

Η Αποτελεσματικότητα του Προγράμματος Αγωγής Υγείας για το HIV / AIDS σε Μαθητές Α' Λυκείου - Τεχνικών Σχολών της Κύπρου που παρέχεται από τους/ τις Επισκέπτες/τριες Υγείας

The effectiveness of School-based Education Program on HIV / AIDS Knowledge and Behaviour Atypical Secondary School Students Provided by Health Visitors in Cyprus

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Περίληψη

Εισαγωγή: Το σύνδρομο επίκτητης ανοσολογικής ανεπάρκειας (AIDS), αποτελεί μια από τις κύριες αιτίες νοσηρότητας και θνησιμότητας σε παγκόσμιο επίπεδο. Πρόσφατες μελέτες καταδεικνύουν αύξηση των κρουσμάτων με HIV/AIDS παγκόσμια και ειδικότερα ανάμεσα στους νέους ηλικίας 15 ετών και άνω.

Σκοπός: Σκοπός αυτής της μελέτης ήταν να εκτιμηθεί ο βαθμός αποτελεσματικότητας του σχολικού εκπαιδευτικού προγράμματος HIV / AIDS που απευθύνεται σε μαθητές Α' τάξης Λυκείων - Τεχνικών Σχολών στην Κύπρο. Πιο συγκεκριμένα, στόχος της μελέτης αυτής ήταν να εκτιμηθεί, εάν το συγκεκριμένο πρόγραμμα βελτιώνει τις γνώσεις για τους τρόπους μετάδοσης/μη μετάδοσης του HIV/AIDS και τους τρόπους προφύλαξης.

Υλικό και Μέθοδος: Χρησιμοποιήθηκε ένα σκόπιμο δείγμα που περιλάμβανε 498 μαθητές με ηλικίες 15-16 ετών (N = 487 (224 αγόρια και 263 κορίτσια), ποσοστό απόκρισης = 97,8%), με ένα ανώνυμο ημιδομημένο ερωτηματολόγιο πριν και μετά την εκπαιδευτική παρέμβαση σε έντεκα λύκεια και δύο τεχνικές σχολές στην Κύπρο. Χρησιμοποιήθηκαν οι στατιστικές μέθοδοι Data analysis Frequences, Chi-square και t-test, για τη σύγκριση των διαφορών πριν και μετά την παρέμβαση.

Αποτελέσματα: Τα ευρήματα έδειξαν ότι υπάρχουν στατιστικές σημαντικές διαφορές ($p = .000$, $p = .000$) μεταξύ των μέσων όρων στις γνώσεις για τους τρόπους μετάδοσης/μη μετάδοσης του HIV/AIDS (M=6.2931 πριν / M=7.8523 μετά) και τρόπων πρόληψης (M=3.7806 πριν / M=4.4746 μετά), πριν και μετά την παρέμβαση.

Συμπεράσματα: Τα ευρήματα που προέκυψαν υποδηλώνουν ότι το συγκεκριμένο πρόγραμμα HIV / AIDS μπορεί να εξοπλίσει τους μαθητές με γνώσεις για την πρόληψη του HIV / AIDS.

Λέξεις Κλειδιά: HIV/AIDS, Πρόγραμμα Αγωγή Υγείας, Επισκέπτες/τριες Υγείας

Abstract

Introduction: The Acquired Immune Deficiency Syndrome (AIDS), is one of the major causes of morbidity and mortality worldwide. Recent studies show an increase in HIV / AIDS cases worldwide, especially among young people aged 15 and over.

Aim: The aim of this study was to assess the degree of effectiveness of Schoolbased education program of HIV / AIDS targeting students of High/Technical Schools in Cyprus. More specifically, the study aimed to assess whether the HIV / AIDS health education program improves knowledge about transmission and non-transmission modes and prevention measures.

Methodology: A purposively sample was used included 498 students with ages of 15-16 years old (N=487 (224 boys and 263 girls), response rate=97.8%), with an anonymous semi structured questionnaire before and after the education intervention in eleven lyceums and two technical schools in Cyprus. Chi-square and t-test were used to compare differences before and after the intervention.

Results: The findings showed that there is the statistical significant difference ($p = .000$) in the mean transmission-non transmission knowledge scores (M=6.2931 before / M=7.8523 after) and ways of prevention for the two groups πρόληψης (M=3.7806 before / M=4.4746 after) before and after the intervention.

