AMP! Los Angeles 2012-13
A Quantitative Analysis of High School Participant Outcomes

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Introduction

The face of HIV and other sexually transmitted infections (STI) in the United States (US) has changed. Youth ages 13-29 are particularly at risk, accounting for 39% of new HIV infections in 2009 (CDC, 2012). Rising rates of STI's among youth age 15-24 (CDC, 2013) also reflect the trend of young people having unprotected sex at earlier ages (CDC, 2011). Approximately one third of American youth have had sexual intercourse by the ninth grade, and roughly 6 out of 100 (5.8%) experience sexual intercourse before the age of thirteen, in sixth grade or earlier (CDC, 2013). These statistics warrant intensified efforts to promote and deliver engaging and accurate school-based sexual health education.

AMP! (**A**rts-based, **M**ultiple intervention, **P**eer-education) is a sexual health education and HIV prevention approach that weaves together medically accurate information and prevention strategies with the arts and has showed great potential for increasing HIV/AIDS knowledge and reducing stigma and risk behaviors (Sanchez & Johnstone, 2010; Taboada et al 2013). *AMP!* was developed in Los Angeles through a collaboration between the UCLA Art and Global Health Center (AGHC) and the HIV/AIDS Prevention Unit of the Los Angeles Unified School District (LAUSD), and has been implemented in 9th grade classrooms since 2010. Although *AMP!* has grown and changed with each iteration of implementation, the intervention as implemented and evaluated in Spring 2013 was comprised of three arts-infused components described in Table 1.

While there is evidence that delivering HIV prevention and sexual health messages through games, condom demonstrations, and role-plays is effective, programs with certain components have been found to be more effective than others at reducing youth sexual risk behaviors. Interventions that provide theory- and evidence-based approaches to HIV prevention are best equipped to serve youth and effect lasting behavior change. Such approaches are promising and as a result, several arts-based interventions have been developed for high school youth. However greater evaluation of these programs is needed to determine their effects on adolescent sexual health behaviors.

Table 1: *AMP!* 2013 Intervention Components

Component	Description
Sex Squad Performance	Undergraduate students developed, rehearsed, produced and performed a theater piece about sexual health and HIV for high school students. In addition to theater training, the undergraduate students received HIV and sexual health education and training. The final show was an episodic compilation of scenes, monologues, spoken word and song – weaving together humor, vulnerability, personal narrative, and medically accurate information to promote HIV prevention knowledge and strategies.
Interactive Theater Workshop	Trained undergraduate students led high school students in an interactive workshop to teach about how to properly use a condom, negotiate using condoms with a potential partner, or discuss condom use with a parent. The workshop began with warm up activities, and then presented three short scenarios where the characters must learn to communicate effectively. The undergraduate students were trained in forum theater techniques to facilitate audience interventions; high school students had the opportunity to step in to one of the scenes and try out what they would do if they were in the situation presented.
Positively Speaking	HIV+ advocates trained by the LAUSD Health Education Program visited school classrooms to share personal stories of what it's like to live with HIV, how/when they learned about their diagnoses, behaviors that put them at risk, issues of disclosure, and medication routines. Speakers use standard storytelling techniques to build empathy and understanding, while simultaneously weaving in prevention messages. The goal of this component was to expose students to PLWHA and reduce stigma.

Adapted from Lightfoot et al, 2014

Methods

Study Design, Sample & Recruitment

A quasi-experimental pre-post test study design guided the evaluation of AMP! which sought to assess outcomes related to knowledge, attitudes, and behaviors among high school participants. A total of 159 ninth grade students enrolled in the study, 68 were in the control condition and 91 were in the intervention condition

The study procedures were approved by the Institutional Review Boards at both UCLA and LAUSD, and were identical at both sites. The Project Adviser for the LAUSD HIV/AIDS Prevention Unit (and Co-investigator of this evaluation study) selected two school sites, assigned the condition, and recruited one 9th grade health classroom from each site to participate in the evaluation.

