

1.

CHILDHOOD SEXUAL ABUSE AND RISK FOR INITIATING INJECTION DRUG USE DURING ADOLESCENCE AND YOUNG ADULTHOOD: A PROSPECTIVE COHORT STUDY

Scott E. Hadland, MD, MPH¹, Dan Werb, MSc², Thomas Kerr, PhD³, Eric Fu, MSc³, Hong Wang, MSc³, Julio S. Montaner, MD³, Evan Wood, MD, PhD³

¹Boston Combined Residency Program in Pediatrics

²University of British Columbia

³British Columbia Centre for Excellence in HIV/AIDS

Purpose: Since injection drug use is associated with the spread of human immunodeficiency virus (HIV) as well as high rates of fatal overdose, strategies to prevent youth from initiating injection are urgently required. Although little is known about what leads young people to begin injecting drugs, some studies have reported associations between injection and sexual abuse but have been limited by cross-sectional design. We assessed whether history of sexual abuse predicted initiation of injection drug use among a prospective cohort study of previously non-injecting street-involved youth.

Methods: From October 2005 to November 2010, data were collected from participants of the At Risk Youth Study (ARYS), a prospective cohort study of street-recruited youth in Vancouver, Canada. Inclusion criteria were age 14-26 years at enrollment and use of any drug other than or in addition to marijuana in the thirty days preceding enrollment. Exclusion criteria for the present study included prior history of injection drug use. Participants were interviewed at baseline and semiannually thereafter. Using Cox regression, initiation of injection drug use was compared among those with and without a history of childhood sexual abuse.

Results: Among 395 injection-naïve youth, 81 (20.5%) participants reported childhood sexual abuse. During a median follow-up of 15.9 months (total follow-up 606.6 person-years), 45 (11.4%) youth initiated injection drug use, resulting in a crude incidence rate of 7.4 per 100 person-years. In Cox regression analysis, childhood sexual abuse was significantly associated with risk for initiating injection (unadjusted hazard ratio [HR], 2.38; 95% confidence interval [CI], 1.29 – 4.38; $p = 0.006$), an effect that persisted even despite adjustment for gender, age, ethnicity and non-injection drug use patterns in the preceding 6 months (adjusted HR, 2.71; 95% CI, 1.42 – 5.20; $p = 0.003$).

Conclusions: History of childhood abuse was highly prevalent in this cohort of at-risk youth and was significantly predictive of risk of initiating injection drug use. To our knowledge, this is the first study to firmly establish this relationship using prospective data. Services for survivors of childhood sexual abuse should incorporate interventions to prevent and mitigate the harms of injection drug use.

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2.

MOMENTARY ASSESSMENT OF SOCIAL CONTEXT AND ADHERENCE IN ADOLESCENTS WITH TYPE 1 DIABETES

Joshua Borus, MD¹, Emily Blood, PhD¹, Lisa Volkening, MA², Lori M. Laffel, MD, MPH², Lydia A. Shrier, MD, MPH¹

¹Children's Hospital Boston

²Joslin Diabetes Center

Purpose: Adolescents with type 1 diabetes (T1D) often do not adhere to recommendations for frequent daily blood glucose (BG) checks. We used momentary sampling techniques to investigate the relationship between social context and adherence to BG monitoring.

Methods: Participants (14-18 years old, T1D >1 year) carried handheld computers that signaled them to complete questionnaires at and shortly after four scheduled BG checks/day for 14 days. Social context was assessed at the time of these BG checks three times/day (one skipped randomly to assess effect of signaling on behavior) and another questionnaire assessed adherence to BG checking thirty minutes after all four checks. Social context variables included location, sense of privacy, companionship, relationship to companions, whether companions knew about participants' diabetes, how supportive companions were, and how close participants felt to their favorite and least favorite companions. Participants were asked about desire to impress, romantic interest in, desire to blend-in, and ability to be oneself with their companions. Responses were rated on a 5-point Likert-type scale and dichotomized for analysis. Associations between adherence and context were analyzed using logistic general estimating equations to account for the correlation of multiple reports from the same participant. We ran analyses comparing social context factors for the following conditions: 1) participant checked BG Vs. did not check BG, 2) participant checked BG Vs. did not check but participant felt s/he wasn't supposed to check and 3) participant checked BG Vs. did not check but participant knew s/he was supposed to check.