Conclusions: The findings suggest that Health promotion program of HIV/AIDS can equip students with knowledge for preventative themselves against HIV/AIDS.

Keywords: HIV/AIDS, School-based Education Program, Health Visitor

As it is known from the WHO, the Acquired Immune Deficiency Syndrome (AIDS), is one of the major causes of morbidity and mortality worldwide. Statistics from the WHO show that approximately 37.9 million people live with HIV / AIDS. Of these, 36.2 million are adults and 1.7 million are children under the age of 15. In 2018, 1.7 million people became infected with HIV. Of these new infections, 1.6 million people are of the age of 15 and over and 160,000 infections are between the ages of 0-14 (WHO 2018).

School Promotion Programs of HIV/AIDS

The importance of integrating HIV / AIDS Health Education programs into school curricula lies in the fact that young people are at an increased risk for HIV infection (Aldred et al 2007). According to findings of international research, the inclusion of sex education in general brings positive results in issues such as sexual abuse, the establishment of healthy relationships, the development of skills, the prevention of sexually transmitted diseases, etc. (Blaise 2009, Thanavanh et al 2013, Assampong et al 2013, Espada et al 2015). In addition, the role of the school as one of the most ideal places for sex education has also been widely recognized (Di Noja & Schinke 2009, Derek et al 2010, Tan et al 2012, Namisi et al 2013, Fonner et al 2014, Gauhran & Asgary 2014).

The majority of researchers revealed that most health education programs for HIV / AIDS, yield positive results (Fonner et al 2014, Gauhran & Asgary 2014, Xiaohui et al 2012, Musiimenta 2013, Kirby 2008, Papantoniou et al 2007). Research conducted by Fonner et al (2014) shows that the school-based sex education is an effective intervention for generating HIV-related knowledge and decreasing sexual risk behaviours among participants, including delaying sexual debut, increasing condom use, and decreasing numbers of sexual partners. Another research by Gauhran & Asgary (2014) supports that the educational program for adolescent girls in Kenya increased the knowledge about sexually transmitted diseases and HIV / AIDS, for proper condom use and abstinence. In addition, Musiimenta (2013) study argues that the school based sexual health education interventions can reach people of diverse backgrounds and equip them with knowledge and skills for preventing themselves against HIV/AIDS, unwanted pregnancies and live responsibly. However, a review study in Sub-Saharan Africa shows that the school -based HIV/AIDS education has little impact on sexual behaviours of students (Ebhoimhen et al 2008).

School programs for the prevention of HIV / AIDS in Cyprus

According to the Ministry of Health of the Republic of Cyprus, from 1995 until today, the officials of the School Service (Health Visitors) provide systematic training for the prevention of HIV / AIDS. Specifically, a Health Education program for HIV / AIDS is applied to all students of the A Lyceum / Technical Schools of the public sector of secondary education. Until 2011, the program used the training method with training nuclei. Specifically, a group of students was selected from each department, which was trained by the Health Visitors and then this group of students presented the program to their classmates (Cyprus Ministry of Health, 2010).

Since 2012, the method of the program has changed. The new HIV / AIDS training program uses the method of active / experiential learning. The Health Visitor mainly has the role of coordinator. Specifically, in the first part there is a short lecture by the Health Visitor to provide knowledge about HIV / AIDS. The Health Visitor then facilitates discussion and communication with students. During the program, interactive and participatory activities such as role-playing games, discussions, exchange of views are used to achieve the three learning objectives of the program which are the acquisition

of knowledge, the adoption of correct attitudes and behaviours and the acquisition of skills (Cyprus Ministry of Health, 2012).

Evaluating health education programs is very important to clarify their effectiveness. Unfortunately in Cyprus, only one survey has been conducted to investigate the effectiveness of the program. According to Papantoniou et al. (2007), the Health Education Program for HIV / AIDS with the method of training nuclei, brought positive results in the knowledge regarding the ways of transmission and protection from the HIV / AIDS virus. In particular, there have been positive effects on increasing condom use in both sexes, delaying the onset of sexual activity and abstinence as a means of protection against HIV / AIDS. These results are in line with the results of other research on HIV / AIDS Health Education programs using the same training method (peer education) (Mussimenta 2013, Kirby, 2008, Ebhoimhen 2008). Furthermore, these studies report an increase in knowledge about HIV / AIDS transmission and protection methods, a delay in sexual intercourse, a reduction in the number of sexual partners, and the proper use of condoms.