Data Collection

A staff member from the UCLA AGHC contacted the selected health classroom teachers at participating schools and provided consent forms with details about the study. All students enrolled in the participating 9th grade health classrooms were eligible to participate, with parental consent. Students were given 2 weeks to return the signed consent forms and the UCLA AGHC staff member collected the forms and reviewed which students has obtained parental consent. Paper and pencil surveys were administered prior to and after the full AMP! program was delivered. Surveys were collected and securely stored at UCLA AGHC.

Data Analysis

Analyses were performed only on pre-specified hypotheses using an intent-to treat protocol with participants analyzed in their assigned study conditions irrespective of the number of AMP! intervention activities attended.

Survey data were hand entered into an excel spreadsheet by an undergraduate student hired by the UCLA AGHC. Data were coded using a codebook. The project coordinator and data analyst met to discuss the codebook and next steps. Eight surveys were spot checked for accuracy in data entry and coding. Data were imported into SAS 9.3 software (SAS Institute, Cary NC) for analyses.

SAS 9.3 software was used for data management and analyses. Proc univariate was used to assess assumptions of normality and variances for regression models. Long to wide dataset transformation was used with ID*demographic variables*sexual behaviors*drug and alcohol use to match pre and post test IDs. This subset of matched IDs were used to determine if observed differences in mean HIV knowledge scores for pre- and post-tests in the control and intervention conditions were significant.

At baseline (pre-test) descriptive statistics were calculated to summarize the following:

- Socio-demographic variables: race and ethnicity, gender, sexual orientation, and qualify for reduced or free lunch/SES.
- Sexual behaviors: Ever had sex, age at sexual debut, number of sex partners, and condom use during last sex.
- Drug and alcohol use: Ever had a drink, ever used marijuana or any other drug, and age at drug and alcohol initiation.

Differences between study conditions at baseline were assessed using independent t-tests for continuous variables and chi-square analyses for dichotomous variables. We used p-value less than .10 as the criterion to identify potential covariates. Variables where differences between the two study conditions were statistically significant (p-value of .10 or less) were included as covariates in the intervention efficacy analyses. These variables are "Ever used marijuana" (p= .0136) and "Qualify for free or reduced lunch" (p= .0896).

To examine intervention effects, logistic regressions were conducted to compute odds ratios for dichotomous outcomes; chi square tests were used to assess differences between control and intervention conditions in the trend in ordinal response and small count data; and analysis of variance (ANOVA) was used for continuous outcomes.

Results

Sample description

Of the 159 ninth grade students enrolled in the study, 68 were in the control condition and 91 were in the intervention condition (Table 2). At baseline, statistically significant differences between the two groups were found in SES-qualify for free or reduced lunch ($p= .0896$) (Table 3), no other statistically significant differences in socio-demographic variables were observed between the two groups (Table 3). Qualifying for free or reduced lunch, defined as number of children who qualify for free (130% of the poverty level) and reduced (130-185% of poverty level) lunch program and was controlled for in intervention efficacy models.

Table 2: Study sample pre- and post- test by condition

Treatment Condition		
	Pre-test	**Post-test**
Control	68	65
Intervention	91	58
Total	159	123

Questions regarding sexual behaviors were asked of all participants at baseline, however frequencies are reported only for those students who reported ever having sexual intercourse on the baseline assessment. For the purposes of this study, sexual intercourse was defined as having oral, anal, or vaginal sex. Approximately 25% of the participants in the control condition and 21% in the intervention condition had engaged in sexual intercourse at baseline (Table 3).

A comparison of the sexual behaviors of the UCLA AMP! sample to those reported nationally in the Youth Risk Behavior Surveillance System (YRBSS) indicates that participants in UCLA AMP! are less likely to have had sexual intercourse and are more likely to report using a condom at last sexual intercourse as compared to the national average reported in the 2013 YRBSS (Table 4). However, the total percentage of UCLA AMP! participants who reported having sexual intercourse before age 13 and had sexual intercourse with four or more partners in their lifetime are both slightly higher than the national average for ninth graders (CDC, 2013).

