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TEMPORAL RELATIONSHIPS BETWEEN PSYCHOLOGICAL DISTRESS AND RISKY BEHAVIORS IN A SAMPLE OF HOMELESS AND AT-RISK YOUTH

by

TEGAN LESPERANCE

THESIS

Submitted to the graduate school,

of Wayne State University,

Detroit, Michigan

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Introduction

Adolescents and Risky Behaviors

Involvement in risky sexual behaviors is well documented among U.S. youth. The teen birth rate in the United States is estimated to be as much as nine times higher than any other developed country (United Nations, 2010). Risky sexual behaviors are commonly considered to be those that might result in unintended pregnancy and/or a sexually transmitted disease. These behaviors include unprotected intercourse, lack of contraceptive protection, and sex with multiple partners. Among the 9th- to 12th-grade students surveyed in the 2009 national Youth Risk Behavior Surveillance Survey (YRBSS), 46% reported having had sexual intercourse and, among those, 38.9% did not use a condom during their most recent sexual encounter (Centers for Disease Control and Prevention, 2009).

Those who begin sexual activities at a younger age tend to have more sexual partners, have higher rates of nonconsensual sex, and more frequently combine sex and substance use (American Academy of Pediatrics, 1999; Sandfort, Orr, Hirsch, & Santelli, 2008). Early sexual debut is associated with a higher incidence of Human Papilloma Virus (HPV) and cervical cancer (Centers for Disease Control and Prevention, 2010). As many as 13.8% of youth in the YRBSS reported having more than four sexual partners, and 5.9% reported having intercourse for the first time before the age of 13 (Centers for Disease Control & Prevention, 2009).

High rates of risky sexual behaviors among youth are also apparent in the rates of sexually transmitted diseases found in the U.S. Compared to young adults, rates of curable sexually transmitted diseases among adolescents are twice as high, with 70% of sexually active adolescents having been exposed by the age of 19 (American Academy of Pediatrics, 1999). The risk of HIV among youth is also high with those 13-29 accounting for 39% of all new HIV infections in the U.S. in 2009, many having contracted the infection as adolescents (Centers for Disease Control and Prevention, 2011).

Alcohol and drug use are also relatively common among youth. Nearly half (41.8%) of 9th- to -12th graders report drinking alcohol in the past 30 days and 24.2% report binge drinking (five or more alcoholic beverages within a couple of hours) at least once in that time (Centers for Disease Control and Prevention, 2009). In addition to alcohol use, 36.8% reported marijuana use and 6.4% had used cocaine (Centers for Disease Control and Prevention, 2009).

Often, substance use and risky sexual behaviors occur concomitantly during adolescence. Substance use is a documented risk factor for risky sexual behavior among adolescents, possibly because it decreases inhibitions and impairs judgment (Bailey, Camlin, & Ennet, 1998; Bachanas et al., 2002; Dermen, Cooper, & Agocha, 1998). In a prospective study of self-reported sexual behaviors and substance involvement among youth ages 15 to 21, youth who reported substance use problems were more likely to engage in risky sexual behaviors for the duration of their substance involvement, suggesting a strong link between the two risky behaviors (Tapert, Aarons, Sedlar, & Brown, 2001). Adolescents who drink alcohol are more likely to become sexually active and less likely to use contraception consistently (Guo, Chung, Hill, Hawkins, Catalano, & Abbott, 2002).

In addition, a sizable minority of sexually active high school students (21.6%) indicate that they had used alcohol or drugs before their most recent act of sexual intercourse (Centers for Disease Control and Prevention, 2009). While several studies have reported that the combination of substance use and sexual intercourse leads to increased risk-taking and negative consequences (Gold, Karmiloff-Smith, Skinner & Morton, 1992; Shillington, Cottler, Compton, & Spitznagel, 1995), others have reported no relationship (Leigh, 1990) or an inverse relationship (Bolton, Vincke, Mak, & Dennehy, 1992). The relationship between substance use and risky sexual behaviors makes them both important variables to study when considering risk involvement among adolescents.

Adolescents and Psychological Distress

Data also suggest youth experience high rates of psychological distress, often manifested as symptoms and syndromes, such as depression. Among a representative population sample of 1420 youth, Costello, Mustillo, Erkanli, Keeler, and Angold (2003) found a 3-month prevalence of any psychiatric disorder of 13.3%. Furthermore, 31% girls and 42% boys had at least one psychiatric disorder during the study, which lasted three to seven years depending on age at baseline (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003).

Subclinical symptoms of depression, often exacerbated by increased rates of life stressors, increase throughout adolescence, with up to 65% of youth in one study reporting moderate to severe psychological distress (Hammen & Compas, 1994; Rutter, Kim-Cohen, & Maughan, 2006). More than a quarter (26.1%) of YRBSS high school students reported feeling sad or hopeless for two consecutive weeks over the course of a year (Centers for Disease Control and Prevention, 2009). Even more alarmingly, in the same sample 13.8% of youth had seriously considered suicide and 6.3% had attempted suicide in the year prior (Centers for Disease Control and Prevention, 2009).

Studies show youth also experience high rates of anxiety and stress, which have been shown to predict emotional distress in teens (Ge, Lorenz, Conger, & Elder, 1994). In fact, anxiety disorders comprise the largest category of mental disorders experienced by children and adolescents (Costello et al., 1996). As adolescents age, psychological distress and the prevalence of social anxiety and panic disorder rise, along with substance abuse and depression (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003).

Adolescent mental health problems are often linked to risky behaviors such as substance abuse, with many youth meeting criteria for dual diagnoses, meaning psychopathology as well as substance abuse or dependence. In fact, dual diagnoses have been reported among adolescents at rates similar to adult samples (Bukstein, Glancy, & Kaminer, 1992; Hovens, Cantwell, & Kiriakos, 1994). According to a review of 15 community-based studies, 60% of youths with substance use problems also had a comorbid diagnosis of a psychiatric illness (Armstrong & Costello, 2002).

While conduct issues are more prevalent, depression was also commonly associated with substance abuse and dependence among adolescents. Those youth with childhood psychopathology were more likely to begin using substances to the point of abuse or dependence earlier in their teen years. (Armstrong & Costello, 2002). Furthermore, alcohol is commonly implicated in adolescent suicide, and earlier alcohol involvement has been found to predict higher rates of suicide attempt, even among pre-teens (Swahn & Bossarte, 2007; Swahn, Bossarte, Ashby, & Meyers, 2010).

At-Risk Youth

While rates of substance use, risky sexual behavior and psychological distress are high in the general youth population, some youth are at an increased risk for these negative factors. Adolescents who are exposed to trauma and increased life stress are at an increased risk for psychological distress, substance abuse, mental illness, and risky sex compared with other teens and middle-aged adults under similar circumstances (Buckner, Beardslee, & Bassuk, 2004; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995).

Among those at risk are homeless youth, who suffer increased rates of risky sexual behavior, substance use, and psychological distress. For example, homeless youth are more likely to become involved in sexual activities at an earlier age than their housed peers, and they are more likely to engage in risky behaviors such as intravenous drug use and survival sex, which is the act of exchanging sexual acts for shelter or items needed to live. Estimates of the HIV prevalence among homeless adolescents suggest they may be 2 to 10 times more likely to contract the virus (Bailey, Camlin, & Ennett, 1998; Greene, Ennett, & Ringwalt, 1999; Kipke, O'Connor, Palmer, & MacKenzie, 1998). Even as teen pregnancy rates decrease among the general population, minority and homeless youth experience disproportionately high rates of teen pregnancy (Ennett, Federman, Bailey, Ringwalt, & Hubbard, 1999; Jemmott, Jemmott, Fong, & McCaffree, 1999).

Homeless youth are also more likely to become substance involved, which increases their chances of engaging in risky sexual behaviors (Bailey, Camlin, & Ennett, 1998; Robertson & Toro, 1999). Among a sample of Los Angeles street youth, those who were involved in substance use also had high rates of risky sexual behaviors such as survival sex and sex without a condom (Kipke, O'Connor, Palmer, & MacKenzie, 1998). Among male street youth in Montreal, Canada, 27.7% reported that they engaged in survival sex, and this behavior was highly associated with injection drug use and low rates of condom use (Haley, Roy, Leclerc, Boudreau, & Boivin, 2004).

Finally, homeless youth, particularly those who live on the streets, experience higher rates of some mental disorders, including depression (Cauce et al., 2000; Rotheram-Borus, 1993; Smart & Walsh, 1993). In a study comparing homeless adolescents to a matched sample of housed youths, McCaskill, Toro and Wolfe (1998) reported that homeless youth were more likely to meet criteria for alcohol abuse or dependence and behavioral disorders and they showed higher overall levels of symptomatology than their housed counterparts. However, the youth did not differ in rates of drug abuse, or mood disorders (McCaskill, Toro and Wolfe, 1998). These studies suggest that homeless youth contend with higher overall rates of psychological distress and symptoms, and are thus at a greater risk for involvement in behaviors such as risky sex and substance use.