Therefore, this study aims to fill the gap that exists in investigating the effectiveness of such programs in Cyprus. In addition, through this study, it is expected to extract important findings regarding the effectiveness of the program as well as ways to resolve its potential weaknesses.

Aim/Objectives

The aim of this study was to assess the degree of effectiveness of school-based education program of HIV / AIDS targeting students of High/Technical Schools in Cyprus. More specifically, the study aimed to assess whether the HIV / AIDS health education program improves knowledge about transmission and non-transmission modes and prevention measures.

Methods

Data collection process

The sample selection was made during the health education program on HIV / AIDS. Particularly, it involved two phases before and after the completion of the program with the distribution of anonymous self-administered structured- questionnaires. The first phase of distribution / collection of questionnaires was conducted before the start of the intervention and the second phase of distribution / collection of questionnaires was conducted immediately after the completion of the intervention.

The target population was the students of senior high school (aged 15-16 years) who attended the health education program on HIV / AIDS. Therefore, the method of purposive sampling was chosen as the sample should be the students who attended the program. However, the sample was selected at random. Specifically, the number of students based on the class list were drawn and 20% of the students in each class were randomly selected. Note that the questionnaires were distributed and collected by the Health Visitors during school hours.

Description of questionnaire sample

In Cyprus, during 2015, there were 46 Lyceums (3,073 boys and 3,883 girls at A class) and 15 Technical Schools (1,188 boys and

244 girls at A class) with the total population of 8,388 students (Statistical Services, 2017). For this study, the target population was the students of A class of senior high school (aged 15-16 years) who attended the health education program on HIV / AIDS. The sample consisted of 498 students, 52, 8% girls and 45% boys about 5, 94% of the A class secondary population of Cyprus, from 11 lyceum and 2 technical school in Cyprus. (response rate=97.8%)

Intervention

The school-based Health Education Program on HIV / AIDS was organized annually by the Officers of the School Health Services (Health visitors) in collaboration with the Ministry of Education and Culture of the Republic of Cyprus. The program is aimed at secondary school students and particularly at students of senior high school (aged 15-16 years) and aims to provide knowledge and adopting the right attitude and behaviour. The school-based health education program for HIV/AIDS is three credit hours (modules) for 45 minutes and is carried out during the school year (Ministry of Health, 2012).

The program consists of three sections. The first section includes providing knowledge about HIV / AIDS. Specifically, a worksheet is distributed to students, which includes questions about their knowledge of HIV / AIDS. Students are asked to choose whether the point of view is correct or incorrect. The second section covers topics related to the development of positive attitudes / healthy behaviours in relation to AIDS, aiming at delaying the onset of sexual intercourse at a young age. For this section, worksheets containing stories with HIV-positive people are distributed and students are asked to identify and classify HIV / AIDS risk behaviours and to identify cases of discrimination against HIV-positive people. Finally, the third section includes topics related to the proper use of condoms and views on various sexuality issues (e.g., a woman who dresses provocatively wants to have sex). Students are asked to put in order the steps for the correct use of the condom. In addition, they are invited to discuss different views on sexuality issues (Ministry of Health, 2012) (see appendix 1).

Questionnaire Description

The questionnaire used for this survey has already been used in other surveys and has been evaluated for its reliability. Specifically, the questionnaire has an internal consistency index (Cronbach Alpha = .70) which indicates good reliability of this questionnaire.

The questionnaire is anonymous and students are asked to write only the name of their school. This questionnaire has been approved by the Ministry of Health of Cyprus and the same one is given for the evaluation of the Health Education Program for HIV / AIDS, before and after the intervention. It consists of three sections and includes two types of questions, dichotomous (yes / no, right / wrong) and multiple-choice questions. The first section includes four questions about personal information (gender, risky activities, discussion with parents about sex and sources of information about HIV / AIDS). The second section contains 17 questions about knowledge of HIV / AIDS (modes of transmission and preventive measures). The third section includes 24 questions about their views on HIV / AIDS issues and students are asked to write down the answer they deem appropriate.

