

# REVIEWS

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## **Impact of intervention programs on nurses' knowledge, attitudes, and willingness to take care of patients with human immunodeficiency virus/acquired immunodeficiency syndrome: a descriptive review**

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**Key words:** HIV/AIDS; nurse; intervention; teaching; education; knowledge; attitude; willingness.

**Summary.** *Objective.* This paper reviews the current literature on intervention programs designed to improve nurses' knowledge and attitudes to human immunodeficiency virus/acquired immunodeficiency syndrome and their willingness to take care of patients with human immunodeficiency virus/acquired immunodeficiency syndrome. It also explores the impact of these intervention programs.

*Materials and methods.* The MEDLINE and Pubmed, Science Direct, Cochrane Library, EbscoHost, ERIC databases were searched for relevant English-language citations between 1997 and 2007 using the following search terms: human immunodeficiency virus/acquired immunodeficiency syndrome, nurse, intervention, teaching, education, knowledge, attitude, and willingness. Relevant articles were retrieved, reviewed, and assessed. A total of 16 articles were considered appropriate and selected for content analysis.

*Results.* We identified articles that reported on intervention programs to improve nurses' knowledge and attitudes and their willingness to take care of patients with human immunodeficiency virus/acquired immunodeficiency syndrome. Eight of the intervention studies included lectures among their methods of educational intervention. The nurse sample sizes (n) ranged from 12 to 552. Many of the studies involved one experimental/intervention group and one control group. The intervention programs varied in terms of their methodological rigor. Almost all reported one or more statistically significant effects.

*Conclusions.* The review highlights the need for well-designed, methodologically sound research on outcomes of nursing education. Future studies should examine not only the short-term effectiveness of intervention programs in terms of changing attitudes and increasing willingness to care, but also their impact in the longer term.

### **Introduction**

By the end of 2008, the number of people living with HIV reached an estimated 33.4 million, of whom 2.1 million were children. In 2008, 2.7 million people were newly infected, and 2.0 million died from AIDS (1). According to recent data in the 2009 AIDS Epidemic Update, new HIV infections have been reduced by 17% over the past 8 years (2). In Europe today, HIV/AIDS prevention, treatment, and care are needed more than ever, but Handford et al. indicated that despite declining prevalence rates in some countries and advances made in care and treatment, the global HIV/AIDS epidemic continues to surge (3).

The challenges faced by service providers include the increased demand for services, inefficiency in

the HIV care financing system, and the lack of appropriate training for HIV/AIDS treatment (4, 5). Several key issues have to do with where care should be provided and how it should be organized. There is evidence from studies of other types of health conditions that disease management models for chronic illnesses can improve a variety of health outcomes (3, 6, 7). Nurses play an important role in the battle against HIV/AIDS by providing care and treatment for people living with HIV/AIDS, but also face significant occupational hazards and challenges, such as infection risks.

Knowledge of HIV is important for nurses and midwives because it provides the basis for positive changes in behavior. Knowledge is operationally defined as the level or degree of information acquired

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by the nurse/midwife in relation to vertical transmission of HIV/AIDS (8). Some of the authors (9) have pointed out that it is important to understand the perceptions and educational needs of health workers concerning HIV and AIDS. In addition, as nurses, we have to be aware of public attitudes toward HIV/AIDS and people with HIV/AIDS so that we can develop effective information packages that can help to prevent the HIV and AIDS epidemic and challenge negative public opinion. In addition, we need to consider current issues and trends that have influenced the attitudes of health care and other professionals. So far, nurses' attitudes to HIV/AIDS have been extensively researched.

The professional responsibility of nurses is centered on providing high-quality nursing interventions to address important clinical problems and to produce positive health outcomes. (10). However, changes in health care delivery are challenging nursing administrators, managers, and educators to explore strategies and programs that motivate nurses to maintain high-quality, holistic nursing care in the current cost-driven healthcare environment (11).

