

Adapting a Sexual Health Intervention for Adolescents Exposed to Household Challenges: A Pilot Study

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Terrinieka Powell¹ PhD; Bianca D Smith¹ PhD; Naya Moser² MSPH; Olivia Kachingwe³ PhD; Quiana Lewis Wallace⁴ PhD; Asari Offiong⁴ PhD; Andrea Hwang¹ MSPH; Emily Davie⁵ MSPH; Ashleigh LoVette⁶ PhD

¹ Johns Hopkins Bloomberg School of Public Health Baltimore US

² School Mental Health Ontario Hamilton CA

³ Yale University School of Public Health New Haven US

⁴ Child Trends Rockville US

⁵ Gila River Health Care Sacaton US

⁶ The Ohio State University Columbus US

Corresponding Author:

Terrinieka Powell PhD

Johns Hopkins Bloomberg School of Public Health
615 N. Wolfe Street
Baltimore
US

Abstract

Youth exposed to household challenges (i.e., parental substance use, incarceration, and mental illness) are among the groups most vulnerable to sexual risk-taking in adolescence. To address the needs of this group, this pilot study assessed the feasibility of participant recruitment and retention, participant engagement, and the initial efficacy of an adapted version of Focus on Youth with Informed Parents and Children Together (FOY+ImPACT) for Black youth exposed to household challenges. Participants were recruited using school and community presentations, digital flyers, and referrals. Participants completed three assessments: baseline, post-test and 3-month follow-up. Sixty-one youth (ages 13-16) were recruited and randomized to either the intervention or the control condition (n = 33 and 28, respectively). Eighty-six percent of participants completed all three assessments. There was high engagement, with 80% of the sample (N = 49) attending at least three sessions and 75% stating they would recommend sessions to a friend. Among those who reported having any type of sex, 100% abstained from alcohol use, and 67% abstained from drug use before sex. The intervention group significantly increased their sexual health knowledge. No changes in sexual health behaviors or partner communication were observed. Findings suggest that the FOY+ImPACT adaptation merits further study.