Statistical analysis

The questionnaires were encoded to the SPSS 20 statistical software and a numerical value was allocated to each nominal data. Firstly, concerning personal and family data (gender, risky behaviour, discussion with the parents about sex,) were examined using data analysis frequencies. In addition, the multiple-choice

question about the sources of information about HIV/AIDS was analysed using multi response frequencies. Secondly, in the case of knowledge of HIV/AIDS, the knowledge of the modes of transmission and non-transmission of HIV/AIDS and the prevention knowledge were examined by gender, risky behaviour, before-after and parents-sex using analysis of independent -samples t-test.

Research Ethics

To conduct the research, permission was obtained from the Cyprus Ministry of Health. The document submitted received positive responses from the National Bioethics Commission and the Data Protection Committee.

Results

Socio-demographic characteristics

The response rate was 97,8 % (N=487).. The participants consisted of 437 High School Students and 50 Technical School Students. In addition, the sample consisted of 487 students of which 263 (52,8%) were girls and 224 (45%) boys.

Family characteristics “Talk to their parents about issues concerning Sex”

In the question which investigates whether adolescents discuss with their parents about sex, the results show that 53.6% responded that they talk to their parents on matters relating to sex whereas 43.8% responded that they do not discuss with their parents anything appertaining to sex. The remaining 4% did not answer the specific question.

Individual Characteristics/ Do you like the risky activities?

Regarding the question about risky behaviour the results are as follow: 61% respond that they like risky activities and 35,7% responded that they do not prefer risky activities. The remaining 3,3% did not answer the specific question.

Sources of information about HIV/AIDS

The multiple-choice question on the information sources related to AIDS revealed that (400, 80,3%) percent of the sample received information about AIDS from school. Other sources included: television (256, 51,4%), internet (237, 47,6%), parents (213, 41,6%), school health services (197, 39,6%), friends (162, 32,5%), newspapers / magazine (101, 20,3%) and from siblings (65, 13,1%)

Knowledge of the modes of Transmission and non-transmission of HIV group before /after

This group explores the differences from before and after the intervention, in transmission and non-transmission scores, which is the total score that participants recorded on a ten item transmission and non-transmission scale.

In table 1, the mean the number of people (N), the mean difference and Sig. Value are presented (e.g., before-after). An independent -samples t-test illustrate the statistical significant difference in the mean scores for the two groups (before-after). Specifically, it reveals the significant difference in the mean knowledge of modes of transmission and non-transmission of AIDS, before and after the health education program on AIDS. For this case the $p = 0.00$ ($p < 0.05$). The conclusion in this case

is that there is a statistically significant difference in the mean transmission-non transmission knowledge scores for before and after the intervention.

Table 1: Knowledge of the modes of transmission and non-transmission for HIV/AIDS			
	N	Mean	P
Knowledge of the modes of transmission and non-transmission for HIV/AIDS			
Before/ After	232/237	6.2931/7.8523	.000

Note: p: before intervention vs after intervention in students HIV/AIDS Knowledge of the modes of transmission and non-transmission

Preventative measures: Knowledge group before/after

This group explores the differences by before-after, in preventative measures scores, which is the total score that participants recorded on six item preventative measures scale.

In table 2, the mean, the number of people (N), the mean difference and Sig. Value are presented (e.g., before-after). Table 6 shows that the average knowledge of preventative measures of AIDS increased after the intervention (3.7806 versus 4.4746). For this case the Sig. Value is 0.000 so, it is lower than the required cut-off of 0.05. The conclusion in this case is that there is statistically significant difference in the mean of preventative measures scores for before and after the intervention (Health promotion program for HIV/AIDS).

Table 2: Knowledge of the preventative measures for HIV/AIDS			
	N	Mean	P
Knowledge of the preventative measures for HIV/AIDS			
Before/ After	237/236	3.7806/4.4746	.000

Note: P: before intervention vs after intervention in students HIV / AIDS knowledge of the preventative measures Risk activities/Non risky activities

This group explores the differences by risky behaviour/non risky behaviour about knowledge of modes of transmission and non-transmission of AIDS and knowledge of the preventative measures for HIV/AIDS.

