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Correlates of depressive symptoms among at-risk youth presenting to the emergency department

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Abstract

Objective—The study's objective was to identify correlates of depressive symptoms among at-risk youth in an urban emergency department (ED).

Method—A systematic sample of adolescents (ages 14–18) in the ED were recruited as part of a larger study. Participants reporting past-year alcohol use and peer aggression self-administered a survey assessing: demographics, depressive symptoms, and risk/protective factors. Logistic regression identified factors associated with depressive symptoms.

Results—Among 624 adolescents (88% response rate) meeting eligibility criteria, 22.8% (n=142) screened positive for depressive symptoms. In logistic regression, depressive symptoms were positively associated with female gender (OR 2.84, 95% CI 1.78–4.51), poor academic performance (OR 1.57, 95% CI 1.01–2.44), binge drinking (OR 1.88, 95% CI 1.21–2.91), community violence exposure (OR 2.25, 95% CI 1.59–3.18), and dating violence (OR 2.14, 95% CI 1.36–3.38), and were negatively associated with same sex mentorship (OR 0.52, 95% CI 0.29–0.91) and older age (OR 0.55, 95% CI 0.34–0.89). Including gender interaction terms did not significantly change findings.

Conclusions—Screening and intervention approaches for youth in the urban ED should address the co-occurrence of depressive symptoms with peer and dating violence, alcohol, and non-marijuana illicit drug use.

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Keywords

Violence; Depression; Dating Violence; Adolescent; Substance use

Introduction

Although mood disorders are epidemic among teens,^{1–4} only 37% of affected adolescents receive appropriate services.⁵ The emergency department (ED) serves as a primary source of health care for at-risk youth,^{6, 7} and studies suggest that unrecognized depressive symptoms may be a serious under-recognized problem for youth presenting to the ED for care for non-psychiatric reasons.^{6, 8–10} Universal screening for mental health disorders in the ED setting, however, is difficult at best.^{11–13} Identifying which characteristics associate with significant depressive symptoms could inform ED-based screening and intervention efforts.

Non-emergency-department based research suggests that there is a strong association between youth violence (particularly peer victimization) and internalizing disorders (particularly depression).^{16–24} Given that clinical diagnostic criteria in youth include irritability which can present itself as “acting out” behaviour or hostile and angry interactions (DSM-IV), it is not surprising that youth with depressive symptoms report higher levels of violence than their non-depressed counterparts.²⁵ Approximately one-third of youth with a history of peer violence, compared to 5–10% of all teens,^{1, 2, 26} report current depressive symptoms. The relationship is reportedly stronger for adolescent females than males.^{29–32} Little research, however, has been conducted addressing the *correlates* of depressive symptoms among youth with a history of physical aggression towards peers;^{16, 18} Two ED-based studies have examined rates of depressive symptoms as one marker of risk among adolescents presenting for acute care of a violent injury.^{29, 33} These studies are limited, however, in being convenience samples and in not examining depressive symptoms as a dependent variable.

Other risky behaviors, such as substance use and suicidality, are also independently associated with youth peer violence and adolescent depression,^{34–38} and may help EDs to identify particularly high-risk sub-populations to screen for depressive symptoms. Prior research indicates that adolescents who use alcohol, marijuana, and other illicit drugs are more likely to report violence exposure as compared to their non-substance using counterparts,^{39–41} Similarly, higher rates of depression have been reported among adolescents who report using alcohol, marijuana, or other illicit drugs compared to youth with no history of substance use.^{42–44} Although some studies have examined the relative prevalence of these and other risky behaviors among adolescents with depressive symptoms and exposure to violence in general (e.g., adverse childhood events, bullying, dating violence, or witnessing community violence),^{26, 32, 45–50} these studies have not examined physical peer violence. One study examined the relative contribution of depression, among other factors, to later fight-related injury;²⁷ and one small pilot study in the ED setting found substance use, violence, and depression was associated.²⁰ To our knowledge, none have examined the prevalence of risk factors for depression in a population with a history of physical aggression. Moreover, the sole ED-based study was limited by using a convenience sample, with a limited numbers of risk factors and no protective factors assessed.²⁰

