

Evaluation of a peer-education based HIV-prevention program amongst Venezuelan adolescents

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Worldwide 45% of all new HIV contamination and more than half of new STI cases occur amongst 15-24 year old youth. There is a need not only for more sexuality education and youth-addressed HIV prevention programs, but also for evaluation and improvement of existing programs – especially in developing countries. This study evaluates a health promotion program for adolescents led by a local NGO in Merida, Venezuela. The sexuality health program “*Previniendo Contigo*” of the NGO *Catedra de la Paz* conducts interactive workshops for high schools, and they train peer educators who organize prevention programs in their own school environment.

Objective: The evaluation intends to analyze the efficacy of this peer-education program in the cognitive (knowledge, attitudes), social-cognitive (motivations, intentions, normative beliefs, self-efficacy, communication), and behavioral factors of promoting behavioral change.

Methods: The process evaluation of the program uses cross-sectional comparison group design and is based on paper and pen survey data collected from a sample of 164 students. Data was corrected for age and sex bias and statistical analysis was carried out on intervention (n=38) and comparison groups (n=63).

Results: In the intervention group, girls showed significantly better knowledge about HIV/AIDS and significantly more positive attitudes toward people living with HIV/AIDS than girls or boys in the comparison group. Intervention group boys showed significantly better communication skills than comparison group boys. In the intervention group, girls showed less sexual activity and higher rate of condom usage than in the control group, and in the case of boys control group students showed safer sexual behavior.

Conclusions: Even after considering the bias of the study (deriving from limits of sample and survey methods), evaluation results indicate that better knowledge, attitudes and self-efficacy shown through open communication, can be associated with peer-education based health promotion and seen as predictors of possible future behavioral change.

Introduction

The HIV/AIDS epidemic has slowed down in the last decades, and life expectancies of infected persons has improved thanks to the development of antiretroviral therapies, today still 33,8 million people live with HIV infection (UNAIDS, 2009). Young people (aged 15-24 years) are the group at highest risk: worldwide 45% of all new HIV contamination and more than half of new STD cases occur amongst youth (UNESCO, 2009), 5,4 million young people live with HIV, and most young people do not have access to prevention and sexuality health education programs which not only provide information but also provide them with skills, condoms, and social support (UNAIDS, 2010b).

Prevention

As most HIV contamination occur via unprotected sexual intercourse, the key to effective preventions lies in how to get people to adopt safer sexual behavior, especially condom use.

25 years history and experience of HIV prevention indicates that healthy sexual behavior has to be treated in a wider social context, because it depends on various intra- and inter-personal, social, economic, and political norms (UNAIDS, 2005; Knight, 2008). Amongst the psychosocial factors of healthy sexual behavior, the literature examines knowledge, attitudes, normative beliefs, perceived risk, communicational aspects and self-efficacy (Coyle et.al, 2001). Attention is called to the role of perceived self-efficacy in the HIV related risk behavior by more and more studies (Bandura, 1990; Sung-Yeon et.al, 2004).

Peer education

Peer education based prevention builds on the characteristic that people accept information more if it comes from their own peer group than from outside, but some results argue with the efficacy of peer education in altering risky sexual behavior (see Table 1.). Even if direct change in

behavior cannot always be proven, studies show that learning from peers is an effective way of increasing knowledge and by that promoting a more conscious and responsible behavior (Campbell et al, 2009).

Table 1: Advantages and disadvantages of peer education programs

<i>Advantages</i>	<i>Disadvantages</i>
Based on developmental psychology: in adolescence primer sources of information change from adults to peers (Cole and Cole, 2003)	Only intervention programs with the involvement of the community can be effective. (Maticka-Tyndale and Penwell Barnett, 2010)
Youth can see and meet with role models (Turner and Shepherd, 1998).	Only accepted and highly appreciated group members can be effective as peer educators. (Bandura, 1977, Turner and Shepherd, 1998)
Peer educators are increasing empowerment and by this self-efficacy of youngsters (Bandura, 1977)	Election and training of peer educators, keeping them in the program and providing aftergrowth are key elements in peer education but consume much time and energy (Maticka-Tyndale and Penwell Barnett, 2010)
Peer education programs successfully indicated changes in the HIV and condom usage related knowledge of youth, participants reported less STDs, growing self-efficacy and improved rate of condom usage. (Maticka-Tyndale and Penwell Barnett, 2010)	Very little or no effect can be proven in the actual change in sexual behavior. (Campbell et.al, 2009)