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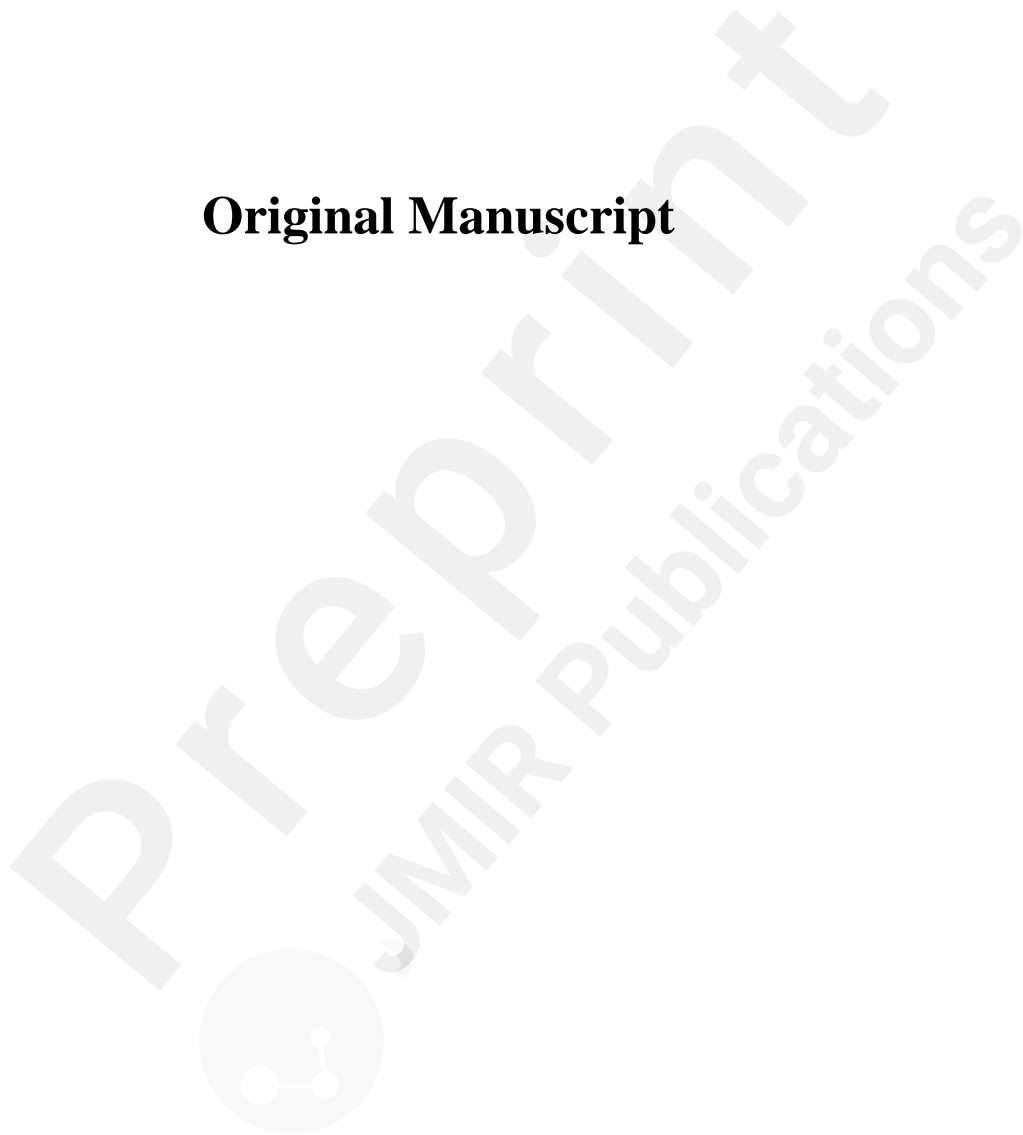
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Abstract

Youth exposed to household challenges (i.e., parental substance use, incarceration, and mental illness) are among the groups most vulnerable to sexual risk-taking in adolescence. To address the needs of this group, this pilot study assessed the feasibility of participant recruitment and retention, participant engagement, and the initial efficacy of an adapted version of Focus on Youth with Informed Parents and Children Together (FOY+ImPACT) for Black youth exposed to household challenges. Participants were recruited using school and community presentations, digital flyers, and referrals. Participants completed three assessments: baseline, post-test and 3-month follow-up. Sixty-one youth (ages 13-16) were recruited and randomized to either the intervention or the control condition ($n = 33$ and 28 , respectively). Eighty-six percent of participants completed all three assessments. There was high engagement, with 80% of the sample ($N = 49$) attending at least three sessions and 75% stating they would recommend sessions to a friend. Among those who reported having any type of sex, 100% abstained from alcohol use, and 67% abstained from drug use before sex. The intervention group significantly increased their sexual health knowledge. No changes in sexual health behaviors or partner communication were observed. Findings suggest that the FOY+ImPACT adaptation merits further study.

Keywords: sexual health, adolescent, adverse childhood experiences, intervention

Introduction

Household challenges (i.e., parental substance use, parental incarceration, and parental mental health challenges), are adverse childhood experiences (ACEs) that can have significant negative impacts on adolescents' health and well-being [1,2]. Disparities exist among youth who experience household challenges, with Black youth being twice as likely to report at least one ACE compared to White youth [3]. In Baltimore, Maryland, where 79% of youth are Black, these experiences of household challenges are common. According to the CDC's Youth Risk Behavior Survey, among youth in Baltimore, 28% had a parent with a mental illness, 25% had a parent with a history of substance use, and 46% had a family member go to prison or jail [4].