Protective factors, defined as individual assets and social/contextual resources that operate to enhance healthy development, can also impact the likelihood of depression and violence, either directly or by moderating existing risk factors.^{51, 52} Previous research has shown protective factors specific to both depression and youth violence including parental monitoring, school connectedness and religiosity.^{51, 53, 54} A study by Copeland-Linder and

colleagues showed that high self-worth, high parental monitoring, and high parental involvement protected community violence-exposed youth (e.g., those who witness violence but are not direct victims or aggressors) from developing depressive symptoms.⁴⁸ This study did not assess the effect of protective factors on depressive symptoms among youth with a history of peer aggression. Prior research has also reported on the protective and risk factors associated with substance use. Among a nationally representative sample of adolescents, parental support and participation in extracurricular activities were related to reduced substance use, whereas child abuse, exposure to stressful life events, depressive symptoms, and violence within the family were associated with increased odds of substance use.⁵⁵ Previous research has also shown a connection between violence, as a risk factor, and both depression and substance abuse. Specifically, being exposed to any form of violence (community or family) was associated with higher odds of both major depression and substance abuse problems in a national probability sample.¹⁸ To our knowledge, no ED-based studies have looked at these potential protective factors for depressive symptoms among high-risk youth.

In sum, little is known about the correlates of adolescent depressive symptoms among ED at-risk youth with a history of peer aggression and alcohol use. Understanding these risk factors is needed to inform ED screening and interventions, to decrease subsequent comorbidities among youth not accessing services elsewhere. The primary objectives of this cross-sectional analysis were: 1) to characterize the prevalence of depressive symptoms among a systematic sample of at-risk youth (with a history of past year peer aggression and alcohol use) presenting to the ED for care for any reason, and 2) to identify risk and protective factor correlates of depressive symptoms among these at-risk teens.

Methods

Study Design, Setting, & Population

Adolescents ages 14–18 self-administered an audio computer-assisted self-interview (ACASI). These surveys were completed as part of the baseline assessment for a randomized controlled trial of an ED-based alcohol and violence intervention among a systematic sample of at-risk (past year youth violence and alcohol use) youth; the protocol is further described elsewhere.^{56, 57} The study site was an inner-city Level I trauma center ED with a census of approximately 50,000 adult and 25,000 pediatric patients per year. This site is the only public hospital in XXXX, an economically disadvantaged city with similar levels of poverty and crime as Detroit, Camden, St Louis, and Oakland.⁵⁸ Study procedures were approved by the appropriate Institutional Review Boards (IRB), and a Certificate of Confidentiality was obtained from the NIH.

Study Protocol

A consecutive sample of all 14–18 year old adolescents presenting to the ED for both medical illness and injury were approached for screening by trained research assistants (RAs) seven days/week, from 12pm–11pm, between September 2006 and September 2009. Parental consent as well as adolescent assent was obtained for youth under age 18; participant consent was obtained from adolescents aged 18. Patients were eligible for inclusion in this analysis if they reported a past-year history of peer aggression and past-year alcohol use (more than a sip or taste) on an initial, 15-minute screening survey. Adolescents whose presentation to the ED included acute suicidal ideation, abnormal vital signs, insufficient cognitive orientation, or a chief complaint of sexual assault or child abuse were excluded (FIGURE 1 and previous publications for further details).^{39, 56, 57} For the purposes of this analysis, participants who failed to complete the depression screen depression screen (n=68, 9.4%) or reported no physical aggression (n=34, 4.7%) were also excluded.

Eligible, consenting participants self-administered an audio-computer assisted self-interview (ACASI) on a tablet laptop computer, with touch screen and audio via headphones. ACASI results in improved reliability and validity of sensitive questions compared to traditional paper-and-pencil surveys.^{59–61} Consistent with the study site population, the survey was administered in English only; no participants were excluded for language restrictions. Participants received a \$20 gift-card on completion of the survey.