To the best of our knowledge, there are no reviews of clinical nursing interventions related to nurse's knowledge, attitudes to HIV/AIDS, and willingness to take care of patients with HIV/AIDS. Earlier reviews have focused on opportunities for an increased role for nurses in psychoactive substance use (12), nursing confidence in caring for patients with HIV (13), and HIV prevention (14).

Although some of the problems have been addressed in research, more work is still needed in the area of clinical interventions to change HIV/AIDS nursing practices. This is because much of the existing nursing knowledge remains undeveloped, unrecognized, or poorly applied to clinical situations. Furthermore, evaluations are needed of the appropriateness, continuity, and intervention effects of HIV-related health care in different geographic areas. The information gained from such evaluations can be used in developing education programs that are aimed at nurse empowerment.

Our review was guided by the following research questions:

1. How has the topic in focus been studied?
  - 1.1. Where have these studies been done?
  - 1.2. What have been the aims of these studies?
  - 1.3. What kinds of samples have been included?
  - 1.4. What designs have been applied?
2. What kind of interventions has been used?
3. What effects have the interventions had on nurses' knowledge, attitudes, and willingness to take care of HIV-positive patients or AIDS patients?

### Material and methods

**Search methods.** This review covers research on nurses' knowledge and attitudes toward HIV/AIDS

and their willingness to care of HIV/AIDS patients. The focus is on randomized controlled studies, pre-/posttest control group, or posttest only control group studies.

**Database searches.** The primary searches were carried out in August–November 2007 in the electronic databases MEDLINE and Pubmed (1997–2007), Science Direct (1997–2007), Cochrane Library (1997–2007), EbscoHost (1997–2007), and ERIC (1997–2007) using the keywords “HIV/AIDS,” “nurse,” “intervention,” “teaching,” “education,” “knowledge,” “attitude,” and “willingness.” The keywords were used both alone and interchangeably.

Searches using the main keywords (HIV/AIDS, nurse, intervention) yielded a large number of studies, but when these keywords were linked to knowledge, attitude, willingness or teaching or education, the number was significantly reduced (in Medline, HIV/AIDS, nurse, intervention=129, linked with teaching and education=36; in Science Direct, HIV/AIDS, nurse, intervention=43, linked with knowledge, attitude=1).

**Inclusion and exclusion criteria.** Our review comprises studies concerned with nurses, nurses' knowledge, attitudes, and willingness to care for patients with HIV/AIDS. The review was confined to studies published in English language.

All other intervention studies than those specifically concerned with nurses' knowledge, attitudes and willingness to care for patients with HIV/AIDS or with counseling, teaching or learning were excluded, e.g., interventions made among the groups of nursing students, dental health care workers, and oral hygienists.

**Retrieval of references and processing.** First, all English-language references that matched the keywords and that included an intervention were retrieved. Second, the abstracts were checked against the inclusion criteria in regard to participants, interventions, designs, and outcomes. The relevant references were identified and the full texts were acquired. Third, after a proper examination of the full texts, the lists of studies included and excluded were compiled.

**Analysis.** The analysis consisted of three phases. In the first phase, all abstracts of the articles retrieved from the five databases were counted and reviewed. The purpose was to establish how much attention the articles from the different databases gave to the impact of intervention programs on nurses' knowledge and attitude and on their willingness to care for patients with HIV/AIDS. A total of 191 articles were identified.

In the second phase, 156 articles were excluded because many of them were concerned with education programs for patients, doctors, and students. In addition, some of them did not describe intervention programs. The same articles appearing in different

databases (Williams et al. [15] was included in the Medline and EbscoHost databases) were excluded. Thus, we were left with 35 full-text articles.

In the third phase, 19 of these 35 articles were excluded from further analysis because the interventions were carried out among nursing students. The final number of articles remaining for the review was thus 16.

## Results

**Countries of origin.** Most intervention programs for nurses originated from the United States (16–21). Three intervention programs reported in the articles were conducted in the USA and China (15, 22, 23), one in the USA and Nigeria (24). Australia (25), England (26), Egypt (27), Nigeria (28), Thailand (29), and India (9) were mentioned once.