Table 3 shows that the average knowledge about modes of transmission and non-transmission of AIDS from the sample of 292 people who have risky behaviour is lower than that in the sample of 174 people who are not involved in risky behaviour (7.4319 versus 6.8733). In addition, the average knowledge of preventative measures of AIDS from the sample of 295 people who have risky behaviour is lower than that in the sample of 174 people who do not adopt a risky behaviour (3.9627 versus 4.3621).

Also, table 3 reveals that there is a statistically significant difference in the knowledge of the modes of transmission and non-transmission and the knowledge of the preventative measures for HIV/AIDS with risky behaviour (p<0.00).

Table 3: Knowledge of HIV/AIDS of students with risky/non risky behaviour			
	N	Mean	P
Knowledge of the modes of transmission and non-transmission for HIV/AIDS			
Risky/No Risky behavior	292/174	6.8733 /7.4310	0.039
Knowledge of the preventing measures for HIV/AIDS			
Risky/No Risky behavior	295/174	3.967/4.3716	0.038

Note: P: Risky vs Non-Risky Behaviour in HIV/AIDS Knowledge of the modes of transmission and non-transmission and Knowledge of the preventative measures.

Parental Interaction

This group explores the differences by students who speak with their parents about sexual issues and students who does not discuss sexual issues with their parents in knowledge concerning modes of transmission and non-transmission of AIDS and Knowledge of the preventative measures for HIV / AIDS.

Table 4 shows that the average knowledge about modes of transmission and non-transmission of AIDS from the sample of 259 people who speak with their parents about sexual issues is greater, than that in the sample of 209 people who does not speak with their parents about sexual issues (7.3089 versus 6.7943). In addition, the average knowledge about preventative measures of AIDS from the sample of 261 people who speak with their parents about sexual issues is greater, than that in the sample of 211 people who does not speak with their parents about sexual issues (4.3716 versus 3.8152).

Also, the table 4 shows that there is no Statistically significant difference to the Knowledge of the modes of transmission and non-transmission and Knowledge of the preventative measures for HIV / AIDS for students who speak or does not speak with their parents about sexual issues.

Table 4: Knowledge of HIV / AIDS of students who speak/not speak with their parents about sex issues

	N	Mean	P
Knowledge of the modes of transmission and non-transmission for HIV / AIDS			
<i>Students speak for sex with their parents /No speak</i>	<i>259/209</i>	<i>7.3089/6.7943</i>	<i>0.052</i>
Knowledge of the preventing measures for HIV / AIDS			
<i>Students speak for sex with their parents/No speak</i>	<i>261/211</i>	<i>4.3716/3.8152</i>	<i>0.096</i>

Note: P: Students speak about sex with their parents vs students who do not speak about sex with their parents in HIV / AIDS Knowledge of the modes of transmission and non-transmission and Knowledge of the preventative measures.

Gender

This group explores the differences by gender in knowledge of modes of transmission and non-transmission of AIDS, knowledge of the preventative measures for HIV / AIDS.

Table 5 shows that the average knowledge about modes of transmission and non-transmission of AIDS from the sample of 213 males is lower than that in the sample of 256 females (7.5039 versus 6.5728). In addition, the average knowledge about preventative measures of AIDS from the sample of 219 males is lower than that in the sample of 254 females (4.3189 versus 3.9041).

Also, table 5 shows that there is statistically significant difference to the Knowledge of the modes of transmission and non-transmission and Knowledge of the preventative measures for HIV / AIDS ($p < 0.050$).

Discussion

Table 5 : Knowledge of HIV / AIDS by gender			
	N	Mean	P
Knowledge of the modes of transmission and non-transmission for HIV / AIDS			
Males/ Females	213/256	6.5728/7.5039	0.000
Knowledge of the preventative measures for HIV / AIDS			
Males/ Females	219/254	3.9041/4.3189	0.025
Note: P: Males vs Females in HIV / AIDS Knowledge of the modes of transmission and non-transmission and Knowledge of the preventative measures			

This study attempted to investigate the effectiveness of the Health Education program for HIV/AIDS. The semi-structured questionnaire was used for this purpose. The two categories of knowledge were examined concerned the knowledge about the modes of transmission / non-transmission of HIV/AIDS and the preventative measures for HIV/AIDS and they were compared by four variables, namely before-after, risk behaviour, parental interaction and gender.