Measures

Depressive symptoms—Participants' depressive symptoms were measured using a modified 10-item version of the Center for Epidemiological Studies Depression Scale (CES-D).⁶² In accordance with previous studies using a 10-question version of CES-D,^{63–68} a cutoff of 14 was used to define presence of depressive symptoms versus mild/no depressive symptoms. The cutoff of >14 represents the 75th percentile of our score distribution, and has been used in several other studies to define severe depressive symptoms using CES-D and CESD-10^{71–73} (Although other studies have used a CESD-10 cutoff of 10 for “any” depressive symptoms,^{65, 66, 69, 70} our population's mean (SD) CESD-10 score was 9.4 (6.7), indicating that a cutoff of 10 would provide low discriminative capability.) The Cronbach's

for the scale within our population was 0.85. Suicidality was measured by asking “In the last 30 days have you thought that you would be better off dead or that you want to hurt yourself in some way?”; this question comes from the Patient Health Questionnaire-9, a validated tool for adolescents.^{74, 75}

Peer violence—Past-year peer aggression (i.e., physical aggression towards friends, strangers) was assessed using a modified version of the Conflict Tactics Scale (CTS),⁷⁶ as used by multiple other studies of youth peer violence.^{56, 57, 62, 76, 77} Moderate aggression was defined as having pushed or shoved, hit or punched, slammed someone into wall, and slapped someone (Cronbach's $\alpha = 0.80$); severe aggression was defined as having been involved in a group fight, causing someone to need medical care, or having beat up, kicked, and used a knife or gun on someone (Cronbach's $\alpha = 0.76$). Similar items assessed peer victimization, using moderate and severe categories of victimization (Cronbach's $\alpha = 0.86$).

Demographic information—Age, race/ethnicity, gender, academic performance, and receipt of public assistance were assessed using items from the National Study of Adolescent Health (Add Health).⁷⁷ For analysis, age was collapsed into 14–16 versus 17–18, due to known differences in rates and correlates of depression in these age groups;^{78, 79} race and ethnicity was collapsed into African-American and other, in accordance with the racial and ethnic distribution in XXXX. Academic performance was collapsed into poor performance (dropped out of school or received mostly D's and F's) versus non-poor performance.

Alcohol and other drug use—Binge drinking was measured using the Alcohol Use Disorders Identification Test (AUDIT-C); in accordance with standard recommendations for adolescents, binge drinking quantity was lowered from the original “6 or more...” to “5 or more drinks on one occasion”.^{80, 81} Past-year use of marijuana, non-medical use of prescription drugs (defined as “using prescription stimulants, sedatives or opiates on your own without a doctor telling you to take them”), and use of other illicit substances (e.g. cocaine, inhalants, LSD, PCP, mushrooms, speed, crystal meth, heroin, ecstasy) were assessed using questions from Add Health.⁷⁷ For the purposes of analysis, binge drinking, marijuana, and non-medical use of prescription drugs were dichotomized as yes/no over the past year. Self-reported use of any illicit substance other than marijuana or non-medical use of prescription drugs (e.g. cocaine, inhalants, and “other drugs”) were collapsed together,

due to the low frequency of use of these substances; this new category was also analyzed as a yes/no dichotomy.

Dating violence—Past-year dating aggression and victimization (e.g. violence toward or from someone you are dating or “going with,” a boyfriend or girlfriend) was measured using a collapsed version of the physical subscale of the Conflict in Adolescent Dating Relationships Inventory (CADRI).⁸² Due to overlap between victimization and aggression among teens,^{38, 83, 84} responses were dichotomized into any dating violence in the past year (yes) versus no dating violence (no).

Weapon carriage—Carriage of knives, razors, and guns was assessed with two questions adapted from previous studies of at-risk youth.⁸⁵ In analysis, answers were dichotomized as carriage of any weapon in the past-year (yes) versus no weapon carriage (no).

Community violence—Community violence exposure, defined as witnessing violence, was measured using five items from the National Institute of Mental Health Community Violence Project (hearing guns being shot; having one's house broken into; seeing gangs or seeing someone stabbed or shot).⁸⁶ For the purposes of analysis, a composite measure summing the degree of exposure based on answers to these five questions was used. Higher scores equate to higher exposure to community violence. The Cronbach's α for the scale within our population was 0.72.