At baseline, statistically significant differences between the intervention and control group were found in drug use- Marijuana ($p= .0136$) (Table 5). Marijuana use (defined as ever used marijuana) was controlled for in intervention efficacy models. A comparison of alcohol and other drug use behaviors of the UCLA AMP! participants to those reported nationally in the 2013 YRBSS indicates that participants in UCLA AMP! are less likely

to have had a drink of alcohol by the ninth grade. However, UCLA AMP! participants who have had alcohol, initiate alcohol use at an earlier age as compared to the national average for ninth graders. Additionally, UCLA AMP! participants are more likely to have ever used marijuana, and of those that use, to begin at an earlier age as compared to the national average for ninth graders.

HIV exposure in school and community at baseline indicates similarities with "exposure to HIV" across the two groups. Since 'taught about HIV in school' and 'ever met someone living with HIV/AIDS' are intervention activities, reporting post results would not be meaningful. As such, the following findings are all from baseline data. Approximately 85% of the participants in the control and 97% in the intervention group reported ever been taught about HIV or AIDS in school, while only 8% of intervention participants and 3% of participants in the control condition reported ever having taken an HIV test. An interesting finding regarding baseline HIV exposure is the frequency of participants who reported that they did not know if they had met someone with HIV in the control and intervention conditions, 28% and 25% respectively.

Table 3: Baseline Comparison of Socio-demographics between the Control and Intervention Condition

	Control N (%)	Intervention N (%)
Race/Ethnicity		
-American Indian or Alaska Native	1 (1.47%)	1 (1.10%)
-Asian	6 (8.82%)	3 (3.30%)
-Black or African American	3 (4.41%)	3 (3.30%)
-Native Hawaiian or Other Pacific Islander	1 (1.47%)	1 (1.10%)
-White or Caucasian	3 (4.41%)	3 (3.30%)
- Hispanic or Latino/a	55 (80.88%)	80 (87.91%)
Gender		
-Male	39 (57.35%)	39 (42.86%)
-Female	28 (41.18%)	51 (56.04%)
-Refuse to answer	1 (1.47%)	1 (1.10%)
-Transgender	0 (0.00%)	0 (0.00%)
Socioeconomic Status		
Qualify for free or reduced lunch	44 (64.71%)	62 (68.13%)
Sexual Orientation		
-Straight/heterosexual	58 (85.29%)	72 (79.1%)
-Gay/homosexual	4 (5.88%)	5 (5.49%)
-Bisexual	0 (0.00%)	1 (1.10%)
-Lesbian	1 (1.47%)	2 (2.20%)
-Other	0 (0%)	2 (2.20%)
Sexual Behaviors		
Ever had sexual intercourse	17 (25.00%)	19 (20.88%)

Table 4: Baseline Comparison of Sexual Behaviors between Control and Intervention
Condition

	Control (n=17) N (%)	Intervention (n=19) N (%)
Age at Sexual Debut		
-11 years old or younger	1 (5.88%)	2 (10.53%)
-12 years old	0 (0.00%)	2 (10.53%)
-13 years old	8 (47.06%)	7 (36.84%)
-14 years old	5 (29.41%)	6 (31.58%)
-15 years old	3 (17.6%)	2 (10.53%)
Number of Sexual Partners		
-1 person	8 (47.06%)	14 (73.68%)
-2 people	2 (11.76%)	2 (10.53%)
-3 people	4 (23.53%)	1 (5.26%)
-4 or more people	3 (17.65%)	0 (0.00%)
Condom Use at last intercourse		
-Yes	10 (58.82%)	7 (36.84%)
-No	3 (17.65%)	10 (52.63%)
Pregnancy Prevention at last intercourse:		
-No method was used to prevent pregnancy	1 (5.88%)	2 (10.53%)
-Condoms	9 (52.94%)	6 (31.58%)
-Birth control pills	0 (0.00%)	0 (0.00%)
-An IUD	1 (5.88%)	0 (0.00%)
-A shot, patch, or ring	1 (5.88%)	0 (0.00%)
-Withdrawal	4 (23.53%)	6 (31.58%)
-Some other method	0 (0.00%)	0 (0.00%)
-Not sure	3 (17.65%)	2 (10.53%)
Alcohol or drug use at last intercourse	4 (23.53%)	1 (5.26%)