Table 1. Scope of studies reviewed

Nº	Authors/ country	Topic	Method/instrument	Duration/ Intervention	Partici- pants and sample size	Result
1	2	3	4	5	6	7
1	Bennett and Weale England (1997)	HIV and AIDS awareness: an evaluation of a short training pro- gram for midwives	A self-administered (structured) question- naire with training and untraining group. Pilot study. The instrument was split into seven sections	1 month Health authority's HIV awareness training program	Midwives (n=65)	Results indicated no significant differ- ence in levels of knowledge or in at- titude between those who had attended the training programme and those who had not. Similarly, no significant difference was found in terms of how midwives would react to women request- ing HIV antibody testing
2.	McCann et al. Australia (1998)	Educational inter- vention with in- ternational nurses and changes in knowledge, attitudes and will- ingness to provide care to patients with HIV/AIDS	A pretest and posttest questionnaire and quali- tative responses. Pilot study. A questionnaire was adapted from two other instruments (Com- monwealth of Australia 1993b, McCann 1996)	6 weeks A problem-based approach to learn- ing. Teaching strate- gies included discussion groups, lectures, multime- dia, presentation, seminars	Nurses (n=74)	The results indicate that whilst there was an improvement in knowledge follow- ing the educational intervention, there is a need for further improvement in the knowledge levels of nurses. Fear of contagion is apparent in the participants' willingness to work with colleagues and patients with HIV/AIDS. While the participants stated that they were more willing to work with colleagues and patients with HIV/AIDS following the educational intervention, they said that they would continue to take additional precautions for fear of contracting HIV in the workplace
3	Mohsen Egypt (1998)	Assessment and upgrading of knowledge and attitudes among nurses and uni- versity graduates toward AIDS	Pretest, posttest questionnaire with no control group design	6 months Health education lecture	Nurses (n=434)	There were no significant differences in the levels of knowledge and attitudes pre- and postlecture between two groups (student and nurse). Logistic regression analysis showed that marriage was the strongest predictor of good knowledge score (> or =75%)
4	Messmer et al. USA 1998	Knowledge, perceptions, and practice of nurses toward HIV/AIDS patients diagnosed with tuberculosis	Educational program Pretest-posttest ex- perimental and control group design. Knowledge test and at- titude survey	A knowledge test and an attitude survey	Nurses (n=50)	Following an educational program, the experimental group showed no tangible increase in knowledge level of AIDS, attitudes, or concerns about caring for these patients
5	Stewart et al. USA (1999)	Adolescents and HIV: theory- based approaches to education of nurses	A randomized control- led design, with pre- and posttest and follow- up questionnaire. Instrument for knowl- edge and HIV-related attitudes (Johnson et al. 1990). The original in- strument was composed of 25 true±false knowledge items and 10 five-point, Likert -scale attitudinal items	The didactic workshop consist- ed of a lecture and a question-and- answer session. The lecture lasted approximately 90 minutes The skills-training workshop in- cluded a brief (30-minute) lec- ture, 60 minutes of modeling and role-playing ex- ercises	Nurses (n=88)	Three major hypotheses: 1) that knowl- edge and attitudes about HIV would improve in both intervention groups (nurses, adolescents); 2) that comfort and intent to implement risk assess- ments and HIV risk counseling would improve to a greater extent in the SCT (social cognitive theory) group; and 3) that the description of the "target patient" as either suburban or inner-city would affect comfort and intent scores. The authors found strong support for the first hypothesis and moderate sup- port for the second and third hypotheses

Table 1. Scope of studies reviewed (continuation)