Adolescent sexual risk-taking and substance use contribute to some of the most prevalent yet preventable public health problems in the US [5]. Adolescents have higher rates of unprotected sex and substance experimentation than adults [6-8]. Adolescent substance use is associated with increased rates of sexual intercourse, having multiple sexual partners, and lower rates of condom use [9,10]. Adolescents who use substances are more likely to contract an STI or become pregnant than their non-substance-using peers [11-13]. In Baltimore, 16.9% of youth reported being currently sexually active, of which 50.4% did not use a condom before their last sexual encounter, and 20% reported using substances before sexual intercourse [4]. Baltimore youth who reported one household challenge were 80% more likely to report alcohol use, 78% more likely to report marijuana use, 137% more likely to report heroin use, and 231% more likely to report non-medical use of prescription opioids [14]. The co-occurrence of these risk behaviors among adolescents

warrants preventive interventions that target both [15–17].

Programs designed to reduce sexual risk-taking and related substance use may fail to reach youth of today, given most were developed and deemed effective before the year 2000... before the integration of technology in learning, expanded vocabulary of gender identity, and comprehensive conversations about consent [18–22]. Thus, adapting evidence-based interventions to reflect current contexts may be one efficient and cost-effective strategy to address risk-taking among adolescents and build onto previous effective interventions [23].

Focus on Youth with Informed Parents and Children Together (hereafter referred to as FOY+ImPACT) is a universal, group-level, CDC-endorsed, evidence-based intervention (EBI) that reduces sexual risk-taking and substance use behaviors among urban adolescents [24,25]. Developed in Baltimore, MD, it is a comprehensive community-based intervention involving caregivers in a single session. Our research team adapted and updated FOY+ImPACT to be delivered to youth exposed to household challenges. Based on formative work with families with household challenges, we incorporated trauma-informed principles and gender-inclusive language, standardized the session length, and modernized the content. The process is detailed elsewhere [26]. FOY is a promising approach to address sexual risk-taking among Black youth exposed to household challenges. Thus, this study aimed to assess the feasibility of participant recruitment and retention, participant engagement, and the initial efficacy of the adapted program among this group.

Methods

Study Design

We partnered with three local organizations to assess the feasibility and initial efficacy of the adapted FOY+ImpACT intervention in a small, randomized trial. An online random number generator was used to randomize participants to either the control or intervention group. Randomization occurred at the family level, which allowed all eligible youth from a single family to be in the same condition and minimized the potential for contamination of intervention effects. Participants completed electronic assessments three times: baseline, post-intervention, and 3-month follow-up. We obtained Institutional Review Board approval from [BLINDED FOR REVIEW] (IRB# 17282). The trial was registered at ClinicalTrials.gov (NCT #BLINDED FOR REVIEW).

Recruitment and Enrollment

Youth enrollment occurred one month before the start of the intervention. To be eligible, participants had to be between the ages of 13 and 16 years old, identify as Black or African American, and have been exposed to one or more household challenges. Direct youth recruitment occurred with study team members inviting families to participate via presentations at each organization. Participants were also recruited indirectly through referrals from organizational staff and enrolled participants. Recruitment materials and presentations did not include information about household challenges as an eligibility criterion to prevent the risk of stigma associated with participating.

Interested youth were required to complete a participant interest form that included their name, as well as their caregiver's name and contact information. A study team member contacted the caregiver to inform them of the study and assist the caregiver in completing a screener to determine the youth's eligibility. A study team member reviewed the purpose and procedures

of the study as outlined on the parental permission form. The permission form was emailed and texted to caregivers via Qualtrics to obtain signatures. Once permission was granted, all eligible youth in the family were assigned a participant ID. Oral assent was obtained from all youth before they completed the baseline survey.

Curriculum Delivery and Content

Both intervention and control group sessions occurred twice a week, in person, during non-school hours (e.g., summer or after school). No more than 10 youth were allowed to participate in each group. Sessions were co-facilitated by two study team members. Participants were compensated \$25 for each session they attended and each assessment they completed.

