

## Educational Intervention on Sexually Transmitted Infections and HIV/AIDS Counseling in Primary Health Care

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### Abstract

Controlled interventional study aimed at evaluating effectiveness of an educational intervention on sexually transmitted infections (STIs) and HIV/AIDS counseling conducted in primary health care (PHC) in Montes Claros, Brazil. This study aimed to evaluate effectiveness of an educational intervention on STIs and HIV/AIDS counseling in PHC. A total of 180 physicians and nurses randomly selected into intervention and control group. Intervention group took part in specific workshops on STIs and HIV/AIDS counseling for PHC. Control group did not receive any information during the training of first group. Health providers answered a knowledge questionnaire in pre and post-intervention period about counseling practices in PHC. Pearson's chi-square and paired Student t test were used. There was a significant increase in general knowledge of intervention group after training, from 28.5 (66.3%) to 35.8 hits (83.2%) ( $p < 0.001$ ). In this group, issues about "Risk/vulnerability assessment" showed the highest percentage difference between pre and post-intervention (pre-test: 74.2%; post-test: 85.3%,  $p = 0.001$ ) and the lowest was about "Counseling and communication" (pre-test: 63.0%; post-test: 68.0%,  $p = 0.032$ ). The model of educational intervention applied was effective in raising the knowledge about STIs and HIV/AIDS counseling of physicians and nurses in PHC.

**Keywords:** Counseling; Sexually Transmitted Diseases; HIV; Primary Health Care

### Introduction

In the world, more than one million people get sexually transmitted infections (STIs) every day and are the main cause of morbidity and mortality among communicable diseases [1,2]. Difficulties in diagnosis and access to health care are still a major challenge in the current HIV/AIDS epidemic. More than one-third of HIV-infected patients start treatment with advanced disease [1,3].

In face of HIV epidemic, rapid responses are required and a goal is 90.0% to know their status and initiate treatment [2]. Effective and new approaches to HIV testing that use strategies and provide quality with respect for ethical aspects are needed while ensuring at the same time quality of test and practices of ethical tests<sup>1</sup>. Counseling can be considered as one of the most effective public health interventions for prevention of HIV infection and STIs. This practice allows the individual to understand their personal risk of infection, make choices based on their knowledge of their serostatus, encourage change, and understand the need to eliminate harmful behavior in order to reduce the risk of becoming infected [3].

In Brazil, there is a focus on primary health care (PHC) in the reorganization of care model of Health System (SUS) through the Family Health Strategy. This strategy offers conditions to work with HIV and STIs prevention. The official guidelines [4] point out that physicians and nurses from PHC should provide STI and HIV counseling for the entire population. Historically, counseling has been conducted by

Testing and Counseling Centers, but with the increase in the number of cases of infection counseling has been decentralized to PHC in order to broaden access to the user. In 2005, the Ministry of Health created the “Workshop on STIs and HIV/AIDS counseling in primary care” to train professionals in attendance of STIs and HIV demands in PHC. Considering this specific training program, a recent national study showed that the practice of counseling in PHC is deficient and neglected [5]. It should be noted that in this scenario, PHC is not yet fully fulfilling its function in case of diseases and/or procedures which were previously considered to be the responsibility of secondary centers [6].

Previous research indicates that insufficient training of professionals is a barrier to counseling [7-9]. A study with nurses detected a lack of knowledge about the symptomatology, diagnosis and management of persons living with HIV. The professionals who took a course on counseling performed better on knowledge questionnaire than did those who did not [10]. Another investigation conducted with 160 physicians has detected low knowledge about HIV counseling [11]. In France, research with 407 professionals in PHC found that only 8.0% were trained to apply the recommendations for testing [12].

Counseling on STD/HIV/AIDS in primary care settings is recommended by the World Health Organization (WHO), however it is little implemented in practice. This lack represents a loss of opportunity to diagnose HIV infection in the early stages of the disease. In this perspective, this study is relevant for providing an educational intervention to train PHC health professionals to act in counseling and thus transform their practice.