1	2	3	4	5	6	7
6	Simon et al. Romania, USA (1999)	A program of acquired immune deficiency syndrome education for nurses in Romania	Pretest, posttest method. Pilot syllabi	2 months Nursing syllabus topics: caring for the caregiver, HIV transmission, infection control. Lecture, discussion	Nurses (n=36)	The education intervention was successful, knowledge was better
7	Uwakwe Nigeria (2000)	Systematized HIV/AIDS education for student nurses at the University of Ibadan, Nigeria: impact on knowledge, attitudes and compliance with universal precautions	Questionnaire and qualitative responses. A pretest and posttest experimental and control group design. A questionnaire was adapted from two previously developed instruments (Armstrong-Esther and Hewitt 1990, Uwakwe et al. 1992)	3 months 7-week training and information, education and communication (IEC) program: lecture, seminar, multimedia presentation, discussion sessions	Nurses (n=141)	With regard to knowledge enhancement and attitudinal transformation, the research reveals that a number of positive changes occurred over the period of the study. Not only were the nurses better informed about AIDS than previously, but their attitudes toward the disease and patient care had become considerably more liberal, as well as their disposition to comply with universal precautions
8	Charuluxananan et al. Thailand (2000)	Effect of national seminar on AIDS and anesthesia upon knowledge, attitudes and practice concerning HIV among Thai anesthesia personnel	Questionnaires: pretest, post test 1 and post test 2	2 days Seminar	Nurse anesthetists (n=177)	A short-course educational program may improve knowledge about HIV and partly change attitude, but cannot change behavior
9	Dancy et al. USA (2000)	The impact of AIDS continuing education on psychiatric and non psychiatric nurses' knowledge	Pretest and posttest measures. The Fundamental of Mental Health and HIV/AIDS Program		Psychiatric and nonpsychiatric nurses (n=240)	The program significantly increased AIDS knowledge. The increase in AIDS knowledge was more dramatic for psychiatric nurses than for nonpsychiatric nurses
10	Slaten et al. USA (2000)	Training mental health professionals on ethical issues and HIV/AIDS	The South Texas AIDS Training (STAT) Project for Mental Health Providers II. Pilot testing. Analyses of pre- and postintervention data	5 months 7 training sessions workshop 60-, 90-min, 2-hour or half-day (4-hour) educational workshop: Group interaction, discussion, problem solving	Nurses (32%) Total n=222	The greatest gains on knowledge, attitude, and practice dimensions were observed among participants with the lowest initial knowledge and practice levels. Participants appeared to leave training with more compassion for persons with HIV and a greater willingness to incorporate the consideration of patients' rights and welfare
11	Bluespruce et al. USA (2001)	HIV prevention in primary care: impact of a clinical intervention	Pretest-posttest self-administered written questionnaire. Pilot test. Green and Kreuter's PRECEDE/PROCEED model provided the conceptual framework for intervention	1 year 8 months Training 1 – 6 hours Training 2 – 1 1/2 hours Training 3 – 1 1/2 hours Training 4 – 1 hour	Nurses (n=12)	Seven months after the most intensive part of the intervention, providers' attitudes and beliefs were more favorable to HIV risk assessment and prevention counseling
12	Ezedinachi et al. Nigeria (2002)	Impact of an intervention to change health workers' HIV/AIDS attitudes and knowledge in Nigeria: a controlled trial	Questionnaire. Pretest-posttest, follow-up data intervention and control group design. Pilot test	1 year Expert lectures (2 days), role plays, workshop and seminars (28), group discussions, videotape presentation	Nurses (n=295)	Data showed significant positive changes after 1 year in the intervention group on perception of population risk assessment, attitudes and beliefs about people with HIV disease, less fear and more sympathy for and responsibility toward HIV patients, and an increase in self-perceived clinical skills. There was increased willingness to treat and teach colleagues about people with HIV

Table 1. Scope of studies reviewed (continuation)

