Platform Research Presentation III: Interventions Designed to Decrease Risk and Improve Adolescent Health

12.

PEER-FACILITATED COMMUNITY-BASED INTERVENTIONS FOR ADOLESCENT HEALTH IN LOW AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

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Purpose: Adolescents aged 10-19 represent a fifth of the world's population and have a high burden of morbidity, particularly in low-resource settings. Community-based peer facilitators could be a cost-effective way to increase access to interventions to improve adolescent health in such contexts, though evidence is limited to quasi-experimental and qualitative studies. To assess the potential of these interventions, we did a systematic review of peer-facilitated community-based interventions for adolescent health in low- and middle-income countries.

Methods: The review protocol is registered with PROSPERO (CRD42016039190). We searched databases including Medline, Embase, CINAHL, Web of Science and ERIC up until 22nd June 2018. We included randomised controlled trials of interventions facilitated by peers, defined as young people aged 10-24 recruited from the target population. We included studies with outcomes for key areas of adolescent health need: infectious and vaccine preventable diseases, undernutrition, HIV and AIDS, sexual and reproductive health, unintentional injuries, violence, physical disorders, mental disorders and substance abuse disorders. No date or language restrictions were applied. We narratively summarised intervention characteristics (e.g. non-peer facilitated complementary intervention activities, setting, type of facilitator and participant age) and described intervention effects in terms of these characteristics.

Results: We included 20 studies with a total off 61,014 adolescents. Among four studies reporting outcomes related to HIV, none indicated a positive intervention effect. Peer facilitated interventions had no effect on clinical sexual and reproductive health outcomes, with the exception of one study, and two studies reported significant negative effects. Fifteen studies evaluated interventions linked to schools or a college. We found some evidence that these interventions were beneficial for improving mental health and reducing violence and substance use, though the diversity of outcomes assessed prevents us from making definitive statements about effectiveness. Twelve interventions had other non-peer facilitated components, including health worker and teacher training and dissemination of educational materials. We found benefits of interventions with and without these additional components.

Conclusions: The evidence on the effects of peer-facilitated community-based interventions on adolescent health in low- and middle-income countries is mixed. Peer facilitation is a potential approach to improve adolescent mental health, especially in schools. Future research should investigate these interventions in more depth to understand why some interventions have beneficial effects and some do not, and to explore additional intervention activities that can complement peer-facilitated components.

Sources of Support: Children's Investment Fund Foundation

13.

A RANDOMIZED CONTROLLED TRIAL OF PRIMARY CARE SCREENING AND BRIEF CLINICIAN INTERVENTION TO REDUCE ADOLESCENTS' RIDING WITH AN INTOXICATED DRIVER.

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Purpose: Motor vehicle-related fatalities remain the leading cause of death among U.S. adolescents, and alcohol and drug use are often involved. Nationally, nearly two-thirds of <15 years-olds killed in car crashes were with an alcohol-impaired driver, and one in 7 teens report past-30-day riding with a drinking driver. The primary care office is an opportune setting to screen for this risk and conduct risk reduction. However, effective and easy to use tools are needed to support implementation in brief primary care visits. We conducted an initial RCT to test effects of a computer-facilitated Screening and Brief Intervention (cSBI) protocol on adolescents' riding with a driver who had been drinking or using drugs (hereafter "riding risk").

Methods: Twelve- to 18-year-old patients presenting for well-visits were consecutively recruited at 5 pediatric primary care practices in Boston in 2015-2016. Participants provided informed assent/consent (study had IRB-approved waiver of parent consent) and completed computerized baseline assessments and CRAFFT screen prior to the clinician encounter. Participants were then randomized within site (1:2 ratio) to usual-care (UC) or cSBI. In the cSBI arm, clinicians were instructed to give all participants and parents the Contract for Life (CFL) document (developed by Students Against Destructive Decisions) to complete at home, and to follow up if additional discussion was needed. This strategy preserves the confidentiality of adolescent patients who may screen positive for riding risk. The CFL asks adolescents to agree never to drive after substance use or accept a ride from a substance-using driver. Parents, agree to provide safe transportation home and postpone discussions until the following day. We assessed past-3-month riding risk in confidential follow-up assessments conducted online or by phone. In intent-to-treat analysis, we compared UC and cSBI rates of self-reported riding risk at 6- and 12-months follow-up using logistic regression with GEE, adjusting for any baseline group differences and the cluster sampling design. To separately assess primary and secondary prevention effects, we stratified analysis by baseline risk status.

