during this period. Help me divide those days up among these three categories. On how many of those ____ days would you say that you used only once? How many of those days did your use fall in between? And that would mean that on _____ days your use of _____ fell in this third category – does that seem right? And how did you give yourself (take) _____ during

this period of time we have been talking about? Any other way? If more than one route of administration for a drug class, ask:

"According to the calendar we did, you used _____ on a total of days during this period. On how many of those _____ days would you say that you gave yourself __[drug]__ by __[route]__?"

Repeat for each drug class. Be sure you have accounted for all days of use. The total across routes of administration should be at least the same as the number of days of use, although the total may be higher if multiple routes are used on the same day.

Fill in the information on the Use Pattern Chart. Be sure 1+2+3 totals to the number of days of use.

When you have completed the calendar for all drug classes used, show the subject the CONFIDENCE SCALE and ask:

"Now I'd like you to tell me, using the line, how confident you feel about the information you've given me about your drug use. How accurate do you think you have been in estimating your drug use on this calendar? I'm not asking if you got each drug on the exact days you used it. But overall, how accurate is this calendar in showing how much you used drugs during this period?"

Circle the subject's response below.

5	4	3	2	1
Very		Fairly		Not at all
Accurate		Accurate		Accurate

CATEGORIES FOR DAYS OF USE

(1) Single use. On this day you used the drug only once.

Examples: One alcoholic drink
One cigarette
One dose

(2) Medium use. On this day you used the drug more than once, but not steadily or heavily.

Examples: 2-4 drinks
2-9 cigarettes

Two doses of other drugs

(3) Heavier use. On this day you used the drug more heavily than the "medium" category.

Examples: 5 or more drinks
10 or more cigarettes (half a pack or more)
Three or more doses of other drugs

WAYS OF TAKING DRUGS

Orally	Eating, drinking, swallowing, placing the drug under the tongue, chewing, dipping
Smoking	Lighting and smoking the drug
Inhaling	Snorting, breathing in the drug (but not smoking)
Injecting	Taking a drug by needle; injecting under the skin or into a vein

CONFIDENCE SCALE

5	4	3	2	1
Very Accurate		Fairly Accurate		Not at all Accurate

APPENDIX B

TABLES

Table 1: *Characteristics of the Sample*

	<i>n (%)</i>	<i>M (SD)</i>
Gender		
Male	142 (52.6)	
Female	128 (47.4)	
Age		18.7 (1.2)
Ethnicity		
African American	177 (65.6)	
Caucasian	53 (19.6)	
Hispanic	6 (2.2)	
Other	34 (12.6)	
Enrolled in school	61 (22.6)	
Age at first homeless experience		15 (3.4)
Frequency of illicit drug use		61.5 (36.9)
Frequency of alcohol use		14.6 (22)
Percent days homeless within past 90 days		65 (38.5)
Childhood Abuse	145 (53.7)	
Intimate Partner Violence	114 (42.2)	
Street Victimization	129 (47.8)	
Cumulative Risk Index		2.2(1.8)

N = 270

Table 2: *Sample Size of Risk Factors in Cumulative Risk Index*

Risk Factors	<i>n</i> (%)
0 Risk Factors	51 (20.5)
1 Risk Factor	54 (21.7)
2 Risk Factors	49 (19.7)
3 Risk Factors	34 (13.7)
4 Risk Factors	30 (12.0)
5 Risk Factors	18 (7.2)
6 Risk Factors	10 (4.0)
7 Risk Factors	2 (.8)
8 Risk Factors	1 (.4)

Table 3: *Sample Size of Grouped Risk Factors in Cumulative Risk Index*

Grouped Risk Factors	<i>n</i> (%)
Low Frequency	105 (42.2)
Moderate Frequency	83 (33.4)
High Frequency	61 (24.4)

Table 4. *Pearson Chi-Square Correlational Analyses with Independent Variables*

	1	2
1 Childhood abuse		
2 IPV	13.24***	
3 Street Victimization	5.70*	15.15***

Table 5. *Pearson Correlations with Control and Dependent Variables*

	1	2
1 Homelessness		
2 Substance Use	.11	
3 Depressive Symptoms	.14*	.14*

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 6: *Multiple Linear Regression Analysis for Predicting Impact of Trauma Events with Adolescent Substance Use*

<i>Predictors</i>	B	SE	β	t
Childhood Abuse	-9.28	4.13	-.14	-2.25*
Intimate Partner Violence	7.72	4.25	.11	1.82
Homelessness	.11	.05	.12	2.06*
Street Victimization	11.29	4.13	.17	2.73**
<i>Full Model</i>				
Overall F	4.81**			
Total R ²	.07			
Adjusted R ²	.05			

NOTE: B, SE, β are presented for the final model after all predictor variables have been entered.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 7: *Multiple Linear Regression Analysis for Predicting Impact of Trauma Events with Depressive Symptoms*

<i>Predictors</i>	B	SE	β	t
Childhood Abuse	5.24	1.61	.20	3.26**
Intimate Partner Violence	4.12	1.65	.16	2.50*
Homelessness	.06	.02	.16	2.74**
Street Victimization	.27	1.61	.01	.17
<i>Full Model</i>				
Overall F	7.10***			
Total R ²	.10			
Adjusted R ²	.09			

NOTE: B, SE, β are presented for the final model after all predictor variables have been entered.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 8: *Multiple Linear Regression Analysis for Predicting Impact of Cumulative Trauma Events with Adolescent Substance Use*

<i>Predictors</i>	B	SE	β	t
Homelessness	.13	.06	.15	2.39*
Cumulative Risk Index	2.31	1.15	.13	2.00*
<i>Full Model</i>				
Overall F	4.82**			
Total R ²	.04			
Adjusted R ²	.03			

NOTE: B, SE, β are presented for the final model after all predictor variables have been entered.

