Cognitive and Behavioral Change in Health Care Professionals after Training in the Treatment of Injection Drug Users

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A training program was implemented for 56 health care professionals who work with injection drug users (IDUs) in Spain. The aims were to change health care professionals’ concepts of drug treatment for IDUs and increase the knowledge required to implement effective drug treatment programs and train professionals who would in turn train other professionals, thus creating a network. Follow-up was carried out at 8 months. All of the professionals had little prior experience in designing and implementing risk reduction programs. At the end of the training program, all thought that they had increased their knowledge; had gained the skills required to design, implement, and evaluate harm reduction programs for IDUs; and felt qualified to train colleagues from other treatment centers. After 1 year, they had trained 676 health care professionals. The program is appropriate with regard to the aims sought and the target population for which it was designed. The effectiveness of a network-building strategy was also validated.

Until fairly recently, most of the programs that target drug users have focused primarily on abstinence as opposed to other options for this population. However, in view of the spread of AIDS among injection drug users (IDUs) in the 1980s and the lack of effective treatment, public health authorities began to center their efforts on thwarting HIV transmission. Drug treatment objectives began to shift from abstinence-oriented programs toward the reduction of harms associated with injection drugs. This was not a generalized tendency at first. In a number of countries, the principles of harm reduction were adopted with great reluctance and seriously questioned by various government agencies. Several studies, however, have demonstrated the effectiveness of these programs and their inevitable need to be included in abstinence-oriented programs.

There are many reasons to justify implementing harm reduction programs, including the high HIV prevalence among drug users; the coexistence among most IDUs of the 2 leading high-risk behaviors associated with HIV transmission (sharing infected syringes and practicing unprotected sex); prostitution among many IDUs, especially women who do not systematically use contraception; and the fact that most male IDUs have stable partners who are nonusers, thus establishing a bridge between HIV transmission and the non-IDU population [1–5].

Needle-exchange programs have proven effective in reducing risk behaviors in parenteral drug use, showing that IDUs are concerned about their health even while actively consuming drugs [6]. Nevertheless, all research indicates that this tendency toward prevention behaviors does not affect sexual relations, particularly with stable partners [7], and that changes in sexual behavior are markedly slower than changes in injection behavior. Data suggest that “safe sex” is not considered a high priority among IDUs [8–10]. Mantell et al. [11] agree on the need to implement programs aimed at reducing...
Acknowledging the harms associated with drug injection and sexual behaviors [11]. Therefore, harm reduction programs must be adapted to the changing reality of drug users [7], and it is misleading to assume that a change in 1 type of behavior will automatically bring about a change in the other. In working with IDUs, we know that we must develop interventions that follow the principles of effective public health interventions at the individual, societal, and political levels. These interventions, in addition to providing information on harmful behaviors, must provide persons with the means to change them; in other words, they must provide the practical means for modifying drugs users’ behavior (e.g., use of clean needles, condoms, and clean syringes) and help them develop the personal skills that lead to behavioral changes (e.g., negotiating the use of condoms in sexual relations).

Health professionals must receive specific training to be able to design and implement programs of this type. Interventions aimed at effectively modifying behavior require an understanding of the models that best explain human behavioral changes and of how to use the best methodological techniques for working with the variables in such models. Health professionals must also be able to use this knowledge to design, implement, and evaluate the intervention programs [11, 12].

With regard to these needs and the fact that health care professionals in contact with IDUs are in charge of implementing such interventions, the National Drug Plan, through an agreement with the National AIDS Plan and the University of the Basque Country, has set into motion a countrywide, network-based program in Spain aimed at training public health care professionals working for government agencies targeting IDUs.

Our idea was to create a professional network focusing on HIV transmission among drug users in which the professionals work together, share experiences, design effective intervention programs with common characteristics (i.e., previously proven useful in pilot programs), and evaluate the programs by use of the same instruments (to enable such benefits as sharing results and comparing populations).