While homeless youth are surely at risk for a number of negative outcomes, the broader category of youth living in poverty has also been shown to be at risk for increased psychological distress and mental disorders, substance use and risky sexual behaviors (Aber, Bennett, Li, & Conley, 1997; Dupere, Lacourse, Willms, Leventhal, & Tremblay, 2008; National Research Council & Institute of Medicine, 2009). In neighborhoods with lower socio-economic status, adolescent girls are more likely to engage in sexual activity more frequently and adolescents are more likely to begin intercourse early at to take sexual risks (Averett, Rees, & Argys, 2002; Dupere, Lacourse, Willms, Leventhal, & Tremblay, 2008; Ramirez-Valles, Zimmerman, & Newcomb, 1998). It appears that these low-income housed youths are similar, though not as extreme, in their risk involvement and the types of negative outcomes experienced, and both groups experience greater risk for these factors than their stably-housed middle-to-high income counterparts.

Explanatory Models

Among adolescents, psychological distress has been linked to risky behaviors, such as substance use (Petersen, Compas, Brooks-Gunn, Stemmler, Ey, & Grant, 1993) and unprotected sex (Reinherz, Giaconia, Pakiz, Silverman, Frost, & Lefkowitz, 1993). To make sense of these documented relationships, explanatory models have been proposed and examined, to varying degrees of success. Two such models, the self-medication hypothesis and its opposite, a risk-first hypothesis, have received the most attention.

The self-medication hypothesis emerged from clinical work with addicted patients when it was observed that many reported using substances to dull their mental anguish, resulting in dual diagnoses among substance users (Khantzian, 1985). Cohen, Mannarino, Zhitova and Capone (2003) described the temporary and additive nature of self-medication, as those coping in this way often find that they need to use substances with greater frequency and in greater amounts. Other theorists, particularly those studying alcohol use, have similarly emphasized the role of drinking in both increasing positive feelings and dampening distress. Some have characterized alcohol consumption as a functional response to distress, highlighting the role of drinking to cope in the lives of individuals who are particularly prone to negative affect and reactivity to stress (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992; Greeley and Oei, 1999).

The idea that individuals self-medicate with alcohol and drugs to cover symptoms of their mental disorders gained support and attention for its implications for prevention work (Kessler & Price, 1993). Using data from the National Comorbidity Study, Kessler et al. (1996) supported the self-medication hypothesis with their finding that 86% of people with dual diagnoses reported experiencing psychiatric symptoms before their heavy involvement with substances.

Among adolescents and young adults, support for the idea that youth engage in substance use as a means of alleviating painful psychological distress is plentiful. Young adults who experience the most distress are more likely to abuse alcohol (Hussong, Hicks, Levy & Curran, 2001; Swedson, Tennen, Carney, Affleck, Willard & Hromi, 2000). In a study of homeless youth, Klee and Reid (1998) found that 71% reported using drugs to deal with their anxieties.

Although youth use substances for a number of reasons, those who are more susceptible to psychological distress often drink to cope, which puts them at an increased risk for heavy and problematic substance use as adults (Cooper, Russell, & George, 1988).

While self-medication has support both empirically and in popular culture, the research findings are not all consistent with the hypothesis. In 1996, Rohde, Lewinsohn and Seeley found no temporal relationship between depression and alcohol abuse in a longitudinal study, and an additional study reported inconclusive findings regarding the matter in 2009 (Costello, Erkanli, Federman & Angold).

Others have presented conflicting data suggestive of a trend contrary to the self-medication hypothesis. These data suggest the presence of risk-involvement prior to the onset of psychological distress, referred to as the risk-first hypothesis in this study. In this alternative explanation, high risk behavior contributes to or exacerbates the development of psychological distress, possibly by resulting in stressful negative consequences and increased exposure to potentially traumatic events. For example, one might engage in substance use and sex while intoxicated and increase the chances of being sexually assaulted, which then may lead to the development of psychological symptoms.

In one such study, baseline cigarette smoking was a strong predictor of depression after one year, but depression at baseline did not successfully predict future levels of cigarette smoking, suggesting that the inverse of the self-medication hypothesis, the risk-first model, might also be a viable explanation (Goodman & Capitman, 2000). Additional support came from a longitudinal study of adolescent girls in which substance use symptoms predicted depression but depression levels at baseline did not predict future substance involvement (Rao, Daley, & Hammen, 2000). Even after controlling for age, gender, socioeconomic factors, and previouspsychiatric symptoms, the use of alcohol and drugs in adolescence has been shown to predict later Major Depressive Disorder (Brook, Brook, Zhang, Cohen, &Whiteman, 2002).

Relatively few studies have examined the role of other risky behaviors, such as risky sex, as an alternative or additional means of coping. Still fewer have used longitudinal data to describe a temporal relationship between psychological distress and substance use or risky sexual behaviors. Halfours, Waller, Bauer, Ford and Halpern (2005) reported that sex and drug engagement among 13,491youths with baseline ages of 7 to 11 years predicted later depression the following year. However, as in several other studies, depression was not found to predict risk involvement.

Current Study

The purpose of the current study is to examine, in a sample of at-risk youth, temporal relationships between psychological distress and two distinct risky behaviors; risky sex and substance abuse/dependence. A clearer understanding of these relationships will inform the targets of prevention and intervention strategies aimed at reducing each of these variables. In light of strong support for both the self-medication and risk-first models, it is hypothesized that substance abuse/dependence and involvement in risky sexual behaviors will each predict psychological distress across time and psychological distress will similarly predict these risky behaviors. Thus, it is expected that evidence in favor of both explanatory models will be found, and it is the aim of this study to determine if one of these models is more predictive of outcomes.

Method

Sampling Design

A number of prior studies of homeless youth and adults have utilized a similar probability sampling method to the one used here (Burnam & Koegel, 1988; McCaskill, Toro, & Wolfe, 1998; Toro et al., 1999; Zlotnick & Robertson, 1999). A total of 250 homeless adolescents were first drawn from a variety of settings and agencies within a large Midwestern metropolitan area. Among these settings were youth shelters and in-patient and out-patient substance abuse treatment centers and psychiatric facilities. Starting with those settings serving the greatest number of different homeless youth, a proportional percentage of youth, ages 13 to 17, were sampled. This ensured the greatest variety of youth without repetition.

Once recruited, homeless adolescents were asked to provide a list of peer nominations of youths who were living in their original neighborhoods who were housed and living with their legal guardians. They provided names, addresses and phone numbers for up to 10 acquaintances, and they were asked to exclude friends in order to control for biases resulting from friendships. In this way, a matched group of housed adolescents was obtained for a total of 398 homeless and housed adolescent participants at baseline. Matching of housed youth to their homeless counterparts was done based on gender, age, race and neighborhood socioeconomic characteristics (Tompsett & Toro, 2010). The retention rate at 2 years was 63.5%, at 5 years it was 85.93% and at 7 years it was 82.66% of the total sample.

Participants

For this study, 250 homeless and 148 matched housed adolescents, between the ages of 13 and 17 at baseline (*M* = 15 years), made up the total sample. To be considered homeless for the purposes of this study, youths had to report spending at least one night on their own and unaccompanied by a guardian during the month before baseline. ‘On their own’ referred to staying at a temporary shelter, a friend’s house without parental permission, on the streets or in an improvised shelter. Housed youth were a matched sample that included respondents who had never been homeless and were living with their legal guardian(s).

The current study covers multiple time points and includes the 253 youth who were interviewed at baseline and again at 2-years follow-up. Within this sample of 253, 119 were housed, 134 were homeless, 64.4% were female and 49.8% were Caucasian (with 41.1% African American, 1.6% Hispanic, and 7.5% another ethnicity and/or race). Participants ranged in age from 12 to 17 (*M* = 15) at baseline, 14 to 21 (*M* = 17) at 2-year follow-up, 17 to 24 *(M* = 20) at 5-year follow-up, and 19 to 25 (*M* = 21) at 7-year follow-up.

Procedure

Interviews were conducted primarily by a staff of paid full-time interviewers, with some interviews also done by graduate and advanced undergraduate students in psychology. A criterion interviewer carefully trained each of the other interviewers to properly administer each measure. New interviewers began by accompanying the trainer on interviews where both would record answers which were then compared for reliability. When an interviewer demonstrated a thorough understanding of the interview measures and procedure, they next conducted one or two interviews under direct supervision of the criterion interviewer. Further feedback was given regarding adherence to the training and any other issues that arose.

