Social determinants of health and injury

Statement of Purpose Male youth residing in low-resource neighborhoods experience high rates of violence. Prior research in marginalized communities suggests that a singular adult presence may not universally confer protection amidst high levels of community violence. This study aimed to describe adolescent-adult support network structure and quality and analyze associations between network properties and violence exposure among male youth in low-resource neighborhoods.

Methods/Approach 45 male youths, ages 13–21, completed social network surveys as part of a community-based violence prevention study in Pittsburgh, PA to define family-, school-, and community-based adult supports and past 30-day violence exposure (operationalized as any/none). Logistic regression examined associations between 1) perceived strength of overall emotional and instrumental support, 2) strength of social support type, 3) network size, and violence exposure. Wilcoxon rank-sum tests examined associations between network density and violence exposure.

Results Mean participant age was 17.6 years (SD=1.5); 77.8% were African American. In the past 30 days, 84% reported witnessing violence, 60% perpetrating violence, and 69% being victimized. Increased immediate and extended family support were associated with significantly higher odds of witnessing violence (OR: 4.91, 95%CI: 1.25–19.63; OR: 3.99, 95%CI: 1.23–13.01, respectively). Mean number of adult supports was 4.8 (range:1–14). Increased number of adult supports was associated with higher odds of witnessing violence (OR: 2.17, 95%CI: 1.01–4.66). Network density (Median=0.50) was significantly inversely associated with witnessing violence (z=2.32, p=0.02).

Conclusion Findings highlight complex associations between adolescent-adult support network structure, relationship quality, and violence. Associations between family support and witnessing violence may reflect families providing increased support to help youth navigate community violence. Inverse associations between network density and violence exposure suggest that network connectivity may act as a protective factor against witnessing violence.

Significance/Contribution to Injury and Violence Prevention Science Results can guide interventions to leverage adult support networks and protect youth from violence.

Policy efforts in substance use and abuse

Statement of Purpose In 2018, Michigan was the 10th state to pass a recreational cannabis law. The purpose of this report is to provide insight into cannabis-related indicators before recreational cannabis laws were enacted, and serve as the baseline for future evaluations following cannabis legalization in Michigan.

Methods/Approach Existing data were compiled across areas (e.g., use, hospitalizations, legal charges, etc.) that potentially affect the public’s health and well-being. The report notes key findings, highlights data limitations, and elaborates priorities for tracking cannabis-related trends over time.

Results An estimated one in nine Michigan residents (11.6%) used cannabis in the past month, which has increased by over 60% from 2002–2003 to 2016–2017. Overall, the rate of annual fatal motor vehicle crashes per 100 million vehicle mile traveled decreased from 1.04 in 2004 to 0.92 in 2017, while the number of drug tests administered to drivers of fatal crashes doubled simultaneously. The rate of hospitalizations for cannabis poisoning increased from 2010 (2.5 per 100,000 persons) to 2017 (3.7 per 100,000 persons). Cannabis-related legal charges increased by 2.4% from 2012 to 2018, peaking in 2016. However, the percentage of cannabis-related convictions out of all criminal convictions was highest in 2014 (4.2%) and lowest in 2018 (3.2%).

Conclusions Cannabis use prevalence is higher in Michigan than in the Midwest and the United States. Better characterization of the potential involvement of cannabis in driving-related outcomes is needed. Data on cannabis-related hospitalizations highlight the need for prevention programs focusing on reducing poisonings, especially as higher potency cannabis-containing products become available. Changes in cannabis-related criminal justice data warrant monitoring over time.

Opioids: epidemiology and interventions

Statement of Purpose A randomized clinical trial demonstrated efficacy of an Emergency Department-based Motivational Interviewing-based (MI) intervention reducing opioid overdose risk. We sought to develop a user-friendly online toolkit (OPT-IN), to aid translation of the intervention combined with naloxone distribution. As part of an iterative development process we completed stakeholder interviews to inform toolkit development. The current presentation details toolkit feedback received in qualitative end-user interviews.

Methods/Approach We conducted n=15 qualitative interviews lasting about 30 minutes with staff at varied clinical settings and non-profits to obtain feedback on feasibility of toolkit.

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Abstracts

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components. Additional interviews are ongoing. The toolkit contains an intervention guide, interactive training videos, and other resources. The online toolkit was updated in real time when end-users shared ideas for website improvement.

Results To date, interviewees indicated that a 15-minute intervention would be most feasible in practice. They shared preferences for inclusion of brief worksheet-based options for the intervention and screening questions. Interviewees provided suggestions for website layout and functionality. In addition to the OPT-IN intervention training, some expressed interest in MI training. Additional results will be reported pending completion of final interviews and website images will be shown.