1	2	3	4	5	6	7
13	Buskin et al. USA, China (2002)	HIV/AIDS knowledge and attitudes in Chinese medical professionals and students before and after an informational lecture on HIV/AIDS	Pre- and post-lecture questionnaires	2 lectures, presenting information, brief discussion	Public health workers (n=81)	Overall knowledge after the two lectures increased from an already high level. Attitudes toward working with a person infected with HIV indicate that there may have been substantial fear of and/or prejudice toward persons infected with HIV among the participants. The post-lecture assessment showed that, with additional education, a substantial amount of unwillingness to be in proximity of a person with HIV could be eliminated
14	Wu et al. China (2002)	Diffusion of HIV/AIDS knowledge, positive attitudes, and behaviours through training of health professionals in China	Pre- and post-intervention questionnaire and follow-up survey. Cross-sectional survey. Intervention and non-intervention countries. Pilot survey	1 month Training of trainers, workshops: fliers, posters, billboards, blackboards, radio, TV, loudspeakers	Health professionals (n=55)	Knowledge was significantly higher in intervention as compared to nonintervention countries, and after the intervention, respectively ( $P<0.01$ ). Attitudes improved significantly in intervention countries
15	Williams et al. USA, China (2006)	Effectiveness of an HIV/AIDS educational programme for Chinese nurses	A pretest, posttest one group, experimental design, Pilot test The AIDS Attitude Scale G(AAS-G), the Nursing Willingness Questionnaire (NWQ)	5-day workshop. Didactic lectures, group discussion	Nurses (n=208)	At baseline, HIV/AIDS knowledge was not high and attitudes and willingness to care were neutral. Willingness to provide nursing care to HIV/AIDS patients improved at the conclusion of the workshop ( $P<0.001$ )
16	Pisal et al. India (2007)	Nurses health education program in India increases HIV knowledge and reduces fear	Pretest-posttest design. Training-the-trainers model and qualitative assessment with three focus groups	4-day training: training session, discussion, debate	Nurses (n=552)	Significant improvements were seen in nurses' HIV/AIDS knowledge in all areas including care, treatment. The short course was successful in increasing nurses' knowledge in all aspects

**Aims of the studies.** The aims of the intervention studies were very similar – to assess the effect and value of a multifaceted HIV/AIDS educational intervention on the knowledge, attitudes, and willingness of nurses to care for patients with HIV. One intervention program (26) set itself four specific aims: to determine the level of knowledge regarding HIV in general and obstetric/pediatric HIV among midwives in particular; to ascertain any attitudinal bias on the part of the midwives with regard to HIV and their role in antenatal HIV antibody test counseling; to establish whether midwives proactively raise the issue of HIV with expectant mothers; and to evaluate the impact of the HIV awareness training program on midwives' knowledge, attitudes, and behavior with regard to HIV.

**Samples of the studies.** The sample sizes of nurses ranged from 12 (21) to 552 (9). Most studies (9, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28) used pretest and posttest questionnaires, but three studies (17, 23, 29) had a pretest, posttest1 and posttest2, or follow-up design, and three studies (9, 25, 28) used qualitative pretest and posttest questionnaires. The qualitative study by Pisal et al. (9) involved three focus groups.

In many cases, the study group was divided into one experimental and one control group. Four intervention studies (16, 24, 26, 28) had one control

group and one experimental/intervention group. Wu et al. (23) conducted a comparison of AIDS knowledge and attitudes among health care workers in five intervention countries with those in three nonintervention countries. Williams et al. (15) had a one-group experimental design; Stewart et al. (17) had two intervention groups, whereas Mohsen (27) used no control group.

**The study designs.** One of the studies (17) applied a randomized controlled design, with pre- and posttests and a follow-up test. Bluespruse et al. (21) used a one-group pretest-posttest design, and Williams et al. (15) employed a pretest-posttest, one-group experimental design. Most of the intervention studies (15, 18, 20, 21, 23–26) were conducted in the form of pilot studies.

All the instruments used in the interventions have been rigorously tested. This applies, for example, to the AIDS Attitude Scale G (AAS-G) and the Nursing Willingness Questionnaire (NWQ) (15). The most common outcome measures were issues related to attitudes, knowledge (9, 16), and willingness to provide care.

**Types of intervention.** In most intervention studies, the methods of educational intervention included workshops, lectures, and training. The interventions lasted from two days (29) to 20 months (21). Two intervention studies lasted for one month (23, 26).