The need to supply the insufficient training has been remedied by the training of professionals [12,13]. Professional qualification is a key need for counseling and testing. This study aimed to evaluate effectiveness of an educational intervention on STIs and HIV/AIDS counseling in PHC.

## **Methods**

### **Design and location of study**

This is a controlled intervention study conducted in municipality of Montes Claros located in northern region of Minas Gerais state, Southeastern Brazil. This is a large municipality with a population of 390,000 inhabitants, being the largest urban center in the north of state, with influence area in all this region and Southwest of Bahia state. It is located between the poorest areas of the country, considered an emblematic region marked by the contrast of the rich south and the poor north. GDP per capita (US \$ 3,620) is below the country (US \$ 11,067.00). Basic services such as sanitation, clean water and garbage collection are poor in many places and access to health care remains a problem [14]. PHC coverage has increased since the Family Health Program (now called the Family Health Strategy - FHS) launched in the country at the end of 1990. Access to diagnostic, treatment and specialized care resources is still restricted [15].

This study was conducted within PHC, represented by the FHS teams. At the time of intervention, the teams were distributed in 44 basic health units in urban area. Analysis object were basic health units of FHS located in urban area of Montes Claros.

### **Participants**

Study population consisted of 180 physicians and nurses from FHS teams in urban area (Figure 1). The study obtained 173 eligible professionals. There was no sample calculation. Number of professionals working in FHS teams was obtained through the Municipal Health Department of the city.

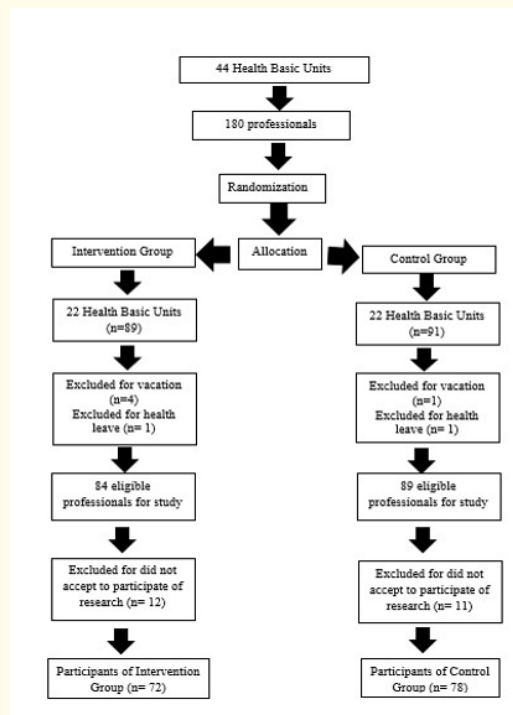


Figure 1: Flow of selection of participating professionals in the study, Montes Claros, Minas Gerais state, Brazil.

The research had as inclusion criteria all professionals who worked in the service of urban area.

Exclusion criteria were professionals who were not active during the study period (vacation or leave) were excluded.

A total number of participants in the study was randomly distributed in a 1:1 ratio and allocated in intervention group and control group. In the allocation, it was considered the totality of basic health units. A list was generated using an application built using Microsoft Excel® 2010 software for later draw. Basic health units were randomized, with half included in intervention group and other half in control group. In each drawn team participated two professionals (01 physician and 01 nurse).

### Educational intervention

Proposed intervention was the training of physicians and nurses of FHS teams in STI and HIV counseling according to the national official guidelines [4,16]. The approach was based on the workshop technique with four group meetings, two per week with a duration of 04 hours. Total workload of this intervention was 16 hours. Training occurred during working at predefined location. After the allocation of teams, professionals were divided into 04 groups with 22 or 23 participants per group. The intervention applied was a proposal developed in partnership with the Center of Reference in Infectious Diseases (in Portuguese, CERDI) and the Municipal Primary Health Care Coordination. Control group did not receive training on STIs and HIV/AIDS counseling at the time that intervention group was being trained.