Protective factors—Participants were asked whether they lived with a parent or guardian, whether they had same-sex mentors, and whether they were involved in school, religious, and community activities. A single question was used to assess each theoretical protective factor, drawn from Add Health.⁷⁷

Data Analysis

Statistical analyses were conducted using SAS 9.1.3 (SAS Institute, Cary Park, NC). Descriptive statistics (means/SD for continuous variables, and proportions/confidence intervals for categorical variables) were used to describe the distribution of demographic characteristics, risk and protective behaviors, and depressive symptoms. Estimates of association between independent variables and depressive symptoms were calculated using odds ratios. Collinearity between variables was calculated. Multivariate logistic regression analysis was then performed to determine adjusted differences in associations between independent variables and depressive symptoms. Independent variables were retained in the final model based on theory, significance in the bivariate analysis, and lack of collinearity. Given the theoretical differences in male and female risk factors for depression,^{30, 87} potential interaction effects between gender and the variables retained in the final model were tested. Goodness-of-fit of the model was assessed using the Hosmer-Lemeshow test.

Results

Of the 829 adolescents eligible for enrollment in the larger randomized controlled trial, 726 (87.6%) consented to complete the baseline screen. Of these, 624 (86.0%) met criteria for this study (past-year physical peer aggression, past-year alcohol use, and completion of the CES-D-10). For full screening procedures for the larger study, please see FIGURE 1. Average time for completion of the survey was 35.5 minutes (SD 17.2 minutes). The mean age of adolescents in our sample was 16.8 years (SD 1.3), and slightly more than half (55.6%, n=347) were female. Approximately half (n=351, 56.2%) of patients were non-white, and 57.5% (n=357) reported that their family was receiving public assistance (e.g. Medicaid, food stamps, WIC). In accordance with study inclusion criteria, all reported past-

year peer physical aggression. Most youth (71.5%, n=446) had been involved with severe peer aggression (having been involved in a group fight, causing someone to need medical care, or having beat up, kicked, and used a knife or gun on someone), and 46.6% (n=291) had been a victim of peer physical violence in the past year. The majority of adolescents reported multiple risky behaviors in the past year, including binge-drinking, marijuana use, weapon use, partner violence, and community violence exposure. More youth reported non-medical use of prescription drugs than use of illicit drugs other than marijuana (e.g. cocaine, heroin, ecstasy). Although most respondents reported same-sex mentorship and involvement in religious activities, fewer than 20% were involved with other community activities. (See TABLE 1.)

Overall, about one-quarter of the respondents (n=142, 22.8%) reported depressive symptoms, defined as a CESD-10 score >14. Females (n=99, 28.5% of females) were more likely than males (n=43, 15.5% of males) to report depressive symptoms (unadjusted OR 2.2 [95% CI 1.5–3.2]). Other correlates of depressive symptoms on bivariate analysis included poor academic performance, binge drinking, past-year non-medical illicit use of prescription drugs, past-year use of illicit drugs (excluding marijuana), past-year partner violence, and higher levels of community violence exposure. Living with a parent was the sole protective factor that was significantly decreased the odds of reporting depressive symptoms (actual 95% CI 0.4–0.96, p=0.03); as the 95% confidence interval for same-sex mentorship included 1.0, the latter variable was retained in the multivariate model. See TABLE 2.

One-quarter of the overall sample (26.9%, n=168) endorsed suicidal ideation (SI) in the last month. Suicidality was strongly associated with depressive symptoms of the depressed youth (63.4%, n=90) versus the non-depressed youth (16.2% n=78; OR 9.0, 95% CI 5.9–13.6, p<0.001). Almost 58% of the sample (n=360, 57.7%) reported access to a handgun. There was no significant difference in handgun access between those with and without depressive symptoms (p=0.55). Suicidality and access to a handgun were not included in the multivariate model due to collinearity with other variables.

In the multivariate regression (TABLE 3), age, gender, poor academic performance, binge drinking, partner violence, higher exposure to community violence, and use of illicit drugs (other than marijuana and prescription drugs) all predicted higher likelihood of depressive symptoms. Same sex mentorship was associated with decreased risk of depressive symptoms. Goodness of fit for the final model was acceptable (p=0.91).