The intervention

The Venezuelan NGO „Catedra de la Paz¹” is implementing a peer education based prevention program called „Previniendo Contigo”² in the Andean city of Merida and in some other neighboring cities and regions. In Venezuela out of the 26 million inhabitants, 107 280 HIV infected are registered, and the numbers are growing (Trejo, 2008)³. The “Previniendo Contigo” program conducts workshops for high schools to train youth and also to train peer educators⁴ with whom they work together in three areas: citizenship, human rights and sexuality health (especially HIV prevention). Since its beginning in 2007, the program reached approximately 1500 students.

¹ Official name: Catedra de la Paz y Derechos Humanos “Mons.Oscar A. Romero” - Universidad de los Andes

² Means “prevention with you”

³ As for comparison: in Hungary 1630 HIV infected were registered in 2008, showing a prevalence of 0,01% (according to the National Epidemic Center (OEK))

⁴ Educadores Juveniles

The philosophy of Catedra de la Paz is “inform”, “form” and “transform”, which is in accordance with the social-cognitive behavioral change model of Bandura (1990). Information is the first step, and then comes forming and practicing new skills until the behavior transforms, all these located in a social context. The steps of expected behavioral change resemble the transtheoretic model of Prochaska (1992) as well. The educational material and methodology of the program is in accordance with the recommendations of the UN for prevention programs (UNAIDS, 2005).

Although the planning of prevention programs should also include the evaluation (Bartholomew et.al, 2006), proper evaluation often fails in the practice (Gallant and Maticka-Tyndale, 2004). In the case of the project Previendo Contigo, no systematic evaluation was implemented yet. The intention of this study is to reflect on some of the achievements of the prevention program.

Hypothesis

It is expected that the evaluation of the “Previendo Contigo” project shows, that youth participating in Catedra de la Paz’s peer education program have better results in the following aspects (compared to youth not participating in the prevention program):

1. Better knowledge regarding HIV/AIDS and the ways of contamination
2. More positive attitudes against people living with HIV/AIDS
3. Communicate more efficiently
 - a) More frequent communication with the sexual partner regarding protection
 - b) They inform themselves from more sources about sexuality and STDs
 - c) Have more people to talk to confidently about their questions or doubts concerning sexuality and STDs
4. Show safer sexual behavior
 - a) More systematic and more consequent condom usage
 - b) Positive attitude regarding safe sexuality
 - c) Lower number of sexual partners and occasional partners
 - d) Less intercourse under alcohol or drug influence
 - e) Participating in screening for STD

Methodology

Research design

The most reliable methodology in the case of a prevention project would be a longitudinal randomized controlled trial. Unfortunately this design was not feasible in this case, as no pre-intervention survey was realized measuring baseline HIV related knowledge, attitudes and sexual health behavior. The author's time working with the NGO was also limited to a few months. Under these circumstances a cross-sectional comparison group design is recommended (Wholey et.al, 2010), by choosing a control group similar (in age, sex, socioeconomic status, other relevant factors) to the intervention group.

The sample

The required sample size was calculated with G*3 Power software⁵, taking the "Safer Choice" school-based prevention program's results as orientation (Coyle et.al. 2001), which showed an effect-size of $EF= 0,17$ in the improvement of the knowledge about HIV/AIDS and STDs. Calculation was implemented using Expected power =0,8; expected significance $p<0,05$ and effect size $EF=0,18$. Calculations indicate a sample size of 185 participants.

Intervention group: youth selected from classes of three high schools in Merida, Venezuela (Romulo Betancourth, Felix Ribas and Libertador), where Catedra de la Paz held workshops and trained peer educators on sexuality health. Group size $n=97$.