Workshop structure was based on guidelines of the Ministry of Health [4,16]. In each meeting, case studies were added using the dialogic and participatory methodology, favoring the listening, reflection and problematization of the reality of STIs and HIV/AIDS coun-

selling in PHC. An educational kit with content and programming of the workshops was distributed to participating professionals. Educational intervention addressed the following domains: primary care services related to prevention, diagnosis and assistance to STIs and HIV; communication and information in counseling process; vulnerability and risk behavior in the practice of counseling; ethical issues and legal aspects related to HIV testing, professional secrecy and confidentiality of information, active/consensual search and communication of sexual partnerships.

### Instrument and data collection

The questionnaire used was based on the review of official guidelines of Ministry of Health. The instrument was composed of two parts: the first one being the characterization of the participants, using the following variables: sex (male/female), age (collected in years and, later, dichotomized by the median), marital status (married or single/separated or widowed), professional category (physician/nurse), institution of graduation (public/private), Family Health qualification (yes/no), time since graduation (years collected in months and later dichotomized by the median), length service in PHC (collected in months and later dichotomized by the median), previous training in STIs and HIV/AIDS counseling (yes/no). In this study the Family Health qualification considered was the residence (medical or multiprofessional) in Family Health and title of Family and Community Medicine.

Second part of questionnaire consisted of 43 questions, these items were totally made based on the professional performance recommended by the official guidelines [4,16]. The questionnaire presented four domains: counseling and communication (ten questions), risk and vulnerability assessment (nineteen questions), prevention measures (seven questions) and serological testing (seven questions).

The questionnaire was assessed for content validity by 02 infectologists, 01 physician specialist in PHC, 01 physician specialist in PHC and STIs, 01 nurse specialist in PHC, 02 nurses specialists in STIs. Questionnaire was evaluated in the presence or absence of the following criteria: comprehensiveness, objectivity, relevance and clarity. There was a need to change with a reformulation of 06 items after the evaluation of these professionals.

Subsequently, a pilot study was conducted with physicians and nurses of FHS in rural area of the municipality. The professionals did not report any difficulty or doubt in completing the questionnaire, being kept unchanged for the main study. The questions were in the form of true or false assertion judgment. Each question correctly answered adds a point in the number of hits and the "I do not know" option does not score in the questionnaire. For intervention group, a questionnaire was applied for knowledge evaluation, before and after the training, called pre and post-test, respectively.

Control group did not receive any specific guidelines or training about the theme during study period. Post-test was applied to the control group about one to two months after answering the pre-test, both applied in the working environment. The same questionnaire, but only with the questions of knowledge, was used to verify if there was change in the knowledge of professionals by interest and initiative in search of information about STIs and HIV/AIDS counseling.

The reliability was not measured in this study.

### Data analysis

Data analysis was performed using the Statistical Package for Social Sciences (SPSS)<sup>®</sup> 17.0. The quantitative variables were presented in mean and standard deviation and the categorical variables were presented in proportions. The Pearson's chi-square test was used to check for differences in the composition of the intervention and control groups. The Kolmogorov-Smirnov test was used to analyze whether the continuous variables present normal distribution. The performance in the knowledge test was measured by means of the correct answers to the questions proposed. The paired Student t test was used to verify differences in pre and post-test knowledge in both groups. A p-value < 0.05 was considered statistically significant.

**Ethical issues**

The ethical aspects of human research have been respected. The research project was approved by the Ethics Committee in Research of the State University of Montes Claros for substantiated opinion no. 890.235. Participants signed a free and informed consent form. The results were returned to the Municipal Health Department in order to support planning and relevant actions.