Given the theoretical differences between male and female risk factors for depression, we analyzed the interaction between gender and each of the significant variables in the multivariate model. There were no significant interactions, indicating that gender did not moderate the effect of the independent variables on depressive symptoms (data not presented).

Discussion

Our study describes correlates of depressive symptoms among a consecutive, systematic sample of at-risk youth with a history of past-year peer physical aggression and alcohol use. We found that over one-quarter of this group reported depressive symptoms in the week prior to their Emergency Department (ED) visit. Although causality cannot be determined in this cross sectional analysis, these findings make theoretical sense. Poor self-esteem, indifference to personal safety, and inability to regulate one's emotional responses to stressful situations are known predictors of depression, alcohol use, and physical violence.^{24, 30, 88, 89}

Among the at-risk adolescents with depressive symptoms, 63% reported having had suicidal thoughts in the past 30 days, and 60% had immediate access to a handgun. A history of peer violence may serve to increase adolescents' "acquired capability of suicide," according to Joiner's interpersonal theory of suicide;⁹⁰ and easy handgun access increases the likelihood of lethal suicide attempts.^{91, 92} These youth are therefore at particularly high risk for completed suicide. Our findings highlight the importance of screening all youth in the ED regardless of chief complaint for peer violence, depressive symptoms and suicidality.

According to our study, youth with a history of peer aggression and alcohol use are more likely to report depressive symptoms if they also reported substance abuse, particularly binge-drinking and use of illicit drugs (other than marijuana and nonmedical use of prescription drugs). The relationship between depression, violence, and substance use is likely multi-directional. Youth with depressive symptoms may use alcohol and drugs in an effort to manage their distress, thereby placing themselves at higher risk of violence; youth already involved with violence may also use substances to self-medicate or due to associations with risk-taking peers, with their substance use resulting in social isolation and depression.^{18, 26, 93} Interestingly, neither marijuana use nor non-medical use of prescription drugs were associated with depressive symptoms. The former may be because of the high prevalence of marijuana use among this sample. The latter may reflect a different purpose of opiate/benzodiazepine use for teens. Previous research among college students indicates that the main motivations for nonmedical opiate use are relaxation, getting high, having fun and experimenting; while this particular analysis did not include college-aged participants, motivations for nonmedical use of prescription drugs among our study population may be similar.⁹⁴ Given the increasing epidemic of nonmedical use of prescription drugs and the increasing rate of fatal overdose from prescription opiates,⁹⁵ more research is needed to further elucidate the relationship between nonmedical use of prescription opiates and depression among adolescents.

Similarly, youth with higher overall exposure to violence (e.g. reporting dating violence or high community violence exposure) were more likely to report depressive symptoms. All types of violence may increase stress reactivity and reinforce maladaptive coping skills and negative world-views, thereby worsening depressive symptoms.^{33, 48, 96–100} Again, the causative relationship is unclear, and requires further investigation.

Older age and having a same sex mentor, on the other hand, appear to be protective against depressive symptoms in at-risk youth with a history of peer violence and alcohol use. The age-related decline in depressive symptoms is difficult to explain, but may be due to age-related normative declines in frequency of violence involvement. The protective effect of a same-sex mentor corresponds with findings from qualitative studies on depression.^{101, 102} Given the large preponderance of youth endorsing a same-sex mentor, however, it is also possible that these mentors may not actually be modeling pro-social behaviour to them; so our finding may just indicate that the 14% of youth without a "same sex mentor" are profoundly isolate and disengaged, rather than indicating that the "same sex mentorship" is truly protective. More in-depth investigation of the protective role of same-sex mentors is needed.