Adapted FOY+ ImPACT. Consistent with the original version of FOY+ImPACT, the adapted version had two components: Focus on Youth (FOY) and ImPACT. The FOY component was an 8-session intervention emphasizing the core components of establishing a strong support network, decision-making, goal setting, communication, and negotiation. This adapted curriculum incorporated trauma-informed principles and gender-inclusive language, standardized session length so that all sessions were 100 minutes long, and updated, age-appropriate content for the priority population. The ImPACT component was a single-session intervention for youth and caregivers, where families received information about sexual health topics and practiced communication skills. This single session was held via Zoom before the third FOY session.

Youth in the Media. Control group participants participated in a Youth in the Media (YM) program. Delivered in eight in-person, 100-minute sessions

concurrently with FOY sessions, the YM program was designed to (1) increase participants' awareness of and access to the different types of media and free resources available at their local libraries, (2) discuss different types of media that center stories and experiences of Black youth, and (3) expose participants to careers in media. Sessions covered a range of media types, including sportscasting, spoken word, blogging, and comic books. Each session opened with a theme-related icebreaker and closed with a review of the key points and a lesson-related activity to practice. There was no caregiver component for the YM program.

Measures

Feasibility of Recruitment and Retention

Process measures were assessed through interest forms and screening logs. We defined recruitment success as the ability to recruit at least 10 youths per cycle. Retention was assessed by the proportion of youth who completed the post-test and 3-month follow-up. We defined retention success as more than 80% of the sample being retained at the post-test and 3-month follow-up.

Engagement

Engagement was assessed in two ways. First, dosage (i.e., the number of sessions the participant attended) was used to assess engagement. We defined high dosage success as youth attending five or more sessions, moderate dosage as attending at least three sessions, and low dosage as participants attending two or fewer sessions. Second, we administered feedback surveys at the end of each session. These surveys asked if participants would invite a friend to a session (i.e., yes, no, maybe) and "What, if anything, could have made the session better?" The latter was an open-ended question.

Initial Efficacy

Sexual Health Knowledge. Fifteen items assessed sexual health knowledge. Questions covered topics related to STIs, contraceptives, and contraceptive use behaviors. All questions were true/false statements. Each correct response was given 1 point, whereas an incorrect response was scored 0. Scores were summed and the maximum score was 15. Cronbach's alpha was 0.54 at baseline, 0.86 at post-test, and 0.69 at the 3-month follow-up.

Pregnancy Attitudes. Five items assessed attitudes about pregnancy during adolescence. Participants were asked to indicate their level of agreement with general statements about pregnancy (e.g., "I am okay with being pregnant now", "I am ready to be a parent"). Two questions were reverse coded (e.g., "My family would be really upset if I got pregnant/got someone pregnant as a teen", "I would be really upset if I got pregnant/got someone pregnant"). All questions were measured using a 4-point Likert scale. Scores were summed and averaged. A higher score indicated less negative attitudes about pregnancy during adolescence. Cronbach's alpha was 0.40 at baseline, 0.66 at post-test, and 0.63 at the 3-month follow-up.

Partner Communication. Four items were used to create a scale of perceptions about communicating with a partner about sexual health. Participants were asked to indicate their level of agreement with statements about communicating about condom use (e.g., "How difficult would it be for you to ask a partner to use a condom, even if it might make them think you have a sexually transmitted disease?", "How difficult would it be for you to start requiring a partner to use a condom, even though you haven't used one in the past?"). All questions were measured using a 4-point Likert scale (1=Not difficult

at all; 2=Not very difficult; 3=Somewhat difficult; 4=Very difficult). The average of the items was used to capture partner communication. A higher score indicates higher levels of difficulty in communicating with a partner about condom use. Cronbach's alpha was 0.80 at baseline, 0.84 at post-test, and 0.83 at the 3-month follow-up.