**Results**

173 physicians and nurses were eligible for the study, 150 agreed to participate, featuring a response proportion of 86.7%. Of these, 60.0% were nurses and 40.0% were physicians. These participants, 72 received the educational intervention and 78 were allocated to the control group. Regarding the overall characteristics of the professionals, the median age was 30 years (21 - 63 years), Most of the study participants were female (70.7%) and Single or divorced or widower (53.3%). The graduation of these professionals occurred predominantly in private institution (55.3%) and the majority did not have a Family Health qualification (74.0%). Participants had less than 60 months of service in PHC (69.3%) and less than 5.8 years since graduation (62.0%). Most of the professionals did not have prior training in STIs and HIV/AIDS counseling (75.3%). When comparing the characteristics of profile of the control group and intervention group, it was verified that only the variable marital status showed statistically significant difference (p = 0.015): in the intervention group there was predominance of married or stable union and, in the control group, singles, separated or widowed (Table 1). However, when this variable was associated with the knowledge of professionals, no statistical significance was observed.

Variables	Intervention Group (n = 72)		Control Group (n = 78)		p-value
	n	%	n	%	
<b>Sex</b>					0.139
Female	55	76.4	51	65.4	
Male	17	23.6	27	34.6	
<b>Age</b>					0.394
< 30 years	31	43.0	39	50.0	
≥ 30 years	41	57.0	39	50.0	
<b>Marital status</b>					0.015
Married or stable relationship	41	57.0	29	37.2	
Single or divorced or widower	31	43.0	49	62.8	
<b>Professional category</b>					0.463
Nurse	41	57.0	49	62.8	
Physician	31	43.0	29	37.2	
<b>Institution of graduation</b>					0.703
Public	31	43.0	36	46.2	
Private	41	57.0	42	53.8	
<b>Time since graduation</b>					0.904
< 5.8 years	45	62.5	48	61.5	
≥ 5.8 years	27	37.5	30	38.5	
<b>Qualification in Family Health</b>					0.385
Yes	20	27.8	19	24.4	
No	52	72.2	59	75.6	
<b>Length of service in PHC</b>					0,977
< 60 months	50	69.4	54	69.2	
≥ 60 months	22	30.6	24	30.8	
<b>Previous training about STIs and HIV/AIDS counseling</b>					0,928
Yes	18	25.0	19	24.4	
No	54	75.0	59	75.6	

**Table 1:** Comparison between intervention group and control group, according to studied variables, Montes Claros, Minas Gerais state, Brazil. STIs: Sexually Transmitted Infections; HIV: Human Immunodeficiency Virus; AIDS: Acquired Immunodeficiency Syndrome.