Control group: youth selected from classes of two high schools in Merida, Venezuela (Caracciolo Parra y Olmedo and José Ricardo Guillen), which were in similar socioeconomic region as intervention group schools. Selection criteria were that no extracurricular sexuality health program is run in the selected classes. Group size $n=67$.

Measurement instruments

The evaluation was carried out with a 24 item paper-pen-survey, in Spanish language. The survey was tested on a local pilot group of 10 youngsters and on a local sociologist to adapt cultural and language characteristics. The survey contains 4 units:

1. *Basic demographic* questions, and questions regarding the intervention
2. *HIV/AIDS knowledge* questionnaire. Edited on the base of the questionnaire of Broche Morera et.al (2009), Cronbach $\alpha: 0,75$.

⁵ Faul et.al, 2007.

3. Two 1-4 rating Likert type attitude scales were edited using the questionnaires of Campbell et.al (1992) and Broche Morera et.al (2009): *Attitudes towards people living with HIV/AIDS* (Cronbach α : 0,71) and *Attitudes towards safe sex* (Cronbach α : 0,82).
4. Questionnaire about *Sexual behavior and Communication*.

Results

Statistical analysis was carried out with IBM SPSS Statistics 19. Sample size is $n=164$, mean age is 15 years, and ratio of girls-boys is 50-50%. Intervention and control group students had participated in the same amount of sexuality health trainings, the difference being that significantly more intervention group students participated in “Previniendo Contigo” ($\chi^2 = 17,2$ (df=2) $p < 0,00$), and significantly more of them report about peer education programs in their school ($\chi^2 = 9,9$ (df=2) $p < 0,05$). Also the two groups show significant differences regarding age and sex. In adolescence 1-2 years of age difference can mean huge variation in sexual behavior, so for further analysis I use a corrected sample counting in both groups only the 16 years or older students. With this correction also the bias in girls-boys ratio disappeared ($\chi^2 = 0,91$, df=1, $p > 0,05$). See Table 2.

Table 2: Basic characteristics of intervention and control group students

	Intervention group	Control group
Sample size N=164	n=97	n=67
Age mean	15	16,4
Girls-boys ratio	44-56%	58-42%
Participation in sexuality health training	47%	41%
Participating in Catedra de la Paz led sexuality health training	32%	6%
There are peer educators in their school	66,7%	50,7%
Corrected sample: students 16 years or older. N=101	n=38	n=63

1. Knowledge on HIV/AIDS contamination

Intervention group students answered 75,6% of the questions correctly, while control group students 68,4%. The dominance of intervention group shows statistical significance only if we look at the girls' result: 86-67% ($t = 2,88$, df= 40, $p < 0,05$).

2. Attitudes towards people living with HIV/AIDS

Intervention group girls showed significantly more positive attitude (3,4, $n=20$,) towards people living with HIV/AIDS, than control group girls (3,05, $n=27$; comparison: $W(31,56) = 2,21$, $p < 0,05$), or

intervention group boys (2,87, n=50; comparison: $t=-5,15$, $df=49$, $p < 0,05$). No such difference was found between boys in the two groups.

3. *Communication*

- Intervention group students look for sexuality related information from significantly more sources than control group adolescents ($W(156,8) = 2,39$, $p < 0,05$).
- There are significantly less adolescents amongst intervention group boys, who do not communicate with their partner about the way of protection before sexual intercourse than amongst control group boys ($\chi^2 = 4,65$, $df=1$, $p < 0,05$).
- The average intervention group boy shares his sexuality related questions or doubts with 3 or more confident persons, while control group boys have less partners to talk to ($\chi^2 = 5,17$, $df=1$, $p < 0,05$)

4. *Safe sexual behavior*

- Significantly more boys in the intervention group had an active sex life than control group boys. In the control group girls showed more activity ($\chi^2 = 11,27$, $df=1$, $p < 0,01$).
- 70,8% of sexually active students in the intervention group used condom as protection, while condom usage in the control group was only 50%, a statistically significant difference. Sexually active girls in the control group show much more risky sexual behavior, with only 35,7% using a condom in sexual intercourse while 90% of the boys used the latex protection. Nevertheless, sexually active intervention group boys used the condom less frequently than boys in the control group.
- Students both in the intervention and control groups showed moderately positive attitude towards safe sexual behavior, but no statistically significant difference was found ($W(55,3) = 205$, $p > 0,05$).
- In both groups there were only a few who consumed drugs or alcohol before sexual intercourse, no statistically significant difference was found ($\chi^2 = 0,11$ ($df=1$), $p > 0,05$).
- Significantly more intervention group students participated in HIV or STD screening than control group students ($\chi^2 = 9,05$ ($df=2$), $p < 0,05$).