Having been thoroughly trained, interviewers were assigned cases to contact and interview in person. Interviews of homeless youth were conducted at shelters, agencies, or in a public place that afforded both safety and sufficient privacy so the interview would not be overheard. Each interviewer was accompanied by another approved staff member for safety reasons. A variety of consent procedures were used depending on the living situation of the youths. For those homeless youth residing in shelters, staff members generally aided in obtaining a legal guardian’s signature on consent documents. For those who were wards of the state, social workers with legal responsibility for the youths in their care signed consent for participation. The parents of housed adolescents received a consent form and a description of the study in the mail. Then, they were contacted by phone and asked to verbally consent to their child's participation.

In addition to written or verbal consent from a legal guardian, each adolescent was asked to assent and was given the option to withdraw from participation at any time. Following consent and assent, each participant completed a two- to four-hour face-to-face interview with a trained interviewer. Because reading ability varied across participants, all measures were verbally administered with all responses recorded by the interviewer on a standardized answer sheet or laptop computer. In addition to the baseline interview, full-length interviews were attempted with all participants at six months, 12 months, 2 years, 5 years, 6 years and 7 years after baseline.

At the beginning of the study, in an effort to maintain contact between interviewer and the adolescent, an additional brief interview was conducted 3 months after baseline. At the first five time-points (baseline, 3 months, 6 months, 12 months, and 2 years), participants were compensated $20 for their participation and, at the last three (5, 6, and 7 years), they were given $50. Regular contact between the interviewers and their assigned participants was maintained via phone check-ins periodically, and interviewers were responsible for keeping this line of communication open. The sample used in this study (n = 253) includes all those with complete data for the variables of interest at baseline and on the 2 year follow-up interview, and it includes the data from those individuals at the 5 year, and 7 year follow-up interviews. Thus, each follow-up interview used was 1-2 years after the preceding full-length interview, providing roughly equal spacing of interviews, as typically recommended for the study's main statistical technique (i.e., Structural Equation Modeling).

Measures

Included in the current study were a variety of measures that were carefully designed to cover an array of topics. The chosen measures were used in previous successful studies of homeless and housed youth (Cauce et al., 1994; Cauce et al., 2000; McCaskill, Toro, & Wolfe, 1998; Wolfe, Toro, & McCaskill, 1999). Demographic information was recorded for each participant, in addition to a variety of measures, at baseline, and this information included age, gender, racial and ethnic group, and housing status.

Demographic Information. In the current study, key demographic variables were used as controls in each longitudinal model. Specifically, participant age, gender, and housing status were considered and were based on the self-reported demographic information provided by participants at baseline.

The Brief Symptom Inventory. The Brief Symptom Inventory (BSI) contains 53 items which measure the amount a person has been bothered by a particular symptom in the past two weeks (Derogatis & Melisaratos, 1983). Participants are asked to rate severity of symptom distress ranging from not at all (0) to extremely (4). It is widely used in research and clinical practice and it yields useful information through nine clinical subscales (Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic anxiety, Paranoid ideation and Psychoticism) and one summary score of psychological distress, the Global Severity Index (GSI) used in the current study. Many other studies involving homeless adults and adolescents have used the BSI, or the longer SCL-90 on which it is based, and there is considerable evidence of internal consistency (alphas range from .71 for Psychoticism to .85 for Depression) as well as concurrent and discriminant validity (Cauce et al., 1994; Derogatis & Melisaratos, 1983; Toro et al., 1999).

The Risky Sexual Behavior measure. The Risky Sexual Behavior (RSB) measure assessed the following sexual behaviors, each on a 4 or 5-point scale: Frequency of sexual activity (0 = not at all, 1 = rarely, 2 = sometimes, 3 = several times a week, 4 = everyday), number of sexual partners (0 = no partners, 1 = 1 partner, 2 = 2 - 3 partners, and 3 = more than 3 partners), and age at first oral, anal, or vaginal intercourse (0 = abstinent, 1 = at or after 15, 2 = between 13 and 14, and 3 = before age 12). A 3-point scale was used to assess condom use (0 = abstinent, 1 = always used condom, 2 = used condom inconsistently), STD history (0 = no STD history, 1 = history of 1 STD, 2 = more than one STD), and birth control use (0 = abstinent, 1 = always used birth control, 2 = used birth control inconsistently). Dichotomous items (0 = no, 1 = yes) assessed the presence of other RSBs including drug and/or alcohol use while having sex, sex with intravenous drug users, anal sex, oral sex, and exchanging sex for money or drugs. All self-reported sexual behaviors were summed at each time-point in order to derive a total score and construct a RSB scale. A similar total score has demonstrated good internal consistency using the present dataset (alpha = .86 at baseline and .87 at 7 years; Lombardo, 2001; Lombardo & Toro, 2003) and an earlier one involving homeless adults (Forney, Lombardo, Toro, 2007).

The Diagnostic Interview Schedule for Children, 2nd Edition (DISC). A structured diagnostic interview, the DISC is designed to assess the diagnostic criteria for common forms of psychopathology in children and adolescents (Fisher, Wicks, Shaffer, Piacentini, & Lapkin, 1992). Questions pertaining to drug and alcohol use are included in the DISC and a measure of the number of symptoms of alcohol and drug abuse and dependence endorsed was calculated for each participant. The resulting total score, combining symptoms of alcohol abuse/dependence and drug abuse/dependence, was used for each time point. The DISC has demonstrated adequate reliability and validity and has been used with homeless adolescents (McCaskill, Toro, & Wolfe, 1998; Schwab-Stone, 1993).

Structural Equation Modeling (SEM). SEM was chosen to complete the analyses of these longitudinal variables. Maximum Likelihood Estimation was used and models were run using the statistical software LISREL 8.8 (Jöreskog, & Sörbom, 2006). The research question and available data were ideally suited for use with SEM, as it allows for the demonstration of possible relationships between temporally linked variables, something more difficult to achieve using other multivariate statistical methods. SEM was preferable when testing pathways because it is more flexible and comprehensive than ANOVA and multivariate regression in that it allows a means to control for measurement error in addition to extraneous and confounding variables (Hoyle, 1995).

Furthermore, SEM was warranted for use in the current study for the following reasons: 1) The study controlled for demographic variables at baseline, 2) the variables were transformed to approximate normality in order to appropriately use the Maximum Likelihood Estimation method, 3) the sample size was above the minimum 200 participants considered necessary to ensure the SEM findings are not likely capitalizing on chance.

When interpreting the fit between the data and the proposed SEM models, the use of at least four fit indices is commonly recommended (Hoyle, 1995).To assess the overall fit of the fixed parameters, the Normal Theory Weighted Least Squares Chi-Square index was used. Good fit was indicated by a non-significant Chi Square value, $p < .05$. The Non-Normed fit-index (NNFI) and the Confirmatory Fit Index (CFI) were used to further determine the presence of good overall model fit. For the NNFI and CFI, good model fit was indicated by values at or above .95. The Root Mean Square Error of Approximation (RMSEA) was used to verify the model fit. For the RMSEA, values below .05 indicated good model fit. Finally, the Critical N estimate value was used to assess whether or not the models were likely to be over or under powered given the sample size. The Critical N provided the number of participants at which the analysis would become overpowered and Chi Square would erroneously indicate good model fit.

The competing explanatory hypotheses can be modeled using SEM path analysis, which is based on linear regression (Mueller, 1996). The self-medication hypothesis (Figure 1) models possible pathways which would indicate an increase in psychological distress being related to a later increase in either RSBs or substance abuse/dependence.

Insert Figure 1 about here

Conversely, the risk-first hypothesized model (Figure 2) models pathways from risk to psychological distress, with the expectation that increases in risk behaviors come before and relate to later increases in psychological distress.

Insert Figure 2 about here

Figures 1 and 2 represent simplified versions of the final path models, to illustrate the basic hypothesized relationships between variables. To test the competing explanatory models simultaneously, the hypothesized path model (Figure 3) was used. This model includes additional cross-lag paths which allow for the examination of the additional temporal relationships. For example, the model includes the prediction of baseline psychological distress on the target risky behavior (Substance Abuse/Dependence or RSB) at all other time points, including the final 7-year time point.

Insert Figure 3 about here

The two path models involve a cross-lag design linking risky behaviors, RSBs or alcohol/drug abuse/dependence, and psychological distress longitudinally with the goal of illuminating pathways across time. Separate models testing RSBs and alcohol/drug abuse/dependence were run.