**METHODS**

**Description of Training Program**

This program takes its theoretical basis from the sociocognitive models that set out to explain behavioral change (Ajzen and Fishbein’s Theory of Reasoned Action [13, 14]; Fishbein’s Theory of Planned Action [15, 16]; Becker’s Health Belief Model [17]; Gibbons, McGovern, and Lando’s Relapse Prevention Model [18]; Green’s PRECEDE Model [19]; Bandura’s Social Learning Theory [20]; Prochaska and DiClemente’s Stages of Change Model [21, 22]; Catania, Kegeles, and Coates’ AIDS Risk Reduction Model [23]; and Ehrhardt, Exner, Miller, and Stein’s Modified AIDS Risk Reduction Model [24]). After being tested and evaluated among various populations of health care professionals in Spain over the past few years, the program—structured as a network-based intervention—was consolidated to provide training in 2 types of workshops: safer sex workshops (SSWs) and less harmful drug use workshops (LHDWs). The program also included supervision in designing region-specific interventions and specific support materials, as well as a health education manual and 2 psychoeducational videos [25–27].

**Phases.** The overall program involved the following 4 phases. In phase 1, a program coordinator and 2 health professionals from each autonomous region were appointed to receive training and to then train their colleagues. This initial phase also included designing the training program and the 2 workshops and devising the support materials. A total of 56 professionals from the various autonomous regions were trained in the first phase.

During phase 2, the 56 professionals designed SSWs and LHDWs for health care professionals, each adapted to their specific situations, and supervised by the program director (P.I.). A total of 21 LHDWs and 22 SSWs were designed.

Phase 3 consisted of implementing the SSWs and LHDWs for professionals working with drug users in the various regional public health systems. The programs were backed by funding and specifically designed support materials. As a result of this phase, 41 workshops were held over the course of 1 year, during which 676 health care professionals from all over Spain received training.

Phase 4 involved implementing the SSWs and LHDWs for different groups of IDUs in Spain at drug addiction centers in the different autonomous regions (this phase was completed in 2001 and is currently being evaluated).

**Objectives.** The main objectives of the training program were as follows: to increase professionals’ knowledge and skills for carrying out specific programs for IDUs; to provide professionals with the theory and techniques required to implement SSWs and LHDWs for other health care professionals and thus develop a professional network; and to provide the knowledge needed to develop and transmit the appropriate methods for evaluating the programs.

The training program received by the professionals from various autonomous communities lasted 32 h, with 16 h dedicated to each of 2 specific workshops (SSW and LHDW). Both workshops were given during the same week (a total of 4 groups took part in 1 of 2 training courses lasting 1 week, both of which followed the same structure), with participants residing on the premises and working Monday through Friday, mornings and afternoons.

Two complete programs were carried out, forming 4 groups of health care professionals (n = 56), nonrandomly selected by the heads of the drug plans of the different autonomous regions;
Table 1. Methodology used to evaluate training course results.

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 0</th>
<th>Workshop</th>
<th>Time 1</th>
<th>Workshop</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Pre (SSW)</td>
<td>SSW</td>
<td>Post I (SSW)</td>
<td>LHDW</td>
<td>Post II (LHDW)</td>
<td>Post III (LHDW)</td>
</tr>
<tr>
<td></td>
<td>Pre (LHDW)</td>
<td></td>
<td>Post I (LHDW)</td>
<td></td>
<td>Post II (SSW)</td>
<td>Post III (SSW)</td>
</tr>
<tr>
<td>B</td>
<td>Pre (LHDW)</td>
<td>LHDW</td>
<td>Post I (LHDW)</td>
<td>SSW</td>
<td>Post II (SSW)</td>
<td>Post III (SSW)</td>
</tr>
<tr>
<td></td>
<td>Pre (SSW)</td>
<td></td>
<td>Post I (SSW)</td>
<td></td>
<td>Post II (LHDW)</td>
<td>Post III (LHDW)</td>
</tr>
</tbody>
</table>

NOTE. LHDW, less harmful drug use workshop; post, posttest; pre, pretest; SSW, safer sex workshop.

groups 1 and 2 attended the workshop the first week, and groups 3 and 4 attended during the second week.