Table 5: Alcohol and Other Drugs Use

	Control N (%)	Intervention N (%)
Alcohol use	27 (39.71%)	41 (45.05%)
Age at first drink:		
-8 years old or younger		
-9 years old	2 (7.41%)	8 (19.51%)
-10 years old	1 (3.70%)	1 (2.44%)
-11 years old	1 (3.70%)	6 (14.63%)
-12 years old	3 (11.11%)	8 (19.51%)
-13 years old	3 (11.11%)	3 (7.32%)
	17 (62.95%)	13 (31.71%)
Marijuana use	29 (42.65%)	22 (24.18%)
Age at first Marijuana use:		
-8 years old or younger	0 (0.00%)	1 (4.55%)
-9 or 10 years old	4 (5.88%)	3 (13.64%)
-11 or 12 years old	5 (7.35%)	5 (22.73%)
-13 or 14 years old	17 (25.00%)	9 (40.91%)
-15 or 16 years old	3 (4.41%)	3 (13.64%)
-17 years old or older	0 (0.00%)	0 (0.00%)
Cocaine Use	6 (8.82%)	2 (2.20%)
Sniffed Glue, inhalants	10 (14.71%)	10 (10.99%)
Steroid pills or shots	3 (4.41%)	2 (2.20%)
IDU		
-1 time	3 (4.41%)	2 (2.20%)
-2 or more times	1 (1.47%)	2 (2.20%)

Table 6: HIV exposure in school and community at baseline

	Control N (%)	Intervention N (%)
Ever taught about HIV in school	58 (85.29%)	87 (95.60%)
-No	7 (10.29%)	4 (4.40%)
-Don't know	3 (4.41%)	0 (0.00%)
Ever met PLWHA	9 (13.24%)	20 (21.98%)
-No	40 (58.82%)	48 (52.75%)
-Don't know	19 (27.94%)	23 (25.27%)
Ever taken and HIV test	2 (2.94%)	7 (7.69%)
-No	59 (86.76%)	73 (80.22%)
-Don't know	6 (8.82%)	11 (12.09%)

Intervention effects

Knowledge

At follow-up, participants in the intervention reported higher HIV/AIDS knowledge scores relative to the control condition (Table 7). The intervention condition had a higher difference in their HIV knowledge score relative to the control condition; 2.26 to 1.75 respectively (Table 7).

Table 7: Mean HIV Knowledge Score

Control		Intervention	
Pre (N=68)	Post (N=65)	Pre (N=91)	Post (N=58)
Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)
6.85 (6.41, 7.30)	8.60 (8.26, 8.94)	6.933 (6.56, 7.30)	9.19 (8.85, 9.53)

We used a subset of surveys with matching pre- and post-test identification numbers in order to determine if the observed differences in mean HIV/AIDS knowledge scores between the control and intervention conditions were statistically significant. This subset was used as a result of students not using the same identification number for pre and post-tests (discussed in the statistical methods section). Our subset had matching pre- and post- tests from 37 control and 25 intervention participants. Our findings from this analysis indicates that the mean difference in HIV/AIDS knowledge scores is statistically significant $(p=.001)$.

Attitudes & Awareness

Compared to the control condition, post-intervention, the intervention group has a larger increase in the odds of believing they would speak up when I hear someone tell a myth about HIV/AIDS. The odds of responding agree or strongly agree post-intervention to "I speak up when I hear someone tell a myth about HIV/AIDS" is 2.88 $(p= .0466)$ times greater for students receiving UCLA AMP! than for students in the control condition. All other odds ratios comparing intervention to control condition post-intervention on HIV/AIDS awareness and attitudes were not significant (Table 8).