Results

Data Screening and Preparation

Data Screening and Preparation. First, the data were screened for accuracy of entry. Means, medians and ranges for each variable were assessed to ensure that all values fell within expected and possible parameters. Further, the data were visually inspected for signs of double-entry and incorrect coding, but none were found. Next, the data were screened for missing values for each participant at all time-points. Each participant included in this study had available data for both baseline and 2-years follow-up.

In order to ensure that biases were not introduced by sample selection, those included in the study (n = 253) were compared to those excluded (n = 146) on the variables of gender and race as well as baseline age, housing status, GSI, RSBs, symptoms of alcohol abuse/dependence and symptoms of drug abuse/dependence. Analyses included independent-samples t-tests and chi square goodness of fit tests, and results are summarized in Table 1. Results did not reveal significant differences on gender, race, psychological distress, risky sexual behaviors, alcohol abuse/dependence and drug abuse/dependence. However, respondents excluded from the current analyses were more likely to have been homeless at baseline than those included in the sample.

Insert Table 1 about here

The 253 participants were next screened for univariate outliers. The nature of many of the variables of interest is such that significant skew is expected because the majority of individuals do not engage in the target behavior. For example, at baseline 64.4% of the sample did not endorse any symptoms of drug abuse/dependence. However, on the other extreme, a few participants endorsed 15, 16, or 17 symptoms of drug abuse, and they were identified as outliers. Rather than discarding these participants, their scores were truncated to decrease the influence of outliers, while maintaining their relative position in the distribution. The process of truncation involved examining the score distributions for each variable and identifying those individuals with scores falling outside of the rest of the distribution. The scores of those identified individuals were replaced with the next highest value that fell within the normal distribution.

As the RSB variable distributions uniquely contained a large number of zeros, followed by few low scores, many moderate scores and some higher scores, the distribution was logically truncated at the high and low ends. This involved collapsing the scores of those on the low end to form a low category, shifting those in the middle downward, and collapsing those falling within a high range of scores. This created a relatively normal distribution while maintaining the relative order of scores. See Table 2 for a summary of the impact of truncation on the distribution of the data.

Insert Table 2 about here

Next, each variable was tested for multivariate normality, as this is an additional assumption of SEM (Hoyle, 1995). The alcohol and drug abuse/dependence scores were first summed to create a combined substance abuse/dependence variable. Each variable was assessed for skew and kurtosis and all were found to violate multivariate normality at at least one time point (see Table 2). Since the skew was slight, the variables were transformed using a square root transformation. Following transformation, the skewness and kurtosis of the psychological distress and substance abuse/dependence variables were improved, although psychological distress at 7-years and substance abuse/dependence at baseline remained slightly, though significantly, skewed (Table 2). However, upon transformation, the resulting RSB variables were more skewed and kurtotic than before, and so these were analyzed without the transformation. While data normality is assumed in SEM, the Maximum Likelihood method of estimation is robust to minor violations of this rule (Hoyle, 1995), and so no further attempts to normalize the data were made.

Finally, missing data were imputed using the Multiple Imputation (MI) method (Baraldi & Enders, 2010). In MI, multiple values are imputed for a missing value and then these possibilities are combined using a set of statistical rules (Durrant, 2009). MI requires that the data are Missing Completely at Random (MCAR; Baraldi & Enders, 2010; Rubin, 1976). MCAR means that absence of scores on a variable is unrelated to scores on any of the other variables. Table 3 summarizes the missing data for each variable.

Insert Table 3 about here

To test this assumption, Little's MCAR Test was used (Little, 1988). The data were found to be missing completely at random, $\chi^2(255) = 275.66$, $p = .18$, and it was determined that MI was an appropriate manner for dealing with the missing data. LISREL 8.8 was used to conduct the MI, using 200 imputations as a default.

Structural Equation Modeling (SEM)

Correlations. Correlation matrices, containing all appropriate variables, were created for each model. Tables 4 and 5 contain the correlations between the variables of interest before MI. Additionally; Table 6 provides the corresponding descriptive statistics.

Insert Table 4 about here

Insert Table 5 about here

Insert Table 6 about here

Of the demographic variables, Housing Status was the only one significantly correlated with all of the baseline variables. Age was significantly correlated with baseline RSB and substance abuse/dependence, and gender was uncorrelated with the baseline measures. Due to the lack of relationships between gender and the variables of interest, gender was dropped as a control variable. Additionally, correlations between the target variables across time points ranged from *r*

= .04 to *r* = .63. Between 12 variables, there were 14 non-significant correlations, and the majority of the variables yielded low to moderate significant correlations.

Path Models. Path analysis, which can be completed using SEM, is based on linear regression and allows for the examination of relationships between variables simultaneously. As such, it is often used in exploratory analyses (Mueller, 1996). The first path model tested the relationship between psychological distress and RSBs, using a cross-lag design and accounting for housing status and age at baseline. Figure 4 shows the standardized coefficients for the model.

Insert Figure 4 about here

Results indicated that the model adequately fit the data. First, the RSB model obtained a significant chi square, which indicated poor model fit, χ^2 (12, 253) = 32.34, $p < .01$. However, chi square is sensitive to sample size, and a large sample can cause an otherwise well-fitted model to produce a significant chi square value. A moderate RMSEA (0.08) and high scores on NNFI (0.91) and CFI (0.97) indicated adequate model fit. Additionally, the Critical N (197) was only slightly fewer than 200, indicating the model is likely not over or under powered.

While overall model fit is an important prerequisite to interpreting the results of any path model, individual path estimates provide the crucial information necessary for testing the hypothesis under consideration. Within the RSB model, there are several significant pathways across the variables of interest. First, level of psychological distress at baseline was significantly related to RSB involvement at 7-year follow-up (β = .14). Psychological distress at 2-years was significantly related to 5-year RSB involvement (β = .18). Additionally, level of RSBs at 2- (β = -.16) and 5-year (β = .15) follow-up significantly related to psychological distress at 7-years.

The second path model was identical to the first in structure, but it tested substance abuse/dependence as the risky behavior. Figure 5 shows the standardized coefficients for the model.

Insert Figure 5 about here

Results indicated that the model adequately fit the data. First, chi square indicated poor model fit, χ^2 (12, 253) = 29.51, $p < .01$. However, a low RMSEA (0.07) and high scores on NNFI (0.94) and CFI (0.98) indicated adequate to good model fit. The Critical N (224.89) suggested that the model was not likely to be over or under powered.

The substance abuse/dependence model produced two significant cross-lagged variable pathways. First, baseline symptoms of substance abuse/dependence significantly related to psychological distress two years later (β = .11). Additionally, 2-year psychological distress significantly related to symptoms of substance abuse/dependence at the 7-year follow-up (β = .13).

Discussion

The purpose of this study was to examine, among at-risk youth, temporal relationships between psychological distress and risk-taking behaviors, in the form of risky sex and substance abuse/dependence. The study considered two possible explanatory models for these relationships; the self-medication hypothesis and the risk-first hypothesis.

The self-medication hypothesis proposes that individuals first experience psychological distress before becoming involved in substance use and risky behaviors as a means of decreasing or coping with distress (Greeley and Oei, 1999; Kessler et al., 1996; Khantzian, 1985). Substance abuse/dependence, and theoretically other risk behaviors, can act as positive reinforcers by producing positive effects, but they more often decrease painful and distressing thoughts and emotions by acting as a negative reinforcer (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992; Greeley and Oei, 1999).

Alternatively, the risk-first hypothesis proposes potentially similar relationships between the variables, but an opposite temporal sequence. Specifically, this model posits that individuals become first involved in risky behaviors, such as substance abuse/dependence and RSBs, and these later lead to psychological distress (Goodman & Capitman, 2000; Rao, Daley, & Hammen, 2000). Later distress may be a direct result of risk-taking behaviors, but it may also be due to factors related to risk-taking, such as an increased risk of trauma, sexually transmitted disease, or unplanned pregnancy (Halfours, Waller, Bauer, Ford, & Halpern, 2005).

The study attempted to examine relationships among the target variables using structural equation modeling. Given the strong support for both the self-medication and risk-first models, it was hypothesized that the models would yield support for both explanatory models, but perhaps one more than the other, suggesting better fit for one model.

The results of this study provide additional support for the relationship between psychological distress and risk behaviors such as substance abuse/dependence and risky sexual behaviors. The results suggest that the basic model representing the competing self-medication and risk-first hypotheses is adequate in describing some of the relationships between risk and psychological distress over time. The significant pathways found in each model were unique, suggesting the relationships between RSBs and psychological distress differ from those between psychological distress and substance abuse/dependence. Each model produced at least one significant pathway from psychological distress to risk and from risk to distress, providing evidence for both explanatory models, as predicted by the hypothesis. However, neither explanation earned more support than the other.