Discussion

The evaluation results of the HIV prevention program „Previniendo Contigo” have to be interpreted considering the reduced sample size and by that the somewhat limited validity. Not expectedly a considerable part of the control group has still participated in sexuality health programs and had peer education programs in their school. This implicates sample

bias but also that in the field, no intervention happens in a “vacuum”, and one has to consider other social influences.

Another bias is that in the intervention groups, 44% of the students do not know about the running peer education programs in their school. This low ratio can be a critique of the program’s invisibility but we can also interpret it as one characteristic of peer education programs: information and influence is spread informally and the original sources might not be realized.

First step: knowledge

Results are in accordance with various studies showing better HIV/AIDS related knowledge among intervention group girls (Coyle et.al 2001, Gallant and Maticka-Tyndale, 2004). Knowledge level can be considered as the first step towards behavior change according to various behavior change models (Bandura, 1990, Prochaska et.al, 1992).

Second step: attitudes and skills

On the second step towards behavior change, the need for change should appear (Prochaska et.al, 1992); this means change in attitudes, assertiveness and self-efficacy indicators (Bandura, 1990). Results are diverse: intervention group boys show better results in communication, while girls in attitudes. Communication skills show correlation with condom use self-efficacy according to several studies (Khumsaen and Gary, 2009; Gallant and Maticka-Tyndale, 2004). If increasing self-efficacy is one goal of prevention programs (Turner and Shepherd, 1998; Bandura, 1990; Sung-Yeon et.al, 2004; Maticka-Tyndale and Penwell Barnett, 2010), the peer-education program „Previniedo Contigo” can be seen as partly successful.

Third step: behavior

Safer sexual behavior is the ultimate goal of all HIV prevention projects, and this is the point where most programs’ efficacy stays hidden (Gallant and Maticka-Tyndale, 2004, Fox and Fidler 2010). The evaluation of „Previniedo Contigo” found that the questioned adolescents’ most important risk behavior is the lack of protection with latex condoms and the start of an active sex life at an early age. Comparisons show that intervention group girls show the least and most safe sexual activity, control group boys come as second, then control group girls show third

most sexual activity and worst ratio of condom usage. So results show different effectiveness of the peer education campaign amongst the two sexes.

Conclusion

It seems in almost all three steps towards behavior change, girls have better outcomes than boys, which can indicate that in this project peer education has a greater effect on girls, who in general are considered more active in social exchanges. But attention must be drawn to the fact that the study design can only show correlations, not cause and effect relations.