Evaluation Methodology

To evaluate both training courses, a repeated-measures longitudinal design was used, along with results and process evaluations. Because there were no significant differences among the 4 groups in the pretest scores—demonstrating that all of the participants started out with a similar perception of their level of training—2 single groups were created to evaluate the effects of both courses, group A and group B, which, depending on the type of comparison made, alternately served as the experimental group and the control group. Group A was made up of the people who started with the SSW and then did the LHDW, and group B comprised those who took the LHDW first followed by the SSW (table 1).

Follow-up was performed at 6–8 months, after completion of the courses and after the trained professionals had designed and implemented the workshops targeted for regional health care professionals (phase 3).

To evaluate the changes produced by the SSW, we compared group A (experimental) and group B (control) in times 0 and 1. To evaluate the changes produced by the LHDW, we compared group B (experimental) and group A (control) in times 0 and 1. To evaluate stability over time of the perception of changes produced by the 2 workshops, we compared the scores from times 2 and 3 in both groups. To estimate the final measurements of the effect produced by both workshops and their interactions, we compared the scores obtained by groups A and B in pretest and in posttests I, II, and III. To determine whether there were statistically significant differences between groups A and B in the perception of medium-term changes produced by the workshops, we compared the mean scores obtained by both groups in time 3.

Statistical analysis was done with SPSS, version 9.0, the multiple analysis of variance with repeated measures, the 1-way analysis of variance, and Student’s t test for independent samples and related samples.

Measurement Instruments

Measurements were taken about both workshops by use of 2 surveys specifically designed for the program. Survey-takers provided information on their motivation, interest, and prior experience in programs of this type; their knowledge about workshop content, the methodology to be used, and evaluation and programming procedures; and their perception of the personal skills needed to run the workshops.

The pretest was used to collect information on the health professionals’ level of motivation and interest in the program, as well as any previous experience they may have had in designing, implementing, and evaluating SSWs and LHDWs. This test was done to monitor any effects these variables might have. The pretest and posttests I, II, and III were used to collect information about the professionals’ subjective perception of the rest of the variables mentioned above.

All of the variables were responded to by means of a 6-point Likert scale, with 1 as the most negative score and 6 as the most positive. The surveys were voluntary and anonymous, and an average of ~10 min was needed to complete both surveys. The pretest and posttest I and II surveys were taken at the same place as the training courses. However, the posttest III survey was sent to all of the health care professionals who had gone through the training program and returned by them via mail.

Figure 1. Safer sex workshop (SSW) training course: knowledge of workshop content. LHDW, less harmful drug use workshop.
Sample Description
The sample consisted of 56 health care professionals (physicians, psychologists, nurses, social workers, and educators) from all of the autonomous communities in Spain. Of these, 69.6% were women and 30.4% were men; the mean age was 35.6 years (range, 24–46 years).

RESULTS
At the time of the baseline test, the entire group was highly motivated (group A: mean, 4.6; group B: mean, 4.7), showed great interest (group A: mean, 4.4; group B: mean, 4.7), and had very little experience in SSWs and LHDWs (group A: mean, 2.0; group B: mean, 2.2). SSW results are shown below; LHDW results follow the same pattern and are not included herein because of space considerations.

With regard to health professionals’ information on the contents to be covered in the SSWs, there was a significant change in both groups regardless of the order in which they took part in the 2 workshops; this change remained stable over time (effect between groups: F(1,49) = 5.08; P < .029; time effect: F(3,147) = 54.20; P < .0001; and interaction effect: F(3,147) = 9.10; P < .0001) (figure 1).

Regarding knowledge of the methods to be used in the SSWs, a comparison of the scores obtained in times 0, 1, 2, and 3 showed that they differed over time (time effect: F(3,153) = 44.81; P < .0001; interaction effect: F(3,153) = 7.00; P < .0001). Evaluation knowledge remained stable over time, and there were no significant differences between groups in time 3 (figure 2).

There was an increase in the health professionals’ knowledge about evaluating SSWs (in both groups) after both groups took the workshop (time effect: F(3,153) = 31.46; P < .0001; interaction effect: F(3,153) = 12.19; P < .0001) (figure 3).

The health professionals’ perception of skills required to implement SSWs also increased after taking part in the program, and the scores remained stable over time (time effect: F(3,153) = 7.00; P < .0001) (figure 4).