We observed a higher rate of depressive symptoms among females with a history of peer violence, compared to males. Among community samples of adolescents, higher rates of depression are seen among girls than boys.^{1, 4, 30} Some researchers posit unique depressogenic vulnerabilities among adolescent girls.^{30, 87} The lack of interaction between gender and other correlates of depressive symptoms in our study, however, suggests that the effect of these risk/protective factors on depressive symptoms in this at-risk sample does *not* depend on a patient's gender. This lack of interaction is supported by other studies of

violence and depression.^{16, 103} There may be other factors, such as emotional reactivity, affiliative needs, or poor self-esteem, which have a gender-specific influence on depressive symptoms in this population. Additionally, exposure to partner violence may have stronger associations with depression for adolescent girls than boys.¹⁰⁴ Further studies are needed to elucidate the gender difference in depressive symptoms among teens with a history of peer violence.

Limitations

Despite the novelty of these findings, a few important limitations limit our study's conclusions. First, all participants reported past year peer physical aggression and alcohol use, which may limit the generalizability of the findings to general ED samples. Future studies are needed to examine effects with other samples, including EDs with higher percentages of Hispanic adolescents; this study is a single sample which is not nationally representative. Participants self-reported their risky behaviors and depressive symptoms using validated instruments, but not using clinical diagnostic interviews. Review articles conclude that self-report of similar risk behaviors (e.g., alcohol, drug use, and violence) among adolescent and young adults have good reliability and validity.^{105–110} Additionally, adolescents and young adults are more likely to report risky behaviors using computerized surveys.^{59, 105, 110–112} Nonetheless, an assessment with a different instrument to measure depressive symptoms may result in higher or lower estimations of depressive symptoms. Third, given that adolescents presenting to the ED for evaluation of acute suicidality were excluded from the survey, because of acute involvement with mental health services in the ED, rates of depression among at-risk youth may be actually be higher than reported by this sample. Fourth, these findings do not generalize to adolescents presenting on the overnight shift as this was not sampled. Finally, as mentioned in the discussion, the cross-sectional nature of this study precludes conclusions regarding causality.

Conclusions

This study shows high rates of depressive symptoms among a systematic sample of at-risk adolescents, reporting past-year peer physical aggression and alcohol use, seeking ED care for any reason. On multivariate analysis, these youth were more likely to report depressive symptoms if they were female, had poor academic performance, or reported binge drinking or use of illicit drugs (excluding marijuana and non-medical use of prescription drugs). They were also more likely to report depressive symptoms if they had a history of dating violence and community violence exposure. Same sex mentorship and older age appear protective against depressive symptoms. Suicidality and access to a weapon were alarmingly common among the sample, particularly among those with depressive symptoms. ED providers should be cognizant of the high prevalence of depressive symptoms among this at-risk group, and should consider screening for related co-morbidities. Future studies should address ways to effectively screen and intervene for depression and related mental health disorders among these at-risk teens.

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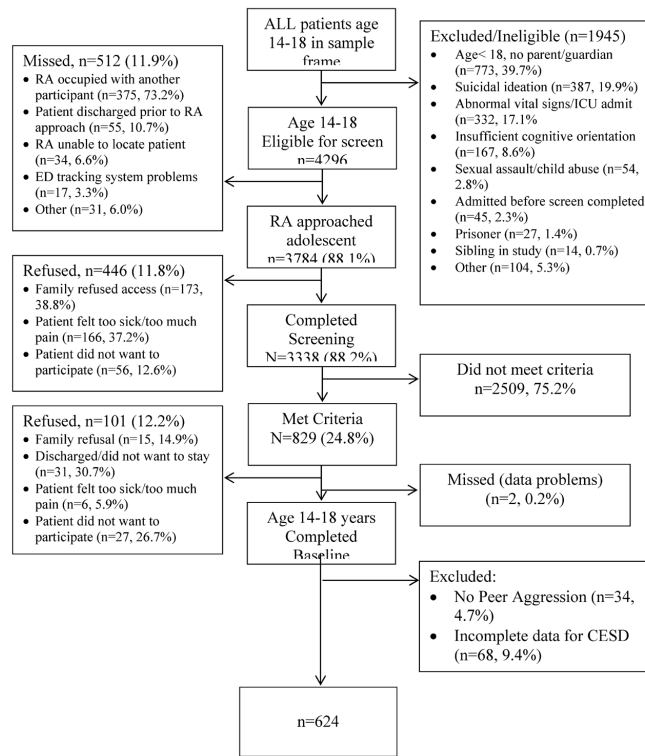