Behaviors. Sexual health behaviors were assessed in two ways. First, participants responded to the question about if they ever had sex or had sex in the past three months. If they reported ever having sex, they were asked about alcohol, drug, and contraceptive use at last sex. Participants responded 'yes' or 'no'.

Data Analysis

Descriptive statistics were calculated for demographics, feasibility of recruitment and retention, as well as sexual health knowledge, pregnancy attitudes, partner communication, and behaviors. Open-ended responses were analyzed deductively using a qualitative content analytic approach [27]. Using this approach, the study team reviewed and summed responses to identify the majored themes. Paired t-tests were used to compare the means of knowledge, pregnancy attitudes, and partner communication at each time point in the study. A mixed repeated ANOVA was used to test whether the intervention influenced changes in knowledge, pregnancy attitudes, and partner communication over time. Chi-squared tests assessed behavior changes across time and by group assignment. All statistical analyses were conducted using STATA version 18.0.

Results

Feasibility of Recruitment and Retention

Figure 1 displays the participant flowchart for this study. Over 150 youth or parents completed an interest form to be screened for eligibility ($n = 162$). Thirty percent of interested youth were ineligible because they did not have a caregiver with a history of substance use, mental health, or incarceration ($n = 48$). Among those eligible, 16% did not return their parental permission forms after at least five attempts from the study team ($n = 12$). Ultimately, 61 Black youth (ages 13-16) exposed to household challenges were enrolled in the study and randomized to a condition. Fifty-three participants (87%) completed all three assessments.

Engagement

Sixty-two percent of participants attended at least five sessions (high dosage; $n = 38$). We received 153 feedback survey responses across all sessions. Of the 153 responses, 115 (75%) said “yes” when asked if they would invite a friend to the session. When asked about what could be done to improve the sessions, 111 participants offered feedback. Participants’ most frequent responses (68%) were “nothing/none/nope” coupled with comments such as “it was really good,” “it was perfect,” and “I was satisfied” ($n = 13$).

Initial Efficacy

We used moderate dosage to assess initial efficacy. Twelve participants (20%) were excluded from the analysis for the initial efficacy due to low dosage (e.g., attending 2 or fewer sessions). Thus, the analytic sample size was 49 Black youth, representing 80% of the initial sample who attended an average of six sessions. The average age of our sample was 15 years old, with those in the intervention group being significantly younger than the control group ($p=0.015$). There were more male participants (53%) than female participants (41%) or

those who identified by other gender identities (6%). Having an incarcerated parent was the most common household challenge (48%), followed by having a parent with mental illness (31%) and a parent with a history of substance use (27%). Table 1 presents the detailed demographic statistics for the sample.

[Insert Table 1 here]

Table 2 displays the results of the paired t-test at each time point. The means of sexual health knowledge and pregnancy attitude scores were similar across groups. At baseline, there were significant differences in partner communication beliefs, with the intervention group finding it more difficult to communicate with a partner about sexual health topics compared to the control group. Posttest and 3-month follow-up results showed no significant differences between groups at each time point.

[Insert Table 2 here]

Table 3 displays the results from the repeated mixed ANOVA comparing the time and group assignment across all domains. There was a significant interaction between time and study group assignment for knowledge scores ($F=3.27, p=0.04$). The effect size for changes in knowledge over time by group assignment was moderate ($\eta^2=0.08$). Post-hoc comparison analysis showed that trends in the mean knowledge scores in the intervention group increased over time. However, there were significant changes in knowledge within the control group over time, where knowledge scores decreased from the baseline to the posttest ($p < 0.00$) and increased from the posttest to the 3-month follow-up ($p=0.03$). There were also significant differences in pregnancy attitudes by time but not group assignment. Youth in both groups had less negative attitudes about pregnancy during adolescence from baseline to 3-

month follow-up ($F=28.22$, $p < 0.00$). The effect size was large for pregnancy attitudes ($\eta=0.40$), which indicated a large and meaningful effect. No significant findings for partner communication were observed.