The Mantel-Hansel chi-square test was used to determine if there was a significant difference between the control and intervention conditions in the trend of ordinal responses (note: ordinal responses are not shown). There is a trend toward agreeing more with the statements "I understand how the United States influences international HIV/AIDS issues" $(p= .0359)$ and "I feel compassionate toward people with HIV/AIDS" $(p=.0232)$ on the post-intervention assessment among those in the intervention group, relative to the control group.

Table 8: HIV/AIDS awareness and attitudes*

	Control				Intervention			
	Pre (N=68)		Post (N=65)		Pre (N=91)		Post (N=58)	
	n	%	n	%	n	%	n	%
I feel comfortable discussing HIV/AIDS with my peers.	56	82.35%	57	89.06%	71	78.89%	51	89.47%
I am informed about how HIV/AIDS affects people in other parts of the world.	55	80.88%	56	86.15%	77	85.56%	54	94.74%
I am familiar with how I can affect international HIV/AIDS policy issues as a student.	36	53.73%	47	72.31%	48	54.55%	45	77.59%
I understand how the United States influences international HIV/AIDS issues.	44	65.67%	45	69.23%	61	67.78%	47	81.03%
I am familiar with the HIV/AIDS treatment available to people within the United States.	40	58.82%	50	76.92%	61	69.32%	49	87.50%
I feel compassionate toward people with HIV/AIDS.	42	67.74%	46	77.97%	69	78.41%	52	89.66%
I speak up when I hear someone tell a myth about HIV/AIDS.	28	42.42%	26	46.62%	40	44.94%	40	68.97%

*Dichotomized such that strongly agree and agree are one category (Agree-ref), strongly disagree and disagree are a separate category (Disagree). Table 8 shows frequency of students who strongly agree/agree with the statement.

Self-efficacy

The Fisher's exact test was used to accommodate for small cell sizes in order to determine if there was a significant difference between the control and intervention conditions in the trend of ordinal responses to questions assessing future intention to use a condom and partner communication (Table 9) among sexually active participants. There were no statistically significant differences in the trend toward agreeing more with the statements "I feel confident discussing safer sex with my partner", "I am likely to use a condoms or latex barriers with my partner when I have sex", "I know at least one place in my community where I can find condoms", and "I am likely to take an HIV test by the end of this year" on the post-intervention assessment among those in the intervention group, relative to the control group.

Table 9: HIV/AIDS communication and condom self-efficacy*

	Control				Intervention			
	Pre (n=17)		Post (n=18)		Pre (n=19)		Post (n=13)	
	n	%	n	%	n	%	n	%
I feel confident discussing safer sex with my partner	14	82.35%	16	88.89%	16	84.21%	11	84.62%
I am likely to use a condoms or latex barriers with my partner when I have sex.	13	76.46%	16	88.89%	14	73.68%	11	84.62%
I know at least one place in my community where I can find condoms.	16	94.12%	16	94.12%	17	89.47%	12	92.31%
I am likely to take an HIV test by the end of this year.	5	29.41%	8	47.06%	8	42.11%	8	61.54

*Dichotomized such that strongly agree and agree are one category (Agree-ref), strongly disagree and disagree are a separate category (Disagree). Table 9 shows frequency of students who strongly agree/agree with the statement.

Conclusion

The increasing incidence of HIV and other STIs among young people suggests the need for innovative and effective sexual health programs. The aforementioned results suggests that UCLA AMP!'s intervention strategies—using near peers to facilitate and deliver intervention lessons, delivering targeted sexual health information, and promoting innovate theater-based HIV prevention approaches—impacts several antecedents to adolescent sexual health behavior including HIV/STI knowledge, attitudes, and beliefs. AMP!'s long term (i.e. one year or more) effect could not be assessed within the timeframe of this study, however the significant results suggests the potential for AMP! to have a lasting effect on adolescent participants' sexual health behaviors. These evaluation results provide a strong foundation on which to build a more rigorous study design that looks at both short term and long term intervention effects.

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