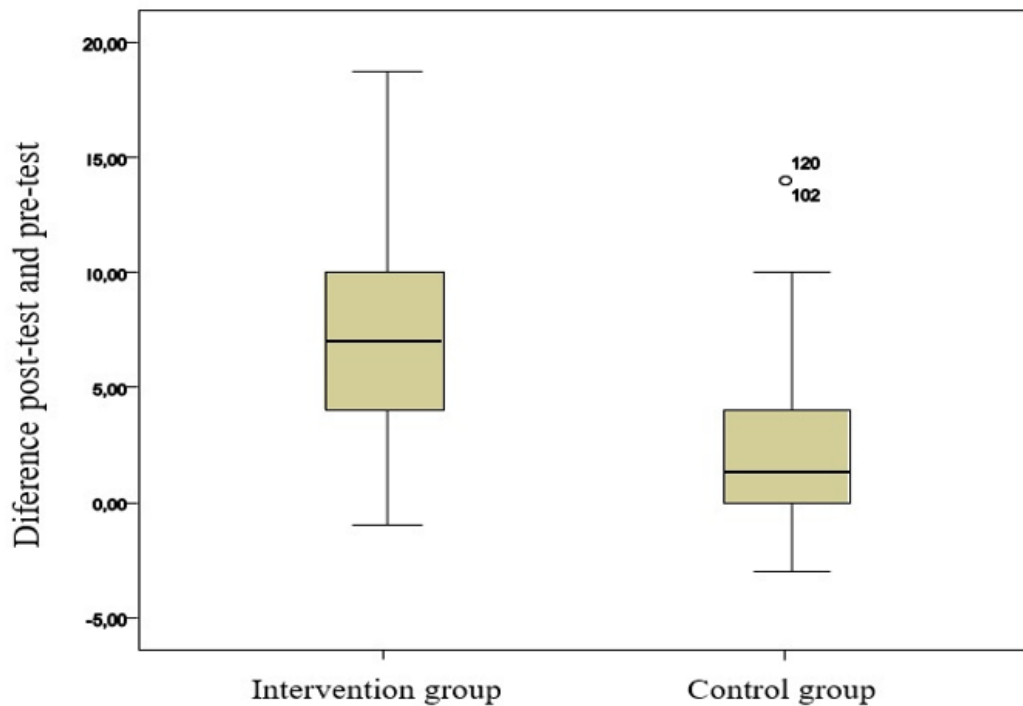
The mean scores for the performance of pre-test set for the intervention group and control group were  $28.5 \pm 4.2$  (66.3%) and  $27.6 \pm 4.4$  (64.1%), respectively. There was no statistically significant difference in the distribution of values for the correct answers between intervention group and control group in pre-test ( $p = 0.184$ ), demonstrating that the groups were comparable in their original constitution in relation to knowledge.

The results of the average performance of pre and post-test medical professionals are presented in paired form for the two groups in table 2. There was an increase with statistical significance in the quantitative of correct answers after the educational intervention, both in total value of correct answers, as in all domains of knowledge testing. The mean number of correct answers from the intervention group increased from  $28.5 \pm 4.2$  (66.3%) in the pre-test to  $35.8 \pm 3.3$  (83.2%) in the post-test (mean score of 07 correct answers). In the control group, the mean of  $27.6 \pm 4.5$  (63.9%) in the pre-test showed a small increase to  $28.4 \pm 3.6$  (68.8%) in the same value in the post-test (Figure 2). The greatest domain with difference in the pre and post-test percentage performance in the intervention group was “Risk/vulnerability assessment” (pre-test = 74.2%, post-test = 85.3%,  $p < 0.001$ ) the lowest was “Counseling and communication” (pre-test = 63.0%, post-test = 68.0%,  $p = 0.032$ ).

Domain	Intervention Group							Control Group						
	Pre-test			Post-test			p-value	Pre-test			Post-test			p-value
	Mean	SD	%	Mean	SD	%		Mean	SD	%	Mean	SD	%	
Counseling and communication (10 questions)	6.3	0.7	63.0	6.8	1.6	68.0	0.032*	4.7	1.1	47.0	5.0	1.5	50.0	0.047*
Risk and vulnerability assessment (19 questions)	14.1	2.1	74.2	16.2	1.9	85.3	0.001*	13.1	2.8	68.9	13.3	2.3	70.0	0.532
Prevention measures (07 questions)	5.0	1.3	71.4	6.3	0.8	90.0	0.001*	4.6	1.1	65.7	4.9	1.0	70.0	0.060
Serological Testing (07 questions)	5.4	1.1	77.1	6.3	0.9	90.0	0.001*	5.2	1.2	74.2	5.4	1.0	77.1	0.210
Total correct (43 questions)	28.5	4.2	66.3	35.8	3.3	83.2	<0.001*	27.6	4.5	64.1	28.4	3.6	66.0	0.072

**Table 2:** Average scores and percentages related to performance of professionals in tests of knowledge about STIs and HIV/AIDS counseling before and after educational intervention, Montes Claros, Minas Gerais state, Brazil.

SD: Standard Deviation. \*p-value < 0.05.



**Figure 1:** Difference of average performance of professionals in post-test and pre-test of intervention group and control group, Montes Claros, Minas Gerais state, Brazil.