The substance abuse/dependence model findings suggest that the risk-first model may fit best when subjects are young and already substance-involved. When this is the case, the significant pathway suggests that substance abuse/dependence is predictive of psychological distress two years later. Conversely, baseline distress was not significantly related to later substance abuse/dependence over the same interval of time. This is consistent with findings that substance-involved youth, particularly those who abuse alcohol, are more likely to become emotionally distressed, and even suicidal, later in adolescence (Swahn & Bossarte, 2007; Swahn, Bossarte, Ashby, & Meyers, 2010). However, the literature provides little explanation for the specific timing of this significant pathway, which raises some questions about the meaning of this finding. Why does substance abuse/dependence predict distress over the following two years, and not later? Additionally, what makes baseline substance abuse/dependence uniquely predictive of future distress, while this relationship is absent across the other time points? It is possible that the relative infrequency of substance abuse/dependence among younger adolescents makes it a more unique risk factor. However, as research suggests, substance abuse/dependence increases as youth age, with nearly half of high school students reporting alcohol use and nearly one third reporting marijuana use (Centers for Disease Control and Prevention, 2009). These high rates of substance abuse/dependence may render it less powerful as a unique predictor of future distress over time.

The substance abuse/dependence model also yielded a significant path between 2-year psychological distress and 7-year substance abuse/dependence. This finding is consistent with the self-medication hypothesis, though it is unclear why distress at this particular time point is related specifically to substance abuse/dependence only 5 years later. This finding may be similar to the one previously discussed, in that substance abuse/dependence increases with age, with much higher rates occurring among those in their early twenties than among those just a few years younger (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). It is possible that in their early twenties, when developmentally youth may face additional pressures surrounding the struggle for self-sufficiency and adult identity, those who are prone to emotional distress are most likely to abuse substances. Until that critical time in their development, the youth may have been relatively supported by services such as foster care, K-12 education, and social norms that encourage caring for minors. In their 20s, without such supports, the more psychologically vulnerable may be particularly susceptible to the lures of substances as a means of coping (Cooper, 1994; Cooper, Russell, Skinner, & Windle, 1992; Greeley and Oei, 1999).

The RSB model also produced a number of significant pathways which may be meaningful, though complex. Baseline psychological distress predicted RSBs 7 years later, suggesting a relationship between early distress and much later risk taking. Similarly, 2-year distress predicted 5-year RSBs. It is possible that until the youth reached an average of age 20, many abstained from sexual activities, making it more difficult to predict RSBs at earlier time points. However, once youth became sexually active, they engaged in risky sex. Very few sexually-active individuals at any time point endorsed a small number of RSBs, therefore as more individuals endorsed engaging in sexual activity, most reported engaging in several risky sexual behaviors. This increase in sexual activity across adolescence is consistent with the literature, as is the high involvement in sexual risk taking among at-risk youth (Centers for Disease Control & Prevention, 2009; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). These two significant pathways may be seen as supporting the self-medication hypothesis for risk taking. Upon becoming sexually active, those who were most prone to psychological distress were most likely to engage in more sexual risk-taking.

While two of the RSB model pathways support the self-medication hypothesis, two others offer alternative evidence. Interestingly, 2-year RSBs were negatively related to changes in psychological distress at 7-year follow-up. This significant pathway was not predicted and was especially surprising given the non-significant simple correlation between 2-year RSBs and 7-year GSI (see Table 5). This finding contradicts the positive relationship demonstrated between 5-year RSBs and 7-year psychological distress, which is conceptually in line with the risk-first hypothesis. It is possible that the unexpectedly significant pathway between 2-year RSBs and 7-year change in GSI is a spurious finding and it is also possible that the inclusion of a variety of pathways in the model add to a significant total effect between these variables that is difficult to understand. These perplexing results point to a need to further understand the relationships between RSBs and distress, and the role of various forces in the lives of youth. The current model does not account for the potentially complex influence of social environment, parental involvement, personality, or any other additional factor which might further complicate when and why youth take risks or become psychologically distressed.

These results point to important implications for future research, as well as intervention and policy. Evidence for both the risk-first and self-medication explanatory models suggests that both may help to explain the experiences of some youth. It is possible that among youth there exist subgroups whose trajectories may more closely align with one of the two models. Research into the possibility of these subgroups may help to inform which groups are at the greatest risk for negative outcomes, and which may be best served by interventions targeting either psychological distress of risk-involvement. As risk and psychological distress appear to both precede and follow one another, it may be best to develop interventions that address the influence of both. Additionally, the findings provide evidence for the importance of assessing and targeting RSBs among at-risk youth. Policies aimed at improving mental health among youth should include provisions for assessment and intervention targeting the risk factors of RSBs and substance abuse/dependence. Additionally, policies and programs which target these risky behaviors should include provisions for the assessment and treatment of psychological distress.

This study has a number of important theoretical and practical limitations which warrant discussion. First, although the sampling was thorough and the sample representative, all potential sites for homeless youths were not explored. While shelters and other service agencies are frequented by the majority of this population, many also reside among friends and family for brief periods (so-called “couch surfers”), making them more difficult to reach when conducting research.

Additionally, a number of individuals did not have available follow-up data. While the data were found to be missing completely at random, and thus appropriate for Multiple Imputation, real data on the full 398 person sample might have provided more power for the analyses and it might have made the results more representative of the larger population of at-risk youth. Finally, the sole reliance on self-report measures in this study may be considered a limitation. Self-report is often susceptible to social desirability and it may have also been influenced by a potential lack of knowledge about key concepts among participants. Multi-method or multi-informant methods are encouraged, where feasible, in future projects wishing to analyze similar relationships among the target variables.

An additional consideration is the developmental span of this study. At baseline, ages ranged from 13-17. While this is only a four-year span, it encompasses a broad range of physical and psychological maturity levels. The current study attempted to account for this by including baseline-age in the model, but it was impossible to account for maturity and knowledge. This limitation is perhaps more problematic in light of the aforementioned complete reliance on self-report measures. While research is clear that involvement with substances and RSBs increases throughout adolescence, as does psychological distress, few studies look at the understanding adolescents have regarding these variables (Carpenter, 2001; Centers for Disease Control and Prevention, 2009). This may be particularly true for RSBs, as sexual knowledge is typically gained throughout adolescence, and the definitions of such terms as ‘abstinence,’ ‘sex,’ ‘virginity,’ and ‘intercourse’ can vary widely depending on age, maturity, sexual experience, and cultural background (Bersamin, Fisher, Walker, Hill, & Grube, 2007; Carpenter, 2001). Perhaps, looking at these variables longitudinally requires a more comprehensive understanding of the impact of development on the ways they manifest in the population.

Theoretically, the risk-taking behaviors considered here are but a limited sample of the risky behaviors in which at-risk youth might engage. While RSBs and drug and alcohol abuse/dependence are certainly prevalent, a stronger model might have also included illegal behaviors, such as shoplifting, arson, and vandalism, and other sensation-seeking behaviors, such as gambling and reckless driving. Sensation-seeking behaviors have been linked to increases in alcohol and drug use, as well as increased RSBs (McCoul & Haslam, 2001; Roberti, 2004). Future analyses might try to include some, or all, of these risky behaviors in an attempt to modify and improve the model.

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Table 1.

Baseline Characteristics of Respondents Included and Excluded in Sample

Baseline Variable	Included (n = 253) *M (SD) or # (%)*	Excluded (n = 146) *M (SD) or # (%)*	Test Statistics	*p =*
Age	14.99 (1.27)	14.77 (1.29)	$t(397) = -1.61$	.11
Race			$\chi^2 = 2.82$	.09
Caucasian	126 (49.8%)	60 (41.1%)		
Non-Caucasian	127 (50.2%)	86 (58.9%)		
Gender			$\chi^2 = .17$	.69
Male	90 (35.6%)	49 (33.6%)		
Female	163 (64.4%)	97 (66.4%)		
Housing Status			$\chi^2 = 29.29$	<.01*
Homeless	134 (53.0%)	117 (80.1%)		
Housed	119 (47.0%)	29 (19.9%)		
General Severity Index	.69 (.55)	.74 (.61)	$t(394) = .97$	.33
Alcohol Abuse/Dep.	1.75 (2.57)	1.59 (2.55)	$t(396) = -.61$	.54
Drug Abuse/Dep.	1.47 (2.87)	1.67 (3.13)	$t(396) = .66$	.51
Risky Sexual Beh.	5.32 (4.98)	5.86 (5.10)	$t(381) = .99$	.32