[Insert Table 3 here]

At baseline, most of the sample (63%) reported never having any type of sex. Among those who did report having any type of sex, 100% abstained from alcohol use before sex, and 67% abstained from drug use before sex. Over half (53%) of sexually active youth reported the use of birth control during their last sexual encounter. The intervention participants found it significantly more difficult to communicate with a partner about contraceptive use than the control group at baseline ($p=0.03$). Trends suggest that intervention reported more contraceptive use at the last sex than the control group ($p=0.07$). However, post-test and 3-month follow-up results showed no significant differences in behaviors between groups.

Discussion

This study aimed to assess the feasibility of participant recruitment and retention, participant engagement, and the initial efficacy of the adapted program for youth exposed to household challenges. Exposure to household challenges can affect youth behaviors and their options for healthy decision-making. Although all youth were exposed to one or more household challenges, among those who were sexually active, many reported using protection and abstaining from substance use during sex. The adapted intervention improved sexual health knowledge for intervention participants. Both intervention and control group participants also became less negative towards pregnancy during adolescence over time. However, groups did not differ in partner communication

or sexual health behaviors over time.

While many teen pregnancies are unplanned and unintended, some may be planned and intended [28,29]. One study found that nearly 30% of adolescent females desired to be pregnant within five years [30]. Furthermore, as young people age and have prolonged exposure to household challenges, negative views of pregnancy may dissipate, given the perceived rewards of filling emotional bonds [31]. Thus, the trend for study participants to become less negative may be a function of their maturity and environment. Future studies might consider assessing and then offering tailored resources to young people who desire pregnancy and those who do not. Using this approach, findings related to sexual behaviors can be understood in the context of individual reproductive health plans of young people.

The lack of group differences in partner communication and sexual health behaviors may be best attributed to low baseline rates of sexual risk-taking and low dosage. Over one-third of the sample received a low or moderate intervention dose. Dosage significantly affects intervention outcomes [32–34]. Thus, higher exposure may have a more positive impact on partner communication. In addition, although 63% of youth reported having sex at baseline, nearly all were doing so responsibly (with protection and without substances). Therefore, the opportunities to observe changes over time were minimal.

Methodological limitations of this pilot study include small sample size, limited measures, and no long-term follow-ups. According to behavior change theories [35–38]), increasing knowledge is an essential precursor to changing behaviors but not sufficient. Motivations, self-efficacy, fear, desire for status and

respect, and external factors also play an important role in behavior change [39,40]. Study groups did not differ by most demographic factors or initial scores on outcome measures. Thus, more research is needed.

Despite these limitations, study findings suggest the adapted FOY+ImPACT is a promising intervention for youth exposed to household challenges. For youth exposed to household challenges, parents may not be readily available. The adapted FOY+ImPACT intervention offered information and strategies for youth to connect with parents, peers, partners, and other trusted adults to promote healthy sexual health habits. A growing body of research has shown the value of tailoring interventions for new groups as a strategy to support population health and extend the impact of evidence-based interventions [23,26,41,42]. Study findings also provide additional evidence of the complexity of adolescent sexual health decision-making, especially among youth exposed to household challenges. For example, although knowledge increased and pregnancy attitudes became less negative, no significant behavioral changes were observed. Thus, additional research is needed to understand what will work, for whom, and under what circumstances to reduce sexual health risk-taking.

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Conflict of interest

The authors have no conflicts of interest to disclose.

Abbreviations

ACEs: Adverse childhood experiences

FOY+ImPACT: Focus on Youth with Informed Parents and Children Together

YM: Youth in the Media

Availability of Data

The participants of this study did not give written consent for their data to be shared publicly, so due to the sensitive nature of the research, supporting data is not available.