The results suggest that for before and after there is a statistically significant difference in the mean of Knowledge of modes of transmission and non-transmission and preventative measures of HIV / AIDS. The result can be expressed as follows: Knowledge of the modes of transmission and non-transmission and preventative measures increased after the intervention. This is consistent with the findings of other studies (Fonner et al 2014, Namisi et al 2013, Gauhran & Asgary 2014, Derek et al 2010, Xiaohui et al 2012, Musiimenta 2013, Papantoniou et al 2008, Eb- hohimhen et al 2008). Moreover, it is suggested that concerning risky behaviour there is statistically significant difference in the mean of Knowledge of transmission and non-transmission and preventative measures for HIV / AIDS. This can be expressed as follows: Students with non-risky behaviour have increased Knowledge of the modes of transmission and non-transmission and preventative measures for HIV / AIDS than the students with risky behaviour. This is consistent with the findings of other studies (Letamo & Mokgathe 2013, Espada et al 2015, Di Noia & Schinke 2007).

In the case of parental interaction there is no statistically significant difference in the mean of Knowledge of transmission and non-transmission and preventative measures of HIV / AIDS. The result can be expressed as follows: The knowledge concerning modes of

transmission and non-transmission and preventative measures of HIV / AIDS, is not affected whether students discuss or not with their parents about issues concerning sex. The result appeared to contradict with a study carried out by Francis Sande et al (2013) which states that 'communication on sexuality issues with their parents and other significant adults is often assumed to be an important component of intervention programs aimed at promoting healthy adolescent sexual practices' and Knowles et al (2012) which presents that there were significant positive correlations between improved student knowledge of HIV / AIDS, protective health skills, perceived parental monitoring and reduced risk behaviours with the number of FOYC sessions delivered.

Finally, in the case of gender, there is a statistically significant difference in the mean of Knowledge of transmission and non-transmission and preventative measures for HIV / AIDS. The result can be expressed as follows: Females have greater knowledge of modes of transmission and non-transmission of HIV / AIDS than males. The result appeared to contradict a study carried out by Xiaoming et al (2004) which indicated that males have greater knowledge than females.

Conclusions

First of all, it should be mentioned that the majority of the sample were girls. In addition, the majority of the sample talks to their parents about issues concerning sex and they like risky activities. In terms of sources of information on HIV/AIDS, the sample cited the school as the first source of information on HIV/AIDS.

Regarding the finding that girls have greater knowledge about HIV/AIDS than boys, it is concluded that probably in a small society such as Cyprus, females are more restrained on matters concerning sexual intercourse and take HIV disease more seriously. Concerning the finding that people with non- risky behavior have increased knowledge from those with risky behavior of the modes of transmission/non transmission of HIV/ AIDS as well as the preventative measures for HIV/AIDS , this is revealing in the sense that more risky people are not considerate of the dangers of getting infected by HIV. Finally, regarding the finding that students' conversations with parents about sex do not affect their knowledge of HIV, it leads us to conclude that parents may not focus on HIV/AIDS in their discussions on issues related to sex.

In conclusion, it could be said that this program improves the knowledge about the ways of transmission / non-transmission of HIV and the ways of protection from HIV. This is in agreement with the literature, this research confirmed that Health Promotion Program plays an important role in the improvement of the knowledge of HIV (Fonner 2014, Gauhran & Asgary 2014, Xiao- hui et al 2012, Musiimenta 2013, Kirby 2008, Papantoniou et al 2007).

Recommendations

This research can be set as foundation for further research with an implementation of the health education program for AIDS not only in public schools but also in private schools in Cyprus. In addition, a program could be developed from the Ministry of Education and Culture with the Ministry of Health which would

target parents with teenagers or at an earlier age so as to make them aware on the issues related to HIV/AIDS and how to discuss and inform their children.

Another recommendation for further research is for the program to become more focused and not so general in order to target teenagers with special characteristics such as in the case of those who exhibit risky behaviour due to the fact that they do not take the disease seriously.

Limitations

Several limitations of this study need to be discussed. First the population of the study only included Grade one students from each selected school. Therefore, the results cannot be used to make a generalization about all adolescents and out-of-school youths.

Other limitations is the lack of control group and no follow up. The study's sample was representative but cannot avoid sample bias. Also, future research needs to focus on long term interventions on the knowledge of secondary school students on HIV / AIDS, together with training on self - protection skills.

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