* = significant

Table 2

Values for Skew and Kurtosis Following Each Change to Data

	Original		Truncated		Square Rt. Trans.	
	Skew/SE	Kurt/SE	Skew/SE	Kurt/SE	Skew/SE	Kurt/SE
GSI						
Baseline	6.49*	1.21	5.12*	-1.26	**0.34**	**-2.41**
2-years	11.32*	14.71*	8.79*	5.09*	**1.72**	**-1.65**
5-years	10.18*	7.15*	9.27*	4.70*	**2.93**	**-0.74**
7-years	11.85*	14.15*	9.51*	6.34*	**3.36***	**-0.93**
Alcohol						
Baseline	12.39*	11.50*	11.70*	9.17*		
2-years	7.39*	2.28	6.98*	1.19		
5-years	6.92*	1.28	6.59*	0.42		
7-years	6.36*	3.70*	4.80*	-0.15		
Drugs						
Baseline	17.50*	27.70*	15.72*	20.24*		
2-years	15.93*	21.33*	15.93*	21.33*		
5-years	14.20*	19.33*	12.31*	11.31*		
7-years	13.41*	18.23*	11.85*	11.64*		
Risky Sex						
Baseline	1.05	-4.67*	**3.87***	**-2.98**	0.32	-5.34*
2-years	0.01	-4.73*	**3.85***	**-2.69**	-0.29	-5.08*
5-years	-3.19	-1.30	**1.26**	**-2.16**	-4.54*	-1.61
7-years	-3.63*	-1.15	**0.54**	**-2.86**	-4.85*	-1.28
Substance Abuse/Dep.						
Baseline					**5.11***	**-1.18**
2-years					**3.21**	**-2.76**
5-years					**2.36**	**-2.51**
7-years					**0.29**	**-1.68**

SE = Standard Error

* = significant value at or above +/- 3.3

Bold = used in final analyses

Table 3.

Summary of Missing Values

		# Missing	%
Baseline			
	GSI	1	.4%
	Subs.	0	0%
	RSB	8	3.2%
2-Year			
	GSI	0	0%
	Subs.	1	.4%
	RSB	6	2.4%
5-Year			
	GSI	26	10.3%
	Subs.	30	11.9%
	RSB	32	12.6%
7-Year			
	GSI	38	15%
	Subs.	37	14.6%
	RSB	41	16.2%

Table 4.

Correlations between Control and Baseline Variables

	Gender	Housing Status	Age
	M(.64) = .48	*M(.53) = .50*	*M(14.99) = 1.27*
Gender	1.0		
Housing Status	.06	1.0	
Age	-.04	-.08	1.0
Baseline GSI	.05	.26**	-.04
Baseline Subs.	-.06	.17**	.21**
Baseline RSBs	.02	.25**	.27**

p value < .05 = *; p value < .001 = **

Table 5

Correlations between Variables of Interest

		Baseline			2-Year			5-Year			7-Year		
		GSI	Subs.	RSB	GSI	Subs.	RSB	GSI	Subs.	RSB	GSI	Subs.	RSB
Baseline	GSI	1.0											
	Subs.	.29**	1.0										
	RSB	.27**	.55**	1.0									
2-Year	GSI	.53**	.25**	.16*	1.0								
	Subs.	.11	.46**	.17**	.21**	1.0							
	RSB	.11	.36**	.41**	.18**	.43**	1.0						
5-Year	GSI	.39**	.11	.09	.54**	.15*	.10	1.0					
	Subs.	.12	.35**	.19**	.21**	.48**	.27**	.33**	1.0				
	RSB	.06	.22**	.30**	.19**	.21**	.44**	.25**	.45**	1.0			
7-Year	GSI	.43**	.26**	.14	.60**	.18**	.04	.58**	.28**	.24**	1.0		
	Subs.	.04	.39**	.17*	.19**	.37**	.20**	.16*	.63**	.24**	.25**	1.0	
	RSB	.13	.23**	.20**	.06	.10	.21**	.07	.25**	.35**	.18**	.39**	1.0

p value < .05 = *; p value < .001 = **

Table 6.

Means and Standard Deviations of Variables

		Mean	*SD*
Baseline			
	GSI	.75	.33
	Subs.	1.20	1.32
	RSB	3.03	3.20
2-Year			
	GSI	.56	.32
	Subs.	1.35	1.32
	RSB	2.94	2.96
5-Year			
	GSI	.59	.34
	Subs.	1.67	1.32
	RSB	4.23	2.98
7-Year			
	GSI	.54	.34
	Subs.	1.88	1.19
	RSB	4.59	3.14

Figure 1. Demonstration of the Self-Medication Hypothesized Model

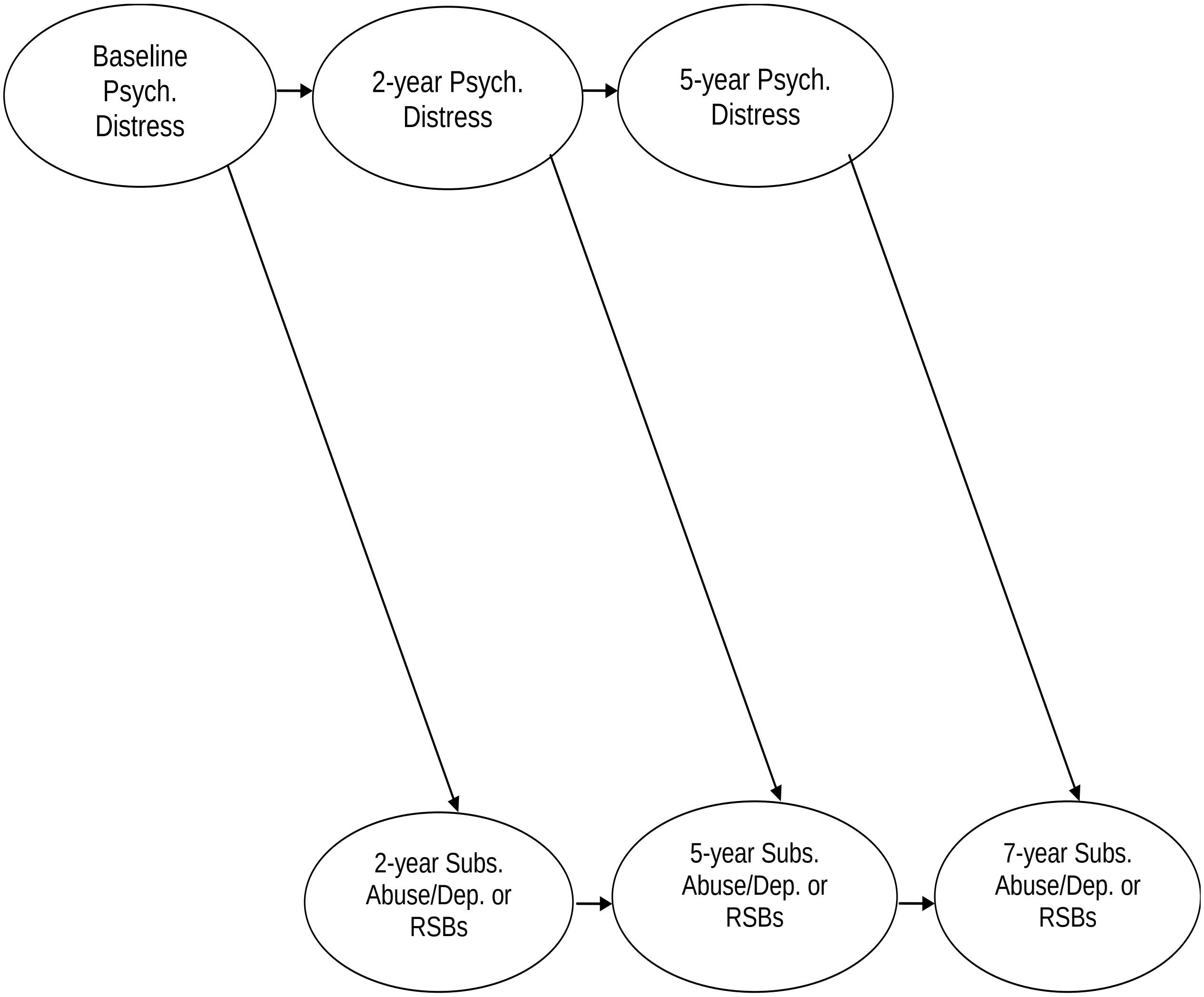

Baseline Psych. Distress
2-year Psych. Distress
5-year Psych. Distress
2-year Subs. Abuse/Dep. or RSBs
5-year Subs. Abuse/Dep. or RSBs
7-year Subs. Abuse/Dep. or RSBs