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 9: *Multiple Linear Regression Analysis for Predicting Impact of Cumulative Trauma Events with Depressive Symptoms*

<i>Predictors</i>	B	SE	β	t
Homelessness	.05	.02	.15	2.49*
Cumulative Risk Index	2.32	.43	.33	5.40***
<i>Full Model</i>				
Overall F	17.59***			
Total R ²	.13			
Adjusted R ²	.12			

NOTE: B, SE, β are presented for the final model after all predictor variables have been entered.

* $p < .05$ ** $p < .01$ *** $p < .001$

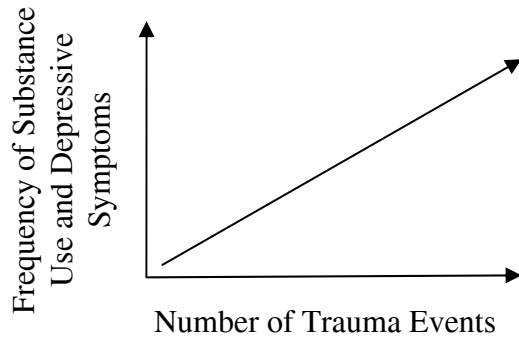
Table 10: *Means and Standard Deviations of Risk Behaviors by Level of Trauma Experience*

	<i>Risk Behaviors</i>		
	Frequency of Illicit Drug Use M (SD)	Frequency of Alcohol Use M (SD)	BDI Total Score M (SD)
<i>Level of Trauma Experience</i>			
Low	60.06 (38.76)	9.89(16.33)	9.18 (10.16)
Moderate	62.86 (35.10)	17.56 (23.77)	16.98 (14.08)
High	67.04 (35.6)	19.7 (27.66)	19.36 (12.38)

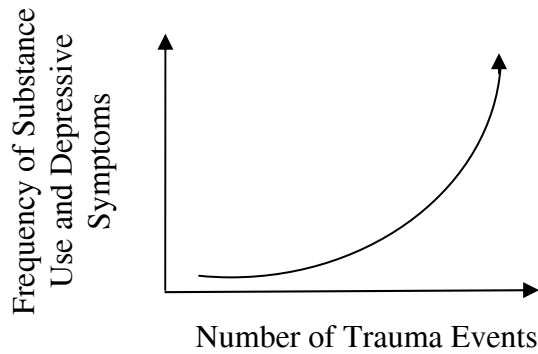
APPENDIX C

FIGURES

Model A: Additive Model with Substance Use and Depressive Symptoms.



Model B: Exacerbation Model with Substance Use and Depressive Symptoms.



Model C: Saturation Model with Substance Use and Depressive Symptoms.

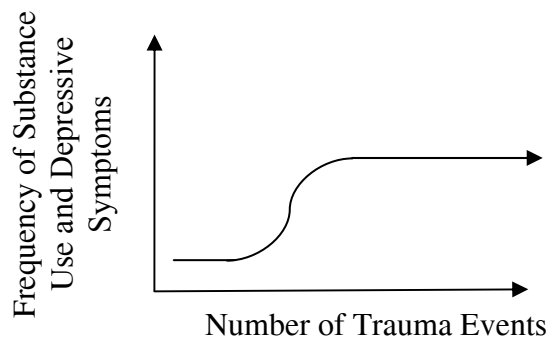


Figure 1: Models of Cumulative Risk

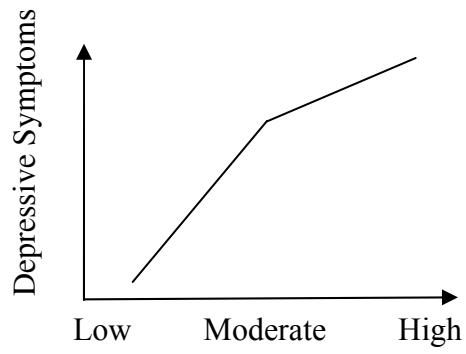


Figure 2. *Trauma Experiences with Depressive Symptoms.*

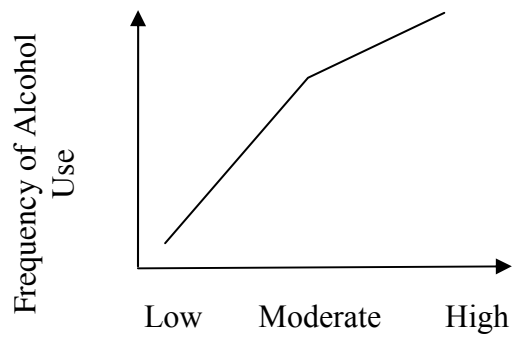


Figure 3. *Trauma Experiences with Alcohol Use*