Results: Analysis sample (N=869; UC=243, cSBI=626) characteristics were mean age+SD 14.7+1.9 years, 51% girls, 44% White non-Hispanic, 77% from two-parent homes, and 65% with college-graduate parents. At baseline, 11% (n=99) reported past-3-month riding risk. Follow-up retention rates were 75% at 6-months, 79% at 12-months. Among cSBI participants, 79% reported receiving the CFL. Among those with baseline riding risk, we found a significantly lower rate of past-3-month riding risk at 12-months follow-up for cSBI compared to UC (38% vs. 68%; adjusted relative risk ratio [ARRR] 0.58, 95%CI 0.37-0.91, p<.05). The effect at 6-months was smaller and did not reach significance (41% vs. 62%, ARRR=0.82, 95%CI 0.50-1.34, p=ns). All effects among those reporting no baseline riding risk were non-

significant (6-months 0.72 [0.43-1.23]; 12-months 0.99 [0.50-1.99]). Findings did not change with missing data imputation.

Conclusions: A brief primary care intervention using the Contract for Life shows promise for reducing adolescents' risk of involvement in substance-related car crashes, but larger studies, with longer follow-up, are needed.

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14.

INCREASING HIV TESTING AMONG ADOLESCENTS: PRELIMINARY OUTCOMES OF A MULTI-LEVEL INTERVENTION TO IMPLEMENT UNIVERSAL HIV TESTING IN SIX URBAN SCHOOL-BASED HEALTH CENTERS

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Purpose: HIV testing is a critical step in facilitating access to HIV care and preventing onward transmission. While HIV incidence is increasing among adolescents, only a small proportion is tested. The CDC recommends offering HIV testing in health care settings to persons 13 years and over regardless of risk. We initiated an intervention to implement universal HIV testing to for adolescents utilizing six school-based health centers (SBHCs) in public high school campuses in the Bronx, New York.

Methods: The intervention model included system-level initiatives (development of practice work flows for offering oral, rapid HIV testing with input from SBHC staff, and use of performance improvement tools led by an Implementation Coach) and staff-level initiatives (trainings, technical assistance and incentives). Three matched-pairs of SBHCs were assigned to two cohorts to receive the same intervention: Cohort 1 initiated in Fall 2016, Cohort 2 in Fall 2017. All patients seen at least once in baseline and intervention years were included for analysis. Outcomes were the offer of an annual HIV test by the clinical staff and the acceptance of testing by the adolescents. Predictors examined included the intervention year, age > 16 years, gender, and ever having been sexually active. For each outcome, we fitted a logistic mixed effects model separately for each cohort. Odds ratios for each variable were calculated, p values set at < .01.

Results: Combining both cohorts, there were 5504 unique patients in the baseline year and 5925 in the intervention year, of which the mean age was 15.9 (SD = 1.43), 58.3% were female, 49.1% Hispanic, 26.5% Black and 36.3% had ever been sexually active. The odds of an HIV test offer for Cohort 1 increased by 14% (p = 0.0043) from baseline (14.1%) to intervention (16.8%), and for Cohort 2 by 40% (p < 0.0001) from baseline (8.8%) to intervention (11.6%). Among those offered HIV testing, the odds of test acceptance increased in Cohort 1 by 81% (p < 0.0001) from baseline (34.6%) to intervention (47.8%)

and in Cohort 2 by 59% ($p < 0.0001$) from baseline (59.0%) to intervention (67.7%). Both analyses were adjusted for age, gender, and sexual activity. Females tended to have lower odds of being offered testing within both Cohort 1 (OR = 0.75) and Cohort 2 (OR = 0.67), ($p < 0.0001$). Ever having been sexually active was associated with increased odds of an HIV test offer (Cohort 1 OR = 1.56, $p < 0.0001$; Cohort 2 OR = 1.99, $p < 0.0001$), as well as HIV test acceptance (Cohort 1 OR=4.45, $p<0.0001$; Cohort 2 OR=3.78, $p<0.0001$).

Conclusions: To date, the implementation intervention increased both the offer and acceptance of HIV testing, with males more likely to be offered testing and with sexually active students more likely to be offered and to accept testing. Implementation activities will continue for one more year for each Cohort as we explore further innovations to increase universal testing and efforts to sustain these improvements.

Sources of Support: The study was supported by National Institute on Drug Abuse, 1 R01 DA041065-01.

15.