Figure 2. Demonstration of the Risk-First Hypothesized Model

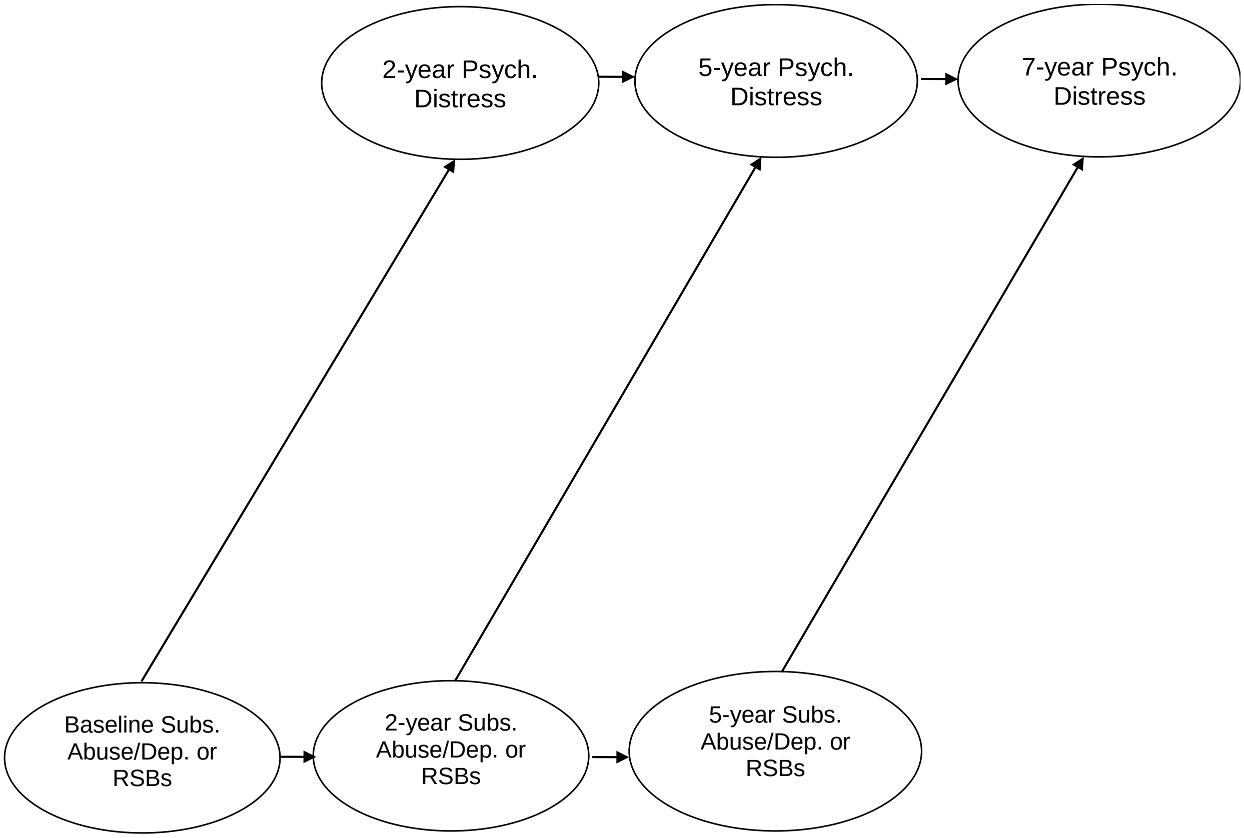

2-year Psych. Distress
5-year Psych. Distress
7-year Psych. Distress
Baseline Subs. Abuse/Dep. or RSBs
2-year Subs. Abuse/Dep. or RSBs
5-year Subs. Abuse/Dep. or RSBs

Figure 3. Path Model Examining Relationship between Symptoms of Substance Abuse/Dependence or RSB and Psychological Distress

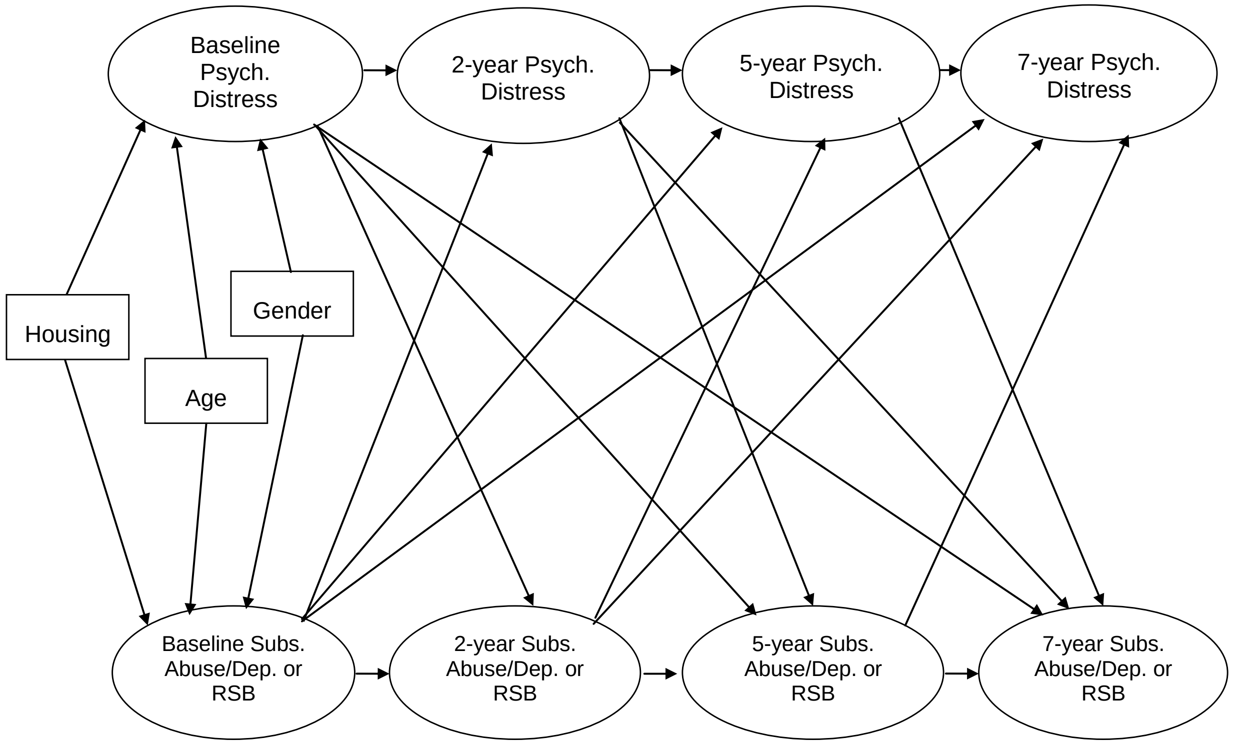

Baseline Psych. Distress
2-year Psych. Distress
5-year Psych. Distress
7-year Psych. Distress
Housing
Gender
Age
Baseline Subs. Abuse/Dep. or RSB
2-year Subs. Abuse/Dep. or RSB
5-year Subs. Abuse/Dep. or RSB
7-year Subs. Abuse/Dep. or RSB

Figure 4. Standardized Path Model Examining the Temporal Relationship between RSB and Psychological Distress