Results: Of 56 approached patients, 40 enrolled (48% male, mean T1D duration 8.7±4.4 years, 63% pump users, mean HbA1c 8.6±1.4) and completed 2484 questionnaires (median 67/participant). There were 508 pairs of reports (58.5% of total) with completed context and adherence questionnaires bracketing a scheduled BG check. Adherence was not associated with most social contexts analyzed. Comparing scheduled times when participants checked BG Vs. when participants did not check, the odds of checking was 2.41 times higher when a strong desire (score of 5) to blend-in was endorsed compared to when desire to blend-in was less strong (p=0.006). Comparing scheduled times when participants checked BG Vs. when participants did not check but felt they weren't supposed to, the odds of checking was 2.22 times higher when strong desire to blend-in was endorsed compared to when desire to blend-in was less strong (p=0.01). Comparing scheduled times when participants checked BG Vs. when participants did not check but felt they were supposed to, the odds was 0.34 lower when strong desire

(score of 5) to impress others was endorsed compared to when desire to impress others was less strong ($p=0.02$).

Conclusions: When evaluated in real time, most dimensions of social context were not linked to BG checking among adolescents with T1D. Desire to blend-in may support while desire to impress others may impede adherence to BG monitoring in this population.

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3.

TRAUMA PREVALENCE AND OUTCOMES IN TWO-YEAR AND FOUR-YEAR COLLEGE STUDENTS IN CALIFORNIA

Bryan Clark Tysinger, MA, Yang Lu, PhD, Lawrence Neinstein, MD
University of Southern California

Purpose: This paper describes the prevalence of traumatic events among undergraduates at California two-year and four-year colleges and universities. The relationship between traumatic events and outcomes in GPA, health status, depression, and substance use is estimated.

Methods: The American College Health Association's National College Health Assessment survey data (spring 2010) for 29 California colleges and universities was analyzed (N=9,994 two-year students, N=7,618 four-year students). The prevalence of the following traumatic events over the previous year were tabulated: fighting, being physically assaulted, being verbally threatened, being sexually touched without consent, attempted sexual penetration without consent, sexual penetration without consent, being stalked, being in an emotionally, physically, or sexually abusive relationship, and physical injuries. The prevalence of these types of trauma is compared by gender and college type. Multivariate linear regressions are estimated on the outcomes in GPA, health status, depression, and substance use.

Results: The prevalence of traumatic events varies by gender and school type, typically with higher rates in two-year schools. For females, there are statistically significant differences (all $p < .001$) between 2-year and 4-year colleges in fights (9.3% vs. 3.4%), physical assaults (6.7% vs. 3.2%), verbal threats (22.1% vs. 13.6%), being stalked (11.6% vs. 6.9%), being in an emotionally abusive relationship (15.6% vs. 8.6%), being in a physically abusive relationship (4.9% vs. 1.7%), and being in a sexually abusive relationship (2.8% vs. 1.7%). For males, there are similar significant differences (all $p < .001$) between 2-year and 4-year colleges in fights (20.1% vs. 9.4%), physical assaults (8.4% vs. 4.9%), verbal threats (32.1% vs. 24.8%), being stalked (5.0% vs. 2.7%), being in emotionally abusive relationship (9.2% vs. 6.2%), and being in a physically abusive relationship (3.4% vs. 1.7%). Controlling for gender, age, race, college type, and marital status, experiencing any trauma in previous year is associated with a decrease of 0.11 points (4 point scale) in a student's GPA. In addition, it is associated with an increase of 8.2 percentage points

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in the likelihood of being diagnosed or treated with depression in the previous year. Experiencing any trauma is also associated with a decrease in general health of 0.29 (5-point scale). In terms of substance use, any trauma is associated with an increase in the past month of 1.7 days in cigarette smoking, 1.5 days in alcohol consumption, and 1.5 days in marijuana use. In addition, any trauma was associated with a 0.4 day increase in binge drinking in the past two weeks and an increase in other illicit drug use by 5.1 percentage points in the last month.

Conclusions: The prevalence of traumatic events is higher in students at two-year colleges than four-year colleges. Experiencing these traumatic events is negatively associated with general health, depression, and academic performance and associated with higher substance use.

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4.

THE IMPACT OF FAMILY AND PEER PROTECTIVE FACTORS ON GIRLS' VIOLENCE PERPETRATION AND VICTIMIZATION

Rebecca J. Shlafer, PhD, Barbara McMorris, PhD, Renee Sieving, PhD, RN, FSAHM
University of Minnesota

Purpose: Recent evidence indicates substantial increases in rates of violence among adolescent girls. Despite these trends, little is known about effective approaches to preventing violence among girls. Although previous analyses have not demonstrated overall main effects of the Prime Time intervention on girls' involvement in violence, findings from qualitative analyses suggested reductions among girls with key prosocial supports. Thus, the current study investigated whether intervention effects differed among girls with varying levels of protective family and peer influences. Specifically, we examined whether prosocial norms and attachments moderated intervention effects on violence perpetration and victimization within a population of girls where violence is commonplace.