Table 2. Methodological description of studies reviewed

Methodological details	Bennett and Weale	McCann et al.	Mohsen	Messmer et al.	Stewart et al.	Simon et al.	Uwakwe	Charulu Xananan et al.	Dancy et al.	Slaten et al.	Bluespruce et al.	Ezedinachi et al.	Buskin et al.	Wu et al.	William et al.	Pisal et al.
Experimental and control group (+), one-group design (++), focus group (+++)	+	++	++	+	++	++	+	++	++	++	++	+	+	+	++	+
Instrument used: Questionnaire (+), pretest posttest (++), and follow-up test (+++)	+	+	++	++	++	++	++	++	++	++	++	++	++	++	++	++
Qualitative assessment used:	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	+
Pilot study used:	+	+	-	-	-	+	-	-	*	+	+	+	-	+	+	-
Randomized sampling	+	-	*	*	+	-	+	-	*	-	-	+	-	-	-	-
Knowledge examined	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
Attitude examined	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+
Willingness examined	-	+	-	-	-	-	-	-	-	+	-	+	+	-	+	-

+, yes; -, no; \*, no details available.

The intervention by McCann et al. (25) was a six-week education intervention, which used a problem-based approach to learning. Teaching strategies included lectures, discussion groups, multimedia presentations, and seminars. Stewart et al. (17) organized a didactic workshop that consisted of a 90-min lecture and a question-and-answer session. The lecture was limited to recommendations and descriptions only, with no demonstration of techniques. The question-and-answer session allowed for some interaction, but remained focused on the review of factual information. The skills training workshop included a brief (30-min) lecture similar in content to the lecture in the didactic workshop, but also included 60 minutes of modeling and role-playing exercises. The training intervention by Uwakwe (28) included knowledge about HIV/AIDS, and the topics were packaged into a 7-week information, education, and communication (IEC) program in the experimental group. A sensitization problem-based participatory approach to learning was adopted and incorporated into 28 lectures, seminars, multimedia presentations, and discussion sessions. Slaten et al. (20) held seven training workshops: two of them lasted 4 hours, two lasted 3 hours, one session was 2.5-hour long, and two sessions lasted 90 minutes.

The intervention by Bluespruce et al. (21) consisted of interactive training that involved role-plays and case stories. Ezedinachi et al. (24) organized an intervention that consisted of expert lectures

(2 days), role-plays, “Train the Trainer” workshop and seminars (28), group discussions, and a videotape presentation. The lectures by Buskin et al. (22) concentrated on presenting information, also allowing for time for a brief discussion of the topic. The training intervention by Wu et al. (23) included presentations and discussions, “Training of Trainers” workshops, fliers, posters, billboards, etc. Williams et al. (15) organized a 5-day workshop consisting of didactic lectures interspersed with activities designed to elicit discussion of participants’ values and personal feelings about HIV/AIDS. Because the intention was to “train-the-trainers,” the participants prepared and delivered sample lessons as part of the workshop activities. Pisal et al. (9) had a 4-day HIV/AIDS health education program using the training-of-trainers model and qualitative research involving participatory methods, discussions, and debates.

### Effects of the interventions

#### *Nurses’ knowledge related to HIV/AIDS.*

Some researchers indicated that health professionals had no basic knowledge about HIV/AIDS (23). It was also reported that many nurses are reluctant to provide care to patients with HIV/AIDS because of concerns related to insufficient knowledge and education, fear of contagion, and homophobia (25). Therefore, it was considered extremely important that training is provided to health workers and that HIV/AIDS intervention activities are incorporated in their routine activities. Indeed most studies re-

ported that after the intervention, nurses exhibited a high enough level of knowledge (9, 15, 22, 23, 28).

Pisal et al. (9) reported that significant improvements were seen in nurses' HIV/AIDS knowledge in all areas including care, treatment, and issues of confidentiality and consent. After the educational course, 59% of the nurses were able to provide a correct response regarding the actual risk of infection of HIV through needle sticks, up from only 10%. After training, 98% were aware of how to use universal precautions to avoid getting HIV while on duty, 62% were aware of what to do if splashed in the eye with blood, and 82% were aware of the best way to dispose of used needles. Williams et al. (15) found that before the workshop, 80% of the participants believed that the risk of contracting HIV through a needle stick was greater than 1%; after the workshop, 75% recognized that the risk is actually less than 1%. Before the workshop, more than half of the nurses believed that a person could contract AIDS by eating in a restaurant where the cook has AIDS (51%) or by using a public toilet (52%). After the workshop, only 15% harbored this unfounded fear of eating at restaurant and only 12% still believed that public toilets transmit HIV. This improvement in HIV/AIDS knowledge was statistically significant.