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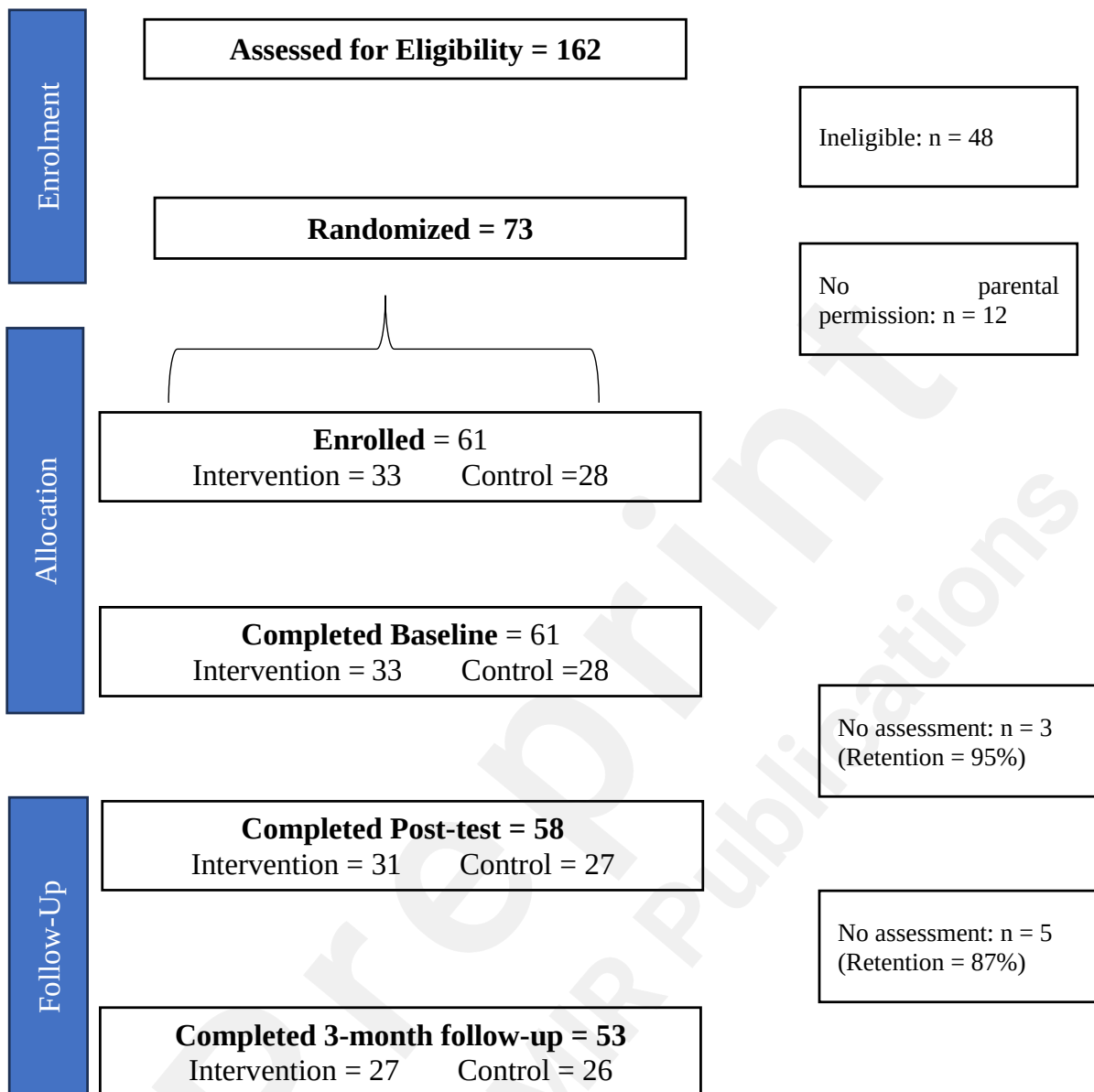
Figure 1: Participant Flowchart in Pilot Study

Table 1 - Baseline Demographic Characteristics (N = 49)