Conclusion Translating an evidenced based research project to an online toolkit is enhanced by an iterative approach. Research therapists are involved in intensive training and supervision that is not always practical for real world implementation. The OPT-IN Toolkit, through the qualitative interviews, went through an iterative refinement to adapt and optimize the intervention translation across settings.

Significance/Contribution to Injury and Violence Prevention The initial study indicated that this intervention can reduce opioid overdose risk with a brief 30-minute intervention. The iteratively refined OPT-IN Toolkit increase the dissemination of this intervention to reduce opioid overdose risk and related deaths.

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Motor vehicle crashes: epidemiology and interventions

96 LICENSE DENIAL AND MOTOR VEHICLE COLLISION FOR DRIVERS WITH DEMENTIA

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Statement of purpose This research examines how dementia impacts performance on various driving ability tests during license review. Odds of motor vehicle crash for drivers with dementia was also calculated and compared to other drivers.

Methods Iowa drivers over the age of 70 referred for medical review of their license were included in this study. Drivers were identified using Iowa’s Enhanced Medical Referral and Evaluation Management System. Drivers who were entered into the system for their first assessment between January 2014–January 2018 were included. Odds of failure of various driving ability tests, crashes in the previous 3 years, and crash following assessment were evaluated using logistic regression.

Results Of over 10,000 drivers in the system, 2.8% (n=286) had a diagnosis of dementia. Drivers referred with dementia were more likely to have their license denied as a result of the review process when compared to other referred drivers. Drivers with dementia had a 3.41 (95%CI:2.04–5.72) greater odds of failing the on-road driving test and a 5.47 (95% CI:2.70–11.07) greater odds of failing the driving knowledge test compared to other assessed drivers while controlling for age. Driver with dementia were less likely to have had a crash in the 3 years prior to referral compared to other drivers.

While based on few crashes, there was no difference in the odds of crash for the two groups of drivers who kept their license after the referral process.

Conclusions For drivers referred for medical review of their license, a diagnosis of dementia frequently resulted in the denial of a license. These drivers were significantly more likely to fail the various tests used to evaluate driving performance.

Significance This research supports that individuals with dementia have decreased driving ability. Drivers with dementia may benefit from a review of their fitness-to-drive.

Motor vehicle crashes: epidemiology and interventions

97 ADVERSE DRIVING OUTCOMES AMONG ADOLESCENTS WITH ADHD AND DISRUPTIVE BEHAVIOR DISORDERS

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Purpose We aimed to examine the joint and independent associations of attention-deficit/hyperactivity disorder (ADHD) and disruptive behavior disorders (DBD, which includes oppositional defiant disorder and conduct disorder) with adverse driving outcomes among adolescents over their initial years of licensure.

Methods/Approach We utilized electronic health records to identify New Jersey residents born 1987–1997 who were patients of the Children’s Hospital of Philadelphia pediatric healthcare network’s NJ primary care practices within four years of driving-eligible age. Records were linked to NJ’s licensing and crash databases from 2004–2014. ICD-9-CM diagnosis codes were used to identify adolescents with ADHD (314) and DBD (313.81 or ‘312’). At-fault crash rates in the four years after licensure was compared for adolescents with: ADHD only (n=2,052); DBD only (n=388); ADHD and DBD (n=427); and neither condition (n=15,477). Rate ratios were adjusted for age at licensure, sex, and race/ethnicity.

Results Compared with adolescent drivers with neither condition, adjusted rate ratios for at-fault crashes were: 1.51 (95% CI: 1.37, 1.66) for drivers with only ADHD; 1.44 (1.17, 1.79) for drivers with only DBD; and 1.90 (1.53, 2.33) for drivers with ADHD & DBD. Among drivers with ADHD, drivers who also had DBD had an increased at-fault crash rate compared to those without DBD (1.26 [1.01, 1.56]).

Conclusions ADHD and DBD are independently associated with increased rates for at-fault crashes. Rates for adolescents with ADHD is further heightened by co-occurring DBD. Ongoing analyses will fold in additional years of data, improving sample size, and look further at multiplicative and additive effects. Future research should focus on specific mechanisms by which these conditions influence crash risk.

Significance/Contributions This study is the largest and first longitudinal study focused on examining the risk of adverse driving outcomes among adolescents with diagnosed ADHD and/or DBD, a common co-occurring condition with ADHD, using a population-based sample.