## Discussion

This study evidenced that the educational intervention carried out with systematized planning and methodology, a problem-based approach, in a workshop format, aimed at physicians and nurses in PHC, obtained satisfactory results. The proposed intervention was effective in promoting the knowledge of the professionals of the intervention group on STIs and HIV/AIDS counseling in PHC in relation to the control group. Thus, there are few works in the international literature that portray the theme in the form treated here and the absence of this type of study in Brazil, making this research unprecedented for the region applied.

In this study, it was evidenced that few physicians and nurses from PHC had prior training in STIs and HIV/AIDS counseling. This may imply inadequate counseling with an insufficient approach to issues relevant to this practice, with limitations on the performance of anti-HIV serology. In the literature, there is a considerable contingent of physicians and nurses who are not qualified to perform STIs and HIV/AIDS counseling [7,11,13]. The training process for work with prevention and counseling should allow directed and resolute action to the individual needs, considering him holistically [17]. Studies showed the presence of trained professionals has been associated with greater case resolution, early diagnosis of HIV infection and less complications in cases of STIs, producing a greater and more effective response in the fight against STIs and HIV/AIDS [11,13,18].

Regarding the profile of the participating professionals, it should be emphasized that there were no significant differences in the composition of the intervention and control groups. Only the variable marital status showed a statistically significant difference between the groups. However, the results showed that the marital status did not influence the best performance of the professionals. In addition, in relation to the total of hits in the pre-test, the results indicate that the intervention and control groups were similar in relation to knowledge.



Overall average performance of professionals in pre-test was low, representing only 66.3% of the total hits. After the intervention, there was an increase in the overall performance related to the total number of hits (an increase of 16.9 percentage points). The low performance shown by participants in the pre-intervention period is suggested to be associated with a lack of knowledge of national recommendations or lack of specific training on STIs and HIV/AIDS counseling. This fact may imply in the commitment of the approach of aspects related to the detection, diagnosis, and treatment of STIs. Counseling is a preventive behavioral intervention tool that impacts individuals' lives, especially by the absence of an effective vaccine or curative treatment, as in the case of HIV. The targeting of HIV prevention for populations with STIs remains an important intervention [3,13,19].

The educational intervention implemented in this study increased the knowledge about STIs and HIV/AIDS counseling in the PHC of the intervention group in all domains analyzed. The workshop format with a problematizing approach had an impact on the acquisition of new knowledge and understanding of STIs and HIV/AIDS, as pointed out in previous studies [11,13,27]. This fact has important relevance that can be reflected in the care and prevention of STIs and HIV/AIDS through the construction of skills and attitudes of professionals, such as communication, risk assessment, preventive approach and recommendation of serological testing. A study conducted in Mozambique evaluated a training program in the form of workshops for counseling individuals living with HIV. Training enabled the professionals involved to feel more comfortable advising their clients on prevention, with a more holistic approach, which included HIV testing of the partnership, treatment and encouragement to live with the virus<sup>21</sup>. In this perspective, it is suggested that the professionals be included in processes of permanent education in health since they present great potential to invest in actions to promote health and to prevent STIs and AIDS.

In relation to the domains of the knowledge test, it is highlighted that the domain "Risk/vulnerability assessment" presented the highest increase (11.1 points difference) in the difference between pre and post-test performance. The increase of knowledge in this domain is importance in the practice of physicians and nurses who act in PHC. The approach to risk and vulnerability in counseling represents an important part of this practice by offering the individual ways to reduce risk by adopting safe sex practices. For this, it is imperative that the permanent education in health that sensitize and instrumentalize the professionals to act so that the individuals attended perceive risks and seek means to reduce the exposure to STIs and HIV. Actions should go beyond delivery and stimulate the use of condoms in order to have an impact on the care given, especially to groups at risk, as pointed out in a previous study [22].