DISCUSSION
The training program had a positive influence on all of the professionals involved, both in the short and medium terms. All of them perceived a very significant increase in the knowledge of the contents of the SSWs and LHDWs, the methods to be used, the evaluation assessment techniques required to properly assess the workshops, the way they were programmed, and the personal skills needed to set them into motion. Furthermore, the order in which the workshops were carried out remained stable thereafter, with no significant differences between groups in time 3 (figure 2).

With regard to knowledge about SSW programming, both groups showed a significant increase from before to after the workshops. Moreover, the increase remained stable over time in both groups, with no significant differences detected between the groups in time 3 (time effect: F(3,153) = 44.81; P < .0001; interaction effect: F(3,153) = 7.00; P < .0001) (figure 4).

The health professionals’ perception of skills required to implement SSWs also increased after taking part in the program, and the scores remained stable over time (time effect: F(3,153) = 7.00; P < .0001) (figure 3).
did not affect the learning process, and both groups showed a similar evolution over time in all of the aspects analyzed.

Considering these outcomes, we can say that the goal of training public health professionals in the design, implementation, and evaluation of harm-reduction training programs targeted at drug users has been attained. However, the idea behind the network-based design was for the health care professionals themselves to train their colleagues in their own autonomous regions so that they could implement interventions of this type. Therefore, to say that our objectives have been fully met, we need to assess how many SSWs and LHDWs have been designed and implemented and verify how many autonomous regions and health professionals have been reached. Data show that 70% of the professionals who received training went on to design SSWs and LHDWs and that these persons come from 16 different autonomous regions. In all, 25 SSWs and 22 LHDWs were performed while the program and evaluation were in process. On the basis of the number of health care professionals trained in these workshops, the total number of health professionals receiving training through the network-

**Figure 4.** Safer sex workshop (SSW) training course: knowledge of workshop programming. LHDW, less harmful drug use workshop.

<table>
<thead>
<tr>
<th>Time 0</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A: SSW-LHDW</td>
<td>2.08</td>
<td>3.63</td>
<td>4.15</td>
</tr>
<tr>
<td>Group B: LHDW-SSW</td>
<td>2.52</td>
<td>2.52</td>
<td>4.36</td>
</tr>
</tbody>
</table>

Interaction Effect ($F_{1,51} = 56.98; P < .0001$)
Interaction Effect ($F_{2,102} = 19.08; P < .0001$)
Interaction Effect ($F_{3,183} = 11.06; P < .0001$)

**Figure 5.** Safer sex workshop (SSW) training course: skills for implementing workshops. LHDW, less harmful drug use workshop.

<table>
<thead>
<tr>
<th>Time 0</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A: SSW-LHDW</td>
<td>3.04</td>
<td>3.89</td>
<td>4.22</td>
</tr>
<tr>
<td>Group B: LHDW-SSW</td>
<td>3.24</td>
<td>3.22</td>
<td>4.11</td>
</tr>
</tbody>
</table>

Interaction Effect ($F_{1,51} = 9.70; P < .010$)
Interaction Effect ($F_{2,102} = 4.83; P < .010$)
Interaction Effect ($F_{3,183} = 3.14; P < .027$)
based strategy was 56 in the initial phase and 676 in the third phase. Therefore, the number of health care professionals trained in 1 year’s time grew 12-fold.

We believe that these data speak eloquently to what an organized, coordinated, network-based strategy can achieve. At this time, we can say that in Spain there is a sufficiently wide sample of health care professionals working with IDUs who possess the materials, knowledge, and skills required to implement SSWs and LHDWs. Moreover, they have the knowledge necessary to evaluate such programs and to improve them should their data so indicate.

Consequently, an increasing number of health care professionals in Spain are perceiving their interventions with drug users as public health interventions. They are aware that the objectives are many and nonexclusive, and that, if we can develop interventions that affect and encourage changes in certain behaviors, we can reduce overdose-related deaths, the incidence and prevalence of diseases, such as AIDS and hepatitis C virus infection, and other harms to health associated with drug use.

Acknowledgments

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References