POSITIVELY CONNECTED FOR HEALTH (PC4H): ACCEPTABILITY AND FEASIBILITY OF A DIGITAL HEALTH ADHERENCE AND ENGAGEMENT IN CARE INTERVENTION FOR ADOLESCENTS AND YOUNG ADULTS LIVING WITH HIV

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Purpose: Adolescents and young adults (AYA) are disproportionately affected by HIV and fewer than half of AYA who are prescribed antiretroviral therapy (ART) achieve viral suppression. Digital interventions can be uniquely designed to provide support and feedback in real time as youth go about their daily lives in order to improve health literacy and ART adherence. The purpose of this study was to determine acceptability, feasibility, and preliminary efficacy of a digital health literacy workshop coupled with a medication adherence application (app) for AYA living with HIV over a 3-month period.

Methods: Demonstration project (June 2017-July 2018) of AYA 14-34 years old in Philadelphia, PA linked to care at one of five health clinics who are HIV-positive, have an unsuppressed viral load (≥200 copies/ml), and/or have been out of care for ≥6 months last 24 months, and/or newly diagnosed with HIV in last 12 months. The eHealth Literacy Scale (eHEALS) was administered prior to the workshop and at the 3-month follow-up to compare confidence in navigating digital health information. Participant satisfaction was measured via electronic surveys immediately following the workshop and after 3 months of app usage. Self-reported adherence to antiretroviral therapy (ART), by visual analog scale (VAS) for past month adherence, and viral load from electronic health records were measured at baseline and 3-month follow-up. Descriptive analyses were performed and t tests for paired samples were used to compare baseline and 3-month outcomes. Analyses performed using SPSS 24.

Results: Participants (N = 41) at workshop/baseline were mean age 25.49 years (SD 4.65, range 17–34), and majority were male (73.17%), Black (73.17%), non-Hispanic/Latino (85.37%), and on ART (97.6%). Most participants (31; 75.61%) were retained at the 3-month study visit where all were still on ART and

refilled ART at least once. Among 31 participants who completed eHEALs pre-workshop and 3-months post-workshop, confidence in navigating digital health information to make health decisions among respondents increased from 48.39% (15 agreed) to 70.97% (22 agreed). Of 41 participants at baseline, 92.68% (38) said the workshop helped them navigate and more likely use the app, and 85.37% (35) said the instructor knew the subject matter well. After 3 months of app usage (n=31), 61.29% (19) reported that the app helped them miss fewer doses of ART and 80.65% (25) thought the app made them more likely to call their healthcare provider with questions. Medication and appointment reminders with progress calendar were listed as the most useful app features. Self-report adherence improved (mean VAS baseline=75.19 and 3-month=89.27, p=0.02), but there was no significant difference in viral load (n=28; mean baseline=9473.36 and 3-months=7298.43, p=0.44).

Conclusions: Study showed high satisfaction with a digital health literacy workshop and medication adherence app, high retention rates, improved confidence in digital health literacy, and self-reported adherence, but did not show significant viral load improvement over a 3-month period. PC4H is a feasible and acceptable digital health intervention for AYA living with HIV, but requires further study.

Sources of Support: HRSA SPNS (H97HA28894-01-00, Koenig/Dowshen); NIH K23 (NIH K23MH102128-01A1, Dowshen); UPENN Center for AIDS Research Pilot (NIH P30AI45008, Hoxie)

16.

MOBILE PHONE-BASED PEER SUPPORT IN THE PREVENTION OF POSTPARTUM DEPRESSION AMONG ADOLESCENT MOTHERS: A PILOT RANDOMIZED CONTROLLED TRIAL

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Purpose: Adolescent mothers are at three times greater risk for developing postpartum depression (PPD) compared to adult mothers. Lack of social support has been identified as a major risk factor for PPD among adolescent mothers. The objective of this parallel pilot randomized controlled trial was to evaluate the feasibility, acceptability and adherence of a mobile phone-based peer support intervention and obtain preliminary estimates of impact on clinical outcomes to inform a future definitive randomized controlled trial.

Methods: This was a community-based, two-arm, parallel-group, usual care controlled, 1:1 allocation pilot randomized controlled trial. Pregnant adolescents 16-24 years old were recruited from the community in Toronto, Canada and randomly allocated into either a mobile phone-based peer support intervention group or a usual care control group using sequentially numbered, opaque, sealed envelopes. Participants in the intervention group received support from a trained peer mentor by mobile phone (voice calling or text messaging) during their last trimester of pregnancy and 12 weeks postpartum. Primary outcomes measured implementation (feasibility, acceptability and adherence). Secondary outcomes measured preliminary effectiveness (depressive symptomatology, anxiety, social support and health service utilization). A research assistant blinded to group allocation collected outcome measures.