Methods: Data were from a racially diverse sample of 253 13- to 17-year-old participants in a randomized controlled trial of Prime Time, a youth development intervention offered through urban clinic settings to girls at high risk for early pregnancy. All participants completed an A-CASI survey at baseline, 6 months, 12 months, and 18 months following enrollment. Outcome variables included a 4-item violence victimization scale ($\alpha=0.77$) and a 5-item violence perpetration scale ($\alpha=0.85$). Moderator variables included scales assessing family (5 items; $\alpha=0.73$) and peer (5 items; $\alpha=0.69$) prosocial norms, family (5 items; $\alpha=0.92$) and peer attachment (6 items; $\alpha=0.90$). Using generalized estimating equations to control for within-clinic clustering, we tested for moderated intervention effects on violence outcomes by estimating interaction terms (intervention condition X moderator).

Results: Baseline data indicated a high prevalence of violent behaviors in this study sample compared to statewide estimates from girls of similar ages. For example, 43% of participants reported hitting or beating someone up and 25% noted that someone used or threatened to use a weapon against them in

the past six months. Examining intervention outcomes at 18 months, we found three significant interaction effects on violence victimization. First, intervention participants with high levels of family attachment reported less violence victimization than other girls. Second, intervention participants with high levels of attachment to peers reported fewer incidents of violence victimization than other girls. Finally, intervention participants with high levels of prosocial peer norms were somewhat less likely than other girls to report violence victimization. In contrast, we found no significant interaction effects on violence perpetration.

Conclusions: Results suggest that effects of the Prime Time intervention on violence victimization were optimized among high-risk adolescent girls with strong connections to family and peers, as well as among those whose peers clearly supported prosocial behavior. Thus, the intervention was most potent in preventing violence victimization among those girls with strong prosocial connections to peers and family. Findings have implications for future intervention efforts aimed at reducing violence among girls. Importantly, they suggest that activities bolstering these protective factors may maximize the effectiveness of intervention programs to reduce violence involvement among high-risk girls.

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5.

CHANGES IN POSITIVE AND NEGATIVE AFFECT FOLLOWING MARIJUANA USE: AN ECOLOGICAL MOMENTARY ASSESSMENT STUDY

Craig S. Ross, MBA¹, Janice Weinberg, ScD¹, Courtney Walls, MPH², Lydia A. Shrier, MD, MPH²

¹Boston University School of Public Health

²Children's Hospital Boston

Purpose: Marijuana is the most commonly used illicit drug and the prevalence of its use among young people is growing. Individuals who use marijuana often report that affective states trigger use and that they expect improved affect as a result of using marijuana. The purpose of this study was to assess the change in positive and negative affect following marijuana use in adolescents and young adults, using ecological momentary assessment (EMA) methods.

Methods: Forty-four patients of two adolescent/young adult medical clinics who reported marijuana use at least twice a week enrolled, of whom 40 (91%) provided EMA data and contributed to the analyses herein. Participants were aged 15-24 years (Mean±SD = 18.7±2.1), 57% female, 68% Hispanic, 30% White, and 2% African-American/Black. Participants completed a baseline audio computer assisted self-interview that captured demographic information, health information, and a number of measures of emotional health. Participants were given a personal digital assistant (PDA) that was used to capture EMA data for two weeks. The PDA was programmed to signal the participant at random times throughout the day, and with each random signal, the participant completed a short survey that gathered information about their last use of marijuana and current affective state. In addition, participants were instructed to complete EMA surveys immediately before and after using marijuana.

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This study analyzed marijuana use events with EMA reports both before and after use. Positive and negative affect were measured using an abbreviated form of the Positive Affect-Negative Affect Schedule (PANAS), with the sum of 6 items measuring positive affect and the sum of 6 items measuring negative affect (each item scored 1-5, possible subscale score each 6-30). Separate linear mixed effect models were used to estimate the association between marijuana use and change in positive and negative affect. The models included a pre-post-marijuana use term and an interaction between this term and baseline affect. Final models were adjusted for age and gender.

Results: Participants contributed 256 marijuana use events for which affect was reported both before and after the event (Mean = 6.4 events per participant, range = 1-32,). Across all events, Mean±SD positive affect was 18.1±5.4 pre-marijuana use and 17.8±5.8 post-use. Mean±SD negative affect was 8.4±3.1 pre-use and 8.0±2.9 post-use. Adjusted for age and gender, positive affect following marijuana use declined by 4.1 points with an additional decline of 0.30 points for each point of baseline positive affect (PositiveAffectPOST = -4.12-0.30*PositiveAffectBASELINE). Both the pre-post term and the interaction term were statistically significant ($p=0.0082$ and $p=0.0123$, respectively). Negative affect following marijuana use did not change significantly (Negative AffectPOST = 0.11-0.07*NegativeAffectBASELINE), with neither the pre-post term nor the interaction term being statistically significant ($p=0.78$ and $p=0.11$, respectively).

Conclusions: Positive affect declined following marijuana use, while negative affect was unchanged with event-level analysis of data from a clinical sample of adolescents and young adults. These results contradict young people's expectations of improved mood after using marijuana.

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