References

- BANDURA, A. (1990). Perceived self-efficacy in the exercise of control over AIDS infection. *Evaluation and Program Planning*, Vol. 13, pp. 9-17.
- BARTHOLOMEW, K. L., PARCEL, G. S., KOK, G., & GOTTLIEB, N. H. (2006). *Planning Health Promotion Programs: an intervention mapping approach*. San Francisco: John Wiley & Sons.
- BROCHE MORERA, R. A., MARTIN ROSS, D. M., SOLER PORRO, A. B., & ALONSO LUIS, Z. (2009). Comportamiento sexual riesgoso en adolescentes y sus actitudes hacia individuos con VIH en la Parroquia 23 de Enero, Caracas, Venezuela. *Rev Hum Med* [online], 9 (1). ISSN 1727-8120.
- CAMPBELL, T., BATH, M., BRADBPEAR, R., COTTLE, J., & PARETT, N. (2009). An evaluation of performance-arts based HIV-prevention in London with 13-16 years olds. *Perspectives in Public Health*, 129; 216.
- COLE, M., & COLE, S. R. (2003). *Fejlődésléktan*. Budapest: Osiris.
- Coyle, K., Basen-Engquist, K., Kirby, D., Parcel, G., Banspach, S., Collins, J., Baumler, E., Carvajal, S., & Harrist, R. (2001). Safer choices: reducing teen pregnancy, HIV, and STDs. *Public Health Rep.*, 116 (Suppl 1), 82-93.
- FAUL, F., ERDFELDER, E., LANG, A.-G., & BUCHNER, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175-191.
- FOX, J., & FIDLER, S. (2010). Sexual transmission of HIV-1. *Antiviral Research*, 85 (1), 276-285.
- GALLANT, M., & MATICKA-TYNDALE, E. (2004). School-based HIV prevention programmes for African youth. *Social Science & Medicine*, 58, 1337-1352.
- KHUMSAEN, N., & GARY, F. A. (2009). Determinants of Actual Condom Use Among Adolescents in Thailand. *Journal of the Association of Nurses in AIDS Care*, 20 (3), 218-229.
- KNIGHT, L. (2008). *UNAIDS: The first 10 years, 1996-2007*. Geneva: UNAIDS. Retrieved from http://data.unaids.org/pub/Report/2008/JC1579_First_10_years_en.pdf [10.10.2011]

- LÄUCHLI, S., HEUSSER, R., TSCHOPP, A., & GUTZWILLER, F. (1996). Safer sex behavior and alcohol consumption. *Annals of Epidemiology*, 6 (4), 357-364.
- Országos Epidemiológiai Központ (OEK) (2011). HIV-AIDS Magyarország. *Epidemiológiai Információs Hetilap*, 18 (36).
- Magyarország 2011. évi járványügyi helyzete. Retrieved from <http://www.oek.hu/oek.web?nid=368&pid=1&to=1692,1439&lang=hun> [12.10.2011]
- MATICKA-TYNDALE, E., & PENWELL BARNETT, J. (2010). Peer-led interventions to reduce HIV risk of youth: A review. *Evaluation and Program Planning*, 33, 98-112.
- MUNOZ, M. (2001). Self-aware sex education: a theoretical and practical approach in Venezuela. *Reproductive Health Matters*, 9 (17), May.
- PROCHASKA, J. O., DICLEMENTE, C. C., & NOCROSS, J. C. (1992). In search of how people change. *American Psychologist*, 47 (9), 1102-1114.
- SUNG-YEON, K., DERENA, S. H., ANDIAA, J. M., COLO'NB, H., & ROBLESB, R. (2004). Effects of changes in perceived self-efficacy on HIV risk behaviors over time. *Addictive Behaviors*, 29, 567-574.
- TREJO, W. (2008). *Formulario para presentar pequenos proyectos*. Manuscript at the NGO Catedra de la Paz.
- TURNER, G., & SHEPHERD, J. (1998). A method in search of a theory: peer education and health promotion. *Health Education Research*, 14 (2), 235-247.
- UNAIDS policy position paper (2005). *Intensifying HIV prevention*. Retrieved from http://data.unaids.org/publications/irc-pub06/jc1165-intensif_hiv-newstyle_en.pdf [12.03.2011]
- UNAIDS (2009) *AIDS epidemic update*. Retrieved from http://data.unaids.org/pub/Report/2009/2009_epidemic_update_en.pdf [15.04.2011]
- UNAIDS (2010a): *Strategic Guidance for Evaluating HIV Prevention Programmes*. Retrieved from http://www.unaids.org/en/media/unaids/contentassets/documents/document/2010/12_7_MERG_Guidance_Evaluating%20HIV_PreventionProgrammes.pdf [15.04.2011]
- UNAIDS (2010b): *Outlook breaking news: Young People Are Leading the HIV Prevention Revolution*. Retrieved from http://data.unaids.org/pub/outlook/2010/20100713_outlook_youngpeople_en.pdf [12.10.2011]
- UNESCO (2009): *International Technical Guidance on Sexuality Education*. UNESCO.