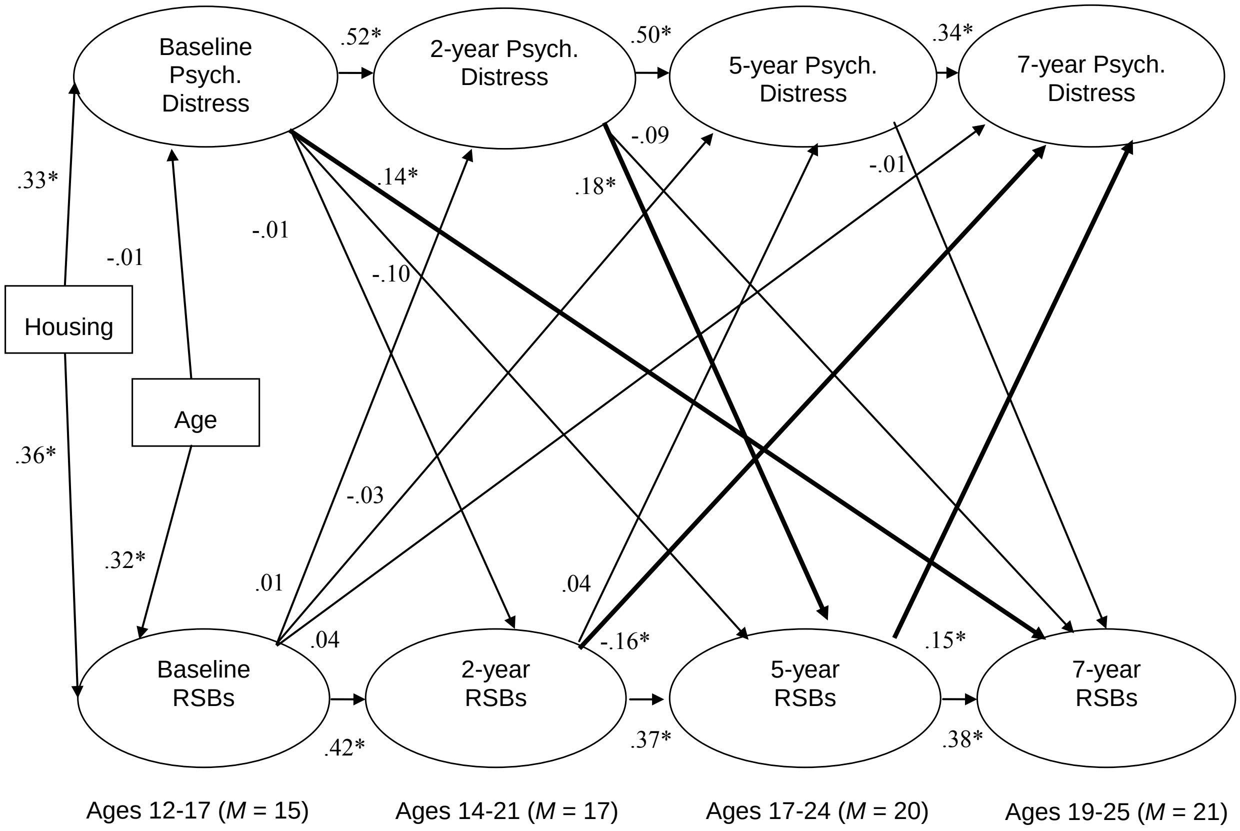
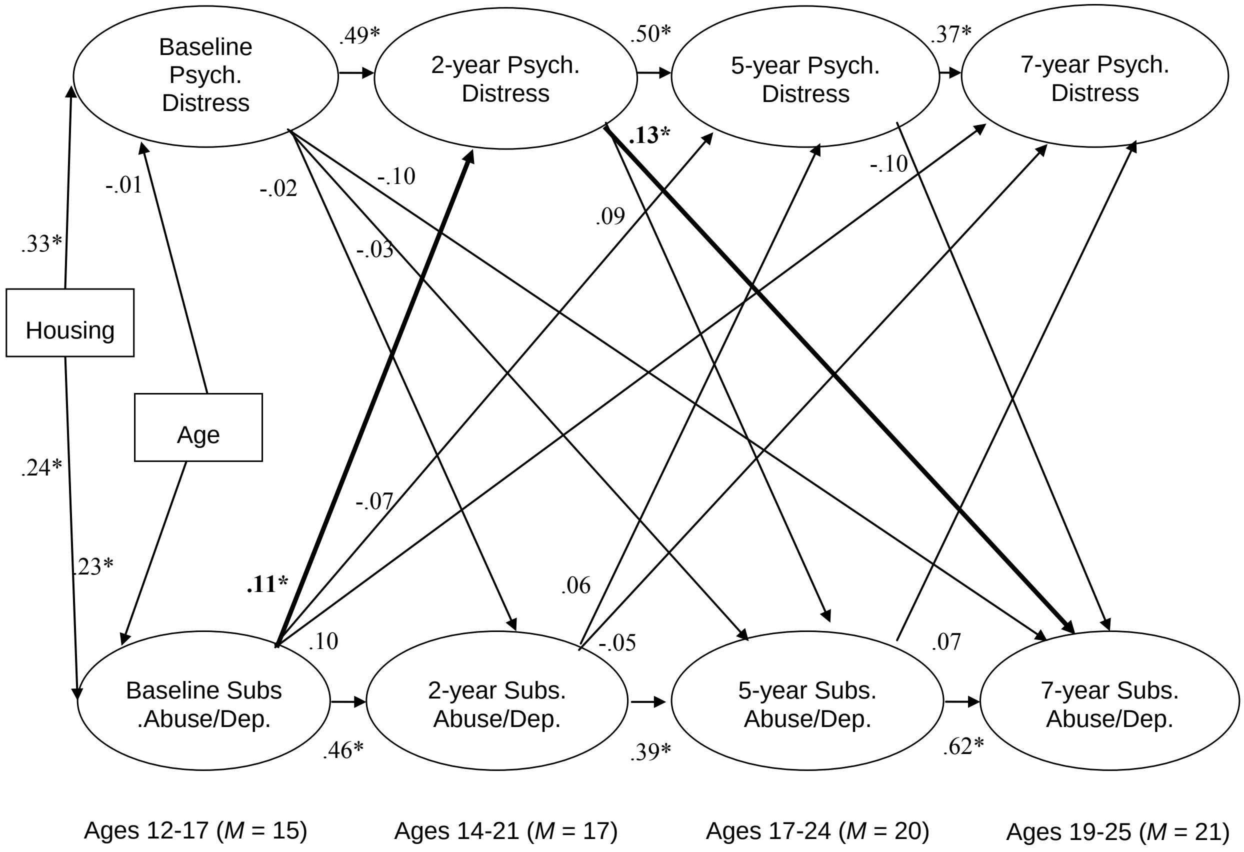

Baseline Psych. Distress
2-year Psych. Distress
5-year Psych. Distress
7-year Psych. Distress
.52*
.50*
.34*
Housing
Age
.33*
-.01
.36*
.32*
-.01
.14*
-.10
-.09
.18*
-.01
-.03
.01
.04
.04
-.16*
.15*
Baseline RSBs
2-year RSBs
5-year RSBs
7-year RSBs
.42*
.37*
.38*
Ages 12-17 (*M* = 15)
Ages 14-21 (*M* = 17)
Ages 17-24 (*M* = 20)
Ages 19-25 (*M* = 21)

Figure 5. Standardized Solution of the Path Model Examining the Temporal Relationship Symptoms of Substance Abuse/Dependence and Psychological Distress


Baseline Psych. Distress
2-year Psych. Distress
5-year Psych. Distress
7-year Psych. Distress
.49*
.50*
.37*
.13*
-.10
-.01
-.02
-.10
.33*
-.03
.09
Housing
Age
.24*
-.07
.23*
.11*
.06
.10
-.05
.07
Baseline Subs .Abuse/Dep.
2-year Subs. Abuse/Dep.
5-year Subs. Abuse/Dep.
7-year Subs. Abuse/Dep.
.46*
.39*
.62*
Ages 12-17 (M = 15)
Ages 14-21 (M = 17)
Ages 17-24 (M = 20)
Ages 19-25 (M = 21)

ABSTRACT

TEMPORAL RELATIONSHIPS BETWEEN PSYCHOLOGICAL DISTRESS AND RISKY BEHAVIORS IN A SAMPLE OF HOMELESS AND AT-RISK YOUTH

by

TEGAN LESPERANCE

August 2013

Advisor: Dr. Paul A. Toro

Major: Psychology (Clinical)

Degree: Master of Arts

The present study examined temporal relationships between psychological distress and two types of risk behavior; risky sexual behavior and substance abuse/dependence, in a sample of 253 at-risk youth. Using structural equation modeling, the self-medication and risk-first hypotheses were tested using longitudinal data spanning 7 years. Each model lent support to both hypotheses, further supporting the relationship between risk-taking behaviors and psychological distress among youth. Early psychological distress predicted later involvement in risky sexual behaviors, while later distress predicted substance abuse/dependence. Earlier risky sexual behaviors and substance abuse/dependence predicted psychological distress at later time points. These findings suggest the need to examine for possible subgroups who experience either risk-involvement or psychological distress earlier, as such findings would inform the targets of intervention and prevention work among youth and potentially aid in reducing the impact of both in the lives of youth. Results also indicate the importance of assessing and treating psychological and behavioral concerns, including substance use and risky sexual behaviors, concomitantly when working with youth.

AUTOBIOGRAPHICAL STATEMENT

Tegan Lesperance is originally from Indian Harbour Beach, Florida, and she completed her undergraduate degrees in Psychology, Women’s Studies and Sociology at the University of South Florida, in Tampa, Florida. During her undergraduate career, she studied risky sexual behaviors among participants in a family dependency treatment court. She moved to Detroit, Michigan in 2009 to pursue a Ph.D. in Clinical Psychology at Wayne State University. She is completing her graduate work in Dr. Paul A. Toro’s Community Research laboratory.