Figure 1.
Recruitment Flowchart

TABLE 1

Description of the sample (n=624)

	n	%
DEMOGRAPHICS:		
Female	347	55.6
Age 17–18	390	62.5
Poor academic performance	192	30.8
African American	354	56.7
Live with parent	499	80.2
Receipt of public assistance	357	57.5
PAST YEAR RISKY BEHAVIORS:		
Binge drinking	319	51.1
Marijuana use	415	66.5
Non-medical illicit use of prescription drugs	105	16.8
Other illicit drug use	75	12.0
Weapon carriage	296	47.4
PAST YEAR VIOLENCE HISTORY:		
Dating violence	347	55.6
Community violence exposure (Mean, SD)	0.87	0.62
PROMOTIVE FACTORS		
Same-sex mentorship	539	86.4
Involvement in school activities	268	43.0
Involvement in religious activities	329	53.7
Involvement in community activities	121	19.4

Table 2

Correlates of depressive symptoms among high-risk adolescents: Unadjusted bivariate analysis (N=624)

	Depressive symptoms⁺⁺ (n=142, 22.8%)	No or mild depressive symptoms (n=482, 77.2%)	OR (95% CI) (baseline = no/ mild symptoms)
DEMOGRAPHICS:			
Female gender	99 (69.7%)	248 (51.5%)	2.2 (1.5–3.2)
Age 17–18	82 (57.8%)	308 (63.9%)	1.3 (0.9–1.9)
Poor academic performance	56 (39.4%)	136 (28.2%)	1.7 (1.1–2.5)
African American	76 (53.5%)	278 (57.7%)	0.9(0.6–1.2)
Live with parent	105 (73.9%)	394 (82.1%)	0.6 (0.4–1.0)
Receipt of public assistance	82 (57.8%)	275 (57.4%)	1.0 (0.7–1.5)
PAST YEAR RISKY BEHAVIORS:			
Binge drinking	90 (63.4%)	229 (47.5%)	1.9 (1.3–2.8)
Marijuana use	101 (71.1%)	314 (65.2%)	1.3 (0.9–2.0)
Non-medical illicit use of prescription drugs	35 (24.7%)	70 (14.5%)	1.9(1.2–3.0)
Other illicit drug use	31(21.8%)	44 (9.1%)	2.8 (1.7–4.6)
Weapon carriage	72 (50.7%)	224 (46.5%)	1.2 (0.8–1.7)
PAST YEAR VIOLENCE:			
Dating violence	105(73.9%)	242 (50.2%)	2.8 (1.9–4.3)
Community violence exposure (Mean, SD)	1.09 (0.66)	0.79 (0.58)	2.2 (1.6–3.0)
PROMOTIVE FACTORS			
Same-sex mentorship	116 (81.7%)	423 (87.8%)	0.6(0.4–1.0)
Involvement in school activities	52 (36.6%)	216 (44.8%)	0.7 (0.5–1.1)
Involvement in religious activities	66 (46.5%)	263 (54.6%)	0.7(0.5–1.1)
Involvement in community activities	30 (21.1%)	91 (18.9%)	1.2 (0.7–1.8)

⁺⁺CESD-10 >14

TABLE 3

Correlates of depressive symptoms among high-risk adolescents: Multivariate logistic regression (n=624)

	Adjusted Odds Ratio (95% Confidence Interval)
Age 17–18	0.55 (0.34–0.89)*
Female	2.84 (1.78–4.51)***
Poor academic performance	1.57 (1.01–2.44)*
Binge drinking	1.88 (1.21–2.91)**
Non-medical illicit use of prescription drugs	1.26 (0.72–2.19)
Other illicit drug use (excluding marijuana)	1.79 (0.96–3.35)
Same sex mentor	0.52(0.29–0.91)*
Dating violence	2.14 (1.36–3.38)**
Community violence exposure	2.25 (1.59–3.18)***
Live with parents	0.78 (0.44–1.36)

Goodness of fit of full model: $\chi^2 = 3.3$, $df = 8$, $p = 0.91$ **BOLD** = significant