Variable	Overall (N=49)	Control (N=21) n (%)	Intervention (N=28) n (%)	P-value (control vs. intervention)
Age (mean, SD)	15.10 (0.82)	15.43 (0.60)	14.86 (0.89)	0.02
Attendance	6.04 (1.68)	5.95 (1.77)	6.11 (1.64)	0.75
Gender				
Female	20 (40.82%)	11 (52.38%)	9 (32.14%)	0.44
Male	26 (53.06%)	9 (42.86%)	17 (60.71%)	
Non-binary	2 (4.08%)	1 (4.76%)	1 (3.57%)	
Other (Genderfluid)	1 (2.04%)	0 (0%)	1 (3.57%)	
Sexual Health Knowledge	11.48 (1.71)	11.9 (1.80)	11.18 (1.61)	0.15
Pregnancy Attitudes	1.73 (0.39)	1.69 (0.40)	1.51 (0.53)	0.63
Partner Communication	2.02 (0.89)	1.70 (0.76)	2.26 (0.92)	0.03
Have had any type of sex (vaginal, oral, or anal)*				
Yes	18 (37.5%)	7 (33.33%)	11 (40.74%)	0.60
No	30 (62.5%)	14 (66.67%)	16 (59.26%)	
Used alcohol before sex*				
Yes	0 (0%)	0 (0%)	0 (0%)	
No	18 (100%)	6 (100%)	12 (100%)	
Used drugs before sex*				
Yes	6 (33.33%)	2 (33.33%)	4 (33.33%)	
No	12 (66.67%)	4 (66.67%)	8 (66.67%)	
Current sex (sex in the past 3 months)*				0.67
Yes	9 (60.0%)	4 (66.67%)	5 (55.56%)	
No	6 (40.0%)	2 (33.33%)	4 (44.44%)	
Used contraception at last sex*				0.07
Yes	8 (53.33%)	1 (20.0%)	7 (70.0%)	
No	7 (46.67%)	4 (80.0%)	3 (30.0%)	

* Indicates missing values

Table 2: Paired T-Tests for Knowledge, Attitudes and Communication (N = 49)

	Baseline (mean, SD)			Posttest (mean, SD)			3-month follow-up (mean, SD)		
	Combi ned	Co n	Int	Combi ned	Co n	Int	Combi ned	Co n	Int
Sexual Health Knowledge	11.48 (1.71)	11. 9 (1.8 0)	11. 18 (1.6 1)	10.74 (2.87)	10. 06 (2.9 2)	11. 24 (2.7 9)	11.44 (2.70)	11. 22 (2.6 7)	11. 6 (2.7 7)
Pregnancy Attitudes	1.73 (0.39)	1.6 9 (0.4 0)	1.7 5 (0.3 8)	1.51 (0.53)	1.5 5 (0.5 4)	1.4 7 (0.5 3)	2.14 (0.46)	2.0 8 (0.5 0)	2.1 8 (0.4 4)
Partner Communic ation	2.02 (0.89)	1.7 0 (0. 76)	2.2 6 (0. 92)	2.33 (0.96)	2.3 1 (1.0 2)	2.3 5 (0.9 2)	2.23 (1.0)	1.9 2 (1.0 2)	2.4 6 (0.9 3)

Table 3. Repeated Mixed ANOVA Results (N = 49)

	F (df)	Significance	Partial eta squared (effect size)
Sexual Health Knowledge			
Time	2.93 (2)	0.06	0.07
Assignment	0.31 (1)	0.58	0.01
Interaction (time x assignment)	3.27 (2)	0.04	0.08
Pregnancy Attitudes			
Time	28.22 (2)	0.00	0.40
Assignment	0.00 (1)	0.96	0.00
Interaction (time x assignment)	0.54	0.5870	0.01
Partner Communication			
Time	2.33 (2)	0.1036	0.05
Assignment	3.38 (1)	0.0724	0.07
Interaction (time x assignment)	1.19 (2)	0.3100	0.03

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