In relation to "Counseling and Communication" domain, this presented the lowest gain in knowledge in the comparison of the pre and post-test of the intervention group. Low understanding of the theoretical aspects of counseling prevents an appropriate individual and collective approach in different types of situations. The professional's conduct is now summarized to the transmission of information or advice regarding the vulnerability or risky behavior adopted by the user. In PHC, there is a need for the counselor to guide their practice, based on some theoretical principle, making their know-how grounded. Knowledge in STIs and HIV/AIDS counseling coupled with practice can be a facilitator in the face of the barriers faced by counselors in individual and collective care [19,23].

Communication is another important aspect of counseling that deserves attention by the way it is conducted. The verticalization of communication increase the distance between user and professional, blocking preventive dialogue and establishing trust bond. Communication is optimal when there is correspondence to individual preferences for information exchange, relationship establishment and involvement in treatment decisions [24,25]. PHC should provide adequate communication for the user to deal with stressful situations and make personal decisions regarding STIs and HIV, including assessing their own risks for infections and adopting preventive measures [26]. Communication process also involves the disclosure of the diagnosis of STIs or HIV to the sexual partners by the newly diagnosed individual. This process is often accompanied by difficulties related to the sharing of diagnosis, gender, cultural issues and violence [27,28]. In this case, the health professional must seek to understand the situation experienced by the user, with empowerment through the available knowledge to reveal the result of his diagnosis and adoption of safe practices.



Regarding the differences in pre and post-test scores in the intervention and control groups, the observed gains in knowledge obtained by the intervention reflect the need for training of medical professionals and nurses in PHC for a better approach in STIs and HIV/AIDS counseling. Systematic review of the effects of training professionals on the care of people living with HIV resulted in better behaviors in care provided when treated by professionals with training and experience in the service in which they worked (PHC service, clinics, hospitals) [28]. It is important to consider that the incorporation of adequate training on counseling for PHC professionals takes place in line with the existing reality of the service, which may reflect positive attitudes towards STIs and AIDS prevention.

The results of this study should be interpreted considering some limitations. The performance of professionals assessed before and after training, although the educational intervention carried out using teaching-learning strategies and active methodologies, does not reveal the actual practice or behavior of medical professionals and nurses in actions in the daily routine of STIs and HIV/AIDS counseling. The findings show the elevation of knowledge and its investigation occurred shortly after the end of the training, being in a punctual way. There was no assessment of the performance of these professionals after an extended period of time. It should be emphasized that even if the measured knowledge gain is immediate, it is possible for the practitioner to apply what he/she has learned in practice, thus increasing the opportunities to meet STIs and HIV demands. This fact points to the need for continuous continuing education of professionals to consolidate the practice of counseling in PHC. Another limitation was the fact that the applied questionnaire was partially tested, which could compromise the application in other realities. It should be emphasized that there is no specific and specific instrument for assessing STIs and HIV/AIDS counseling. Nevertheless, the sum of the efforts made has brought together four distinct thematic units that, together, provide a general notion of STIs and HIV/AIDS counseling.

## Conclusion

The intervention format applied made it possible to increase the overall knowledge of physicians and nurses in PHC about STIs and HIV/AIDS counseling. Randomized design ensured comparison of intervention and control groups and avoided selection bias. It is worth noting that it is a census and the loss of participants of the professionals allocated in the study groups was low during the research period. The proposal presented in this study was shown to be important, since in the country there are no educational intervention studies on STIs and HIV counseling in PHC. The advantages of the type of training were simple, easy to replicate and low cost for a municipality located in a region of low socioeconomic conditions in a developing country.

In this paper it should be emphasized that the acquisition of knowledge may be the first step for changing the behavior of physicians and nurses in PHC. However, there was a need to improve the training of these professionals in aspects such as communication, counseling know-how that proved to be less than desired. For this, it is imperative that the permanent education in health that sensitize and instrumentalize the professionals to act in order to individuals attended perceive risks and seek means to reduce the exposure to STIs and HIV.

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