Results: Forty pregnant adolescents (mean age 21.6, SD 1.8 years) were recruited (intervention n=21, control n=19). Primary outcomes: 33 participants (82.5%) completed outcome measures. A total of 121 contacts were made between participants and peer mentors, with the majority of contacts made by text message (n= 112, 92.6%). Overall, 100% of participants agreed or strongly agreed that they were satisfied with their peer support experience. Secondary outcomes: After controlling for baseline depressive symptomatology, participants in the intervention group demonstrated lower mean depression scores at 12 weeks postpartum compared to participants in the control group ($F = 4.25$, $p = 0.048$). There were no group differences in anxiety, social support or health service utlization. No adverse events were reported.

Conclusions: Mobile phone-based peer support may be a feasible and acceptable way to provide support to adolescents during pregnancy and in the postpartum period. Preliminary evidence suggests that the peer support intervention may be effective in preventing depressive symptomatology among adolescent mothers. A definitive randomized controlled trial with adequate sample size is warranted.

Sources of Support: Women's XChange 15K Challenge Canadian Institute of Health Research (from Dr. Dennis' Chair position)

17.

PILOT STUDY OF MOMENTARY AFFECT REGULATION – SAFER SEX INTERVENTION (MARSSI), A NOVEL APPROACH TO PREGNANCY AND STI PREVENTION FOR DEPRESSED YOUNG WOMEN

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Purpose: Depressed young women are at increased risk of unintended pregnancy and sexually transmitted infections (STIs), yet prevention efforts have not targeted their specific needs. We developed the Momentary Affect Regulation–Safer Sex Intervention (MARSSI), a counseling-plus-smartphone intervention for this population and conducted a pilot study of its feasibility and acceptability.

Methods: Clinicians in two urban adolescent clinics identified depressed, sexually active female patients age 15-24. Research assistants enrolled patients who had a Patient Health Questionnaire-9 [PHQ-9] score >5; were having penile-vaginal sex >1x/week; had increased risk of pregnancy/STI in the past 3 months (low effectiveness/inconsistent/no contraception, inconsistent/no condom use, penile-anal sex, >2 partners, sex under the influence, STI), and owned a smartphone. For the intervention, participants met with a study counselor (nurse/nurse practitioner) to identify a risk-reducing goal for their sexual behavior (e.g., to use highly effective contraception) and develop a change plan, discuss other healthy behaviors (e.g., condom use), learn cognitive restructuring, and practice strong communication skills. Participants then personalized smartphone message voice, style, and content. For 4 weeks, participants completed app-prompted reports 3 quasi-random times/day and a scheduled diary. When they reported poor affect, low contraceptive or condom self-efficacy, pregnancy desire, or desire for sex to regulate affect, they received tailored, personalized messages prompting healthy behaviors and cognitive

restructuring. After 4 weeks, participants returned for a booster counseling session. We analyzed counseling duration, app engagement, and intervention quality ratings, pre- and post-intervention sexual risk and mental health assessments, and participant feedback.

Results: Eighteen patients enrolled (median 20.6 years, 56% black/African-American, 28% Hispanic, median PHQ-9=11.2, 72% no/inconsistent condom use, 44% low-effectiveness contraception, 33% >1 partner in past 3 months); 14 completed the counseling thus far. Counseling duration was M=1 hour:29 minutes (1:10-1:48). Participants highly rated the counseling (13/14 [93%] overall "Excellent," 97% of responses to 18 quality items were 5/5) and demonstrated increased contraceptive knowledge (perfect score: 8/14 [57%] post-counseling vs. 1/14 [7%] pre-counseling). Participants selected a variety of message styles/voice. They remained engaged with the app, completing >1 momentary or diary report on median 6.5-7 days each week. Post-intervention, 92%-100% strongly/somewhat agreed that they read the messages, they found the messages helpful in using the intervention skill, the messages made them feel better, and the messages helped them to make the changes that they wanted to make. All but 1 participant (92%) rated the study's usefulness "Excellent." Most reported high motivation to work on their self-selected behavior change, as well as improved contraceptive knowledge, sexual communication self-efficacy, depressive symptoms, suicidal ideation, and coping ability. In written and verbal feedback, participants described having increased confidence, awareness, and skills to manage emotions, communicate with partners, and engage in safer sex; feeling better about themselves; and/or practicing safer sex as a result of study participation.

Conclusions: The MARSSI counseling-plus-smartphone intervention to reduce pregnancy/STI risk in depressed young women was feasible and highly acceptable to adolescent clinic patients. Further research is needed to evaluate its potential to improve sexual risk and mental health outcomes.

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