Uwakwe (28) found that the levels of knowledge in the experimental group in the posttest were higher than those exhibited for the control group, a fact attributable to their enhanced exposure to information as a result of the intervention. Furthermore, McCann and Sharkey (25) reported a significant difference in total knowledge scores between the pre- and posttest, and also a significant difference in the nurses' knowledge of infection control protocols. On the other hand, no significant differences were seen in their knowledge of the concentration of HIV in bodily substances and the effect of the virus on individuals.

Two studies (16, 27) found no significant differences in the knowledge level of AIDS pre- and post-lecture and no tangible increase in knowledge levels of AIDS. Although Bennett and Weale (26) found that knowledge levels among the respondents with regard to the transmission of HIV were high, they also said there was no evidence of a difference between the trained and untrained groups. The trained group achieved a higher proportion of correct responses to these questions. Knowledge levels regarding the transmission of HIV were clearly highest across the sample, with knowledge pertaining to the etiology of HIV achieving the second place and knowledge regarding obstetric and pediatric HIV being the poorest.

Some authors indicated that demographic variables and clinical experience could influence the results; however, there were also opposite results.

Stewart et al. (17) established that older participants had significantly lower scores than younger participants on HIV-related knowledge, and female participants had lower knowledge scores than males, while Mohsen (27) found statistically significant differences between married and single participants. Williams et al. (15) reported no statistically significant relationship between the number of years of clinical experience and the number of correct answers to the questions assessing HIV/AIDS knowledge.

**Nurses' attitudes related to HIV/AIDS.** Many nurses seem generally to take a positive attitude toward caring for and treating patients with HIV/AIDS (25). Most researchers, e.g., Williams et al. (15), Ezedinachi et al. (24), Uwakwe et al. (28), emphasized that it is very important to include attitudes in nurses' educational process about HIV/AIDS.

Attitude has been found to be associated with informed consent and confidentiality, as well as stigma and discrimination (9). Nurses realized the importance of confidentiality and how specific behaviors, such as informing others of their condition (without consent) or placing signs or symbols on patients' beds, could lead to stigma and discrimination toward the patient, but no changes were seen in nurses' attitudes to cleaning up the stools or urine of HIV/AIDS patients. However, Stewart et al. (17) reported that no significant correlations were observed between demographic variables and HIV-related attitudes.

McCann and Sharkey (25) found a significant pretest/posttest difference in the responses to two items in that the participants after the educational intervention were more likely to disagree with the statement that people with HIV/AIDS should be isolated from the rest of the community. While the participants were likely to agree that their attitude toward people with HIV/AIDS is influenced by how the virus had been contracted, there was a significant difference in the scores following the educational intervention, with agreement being expressed less strongly.

A few studies reported minor changes in the experimental group when compared to the control group with respect to attitudes toward AIDS and AIDS patients (28). For the trained and untrained groups, the pattern of responses was very similar (26). There was also no significant difference between pretest and posttest results concerning the sympathy accorded to patients with HIV/AIDS and the attribution of blame toward these patients (25). Uwakwe (28), however, noticed that the specific HIV disease-related information that nurses received during the course of the intervention seems to have liberalized their attitudes even further. Nevertheless, the degree of change varies somewhat with the issue in question. In all cases, the posttest responses

are uniformly more liberal than those obtained during the pretest.

**Nurses' willingness to take care of HIV/AIDS patients.** Not all educational programs increase the willingness of nurses to care for patients with HIV/AIDS. Many nurses said they would not care for or communicate with patients with HIV/AIDS and believed that nurses should be allowed to refuse to care for such patients (25), and furthermore that experience of caring for patients with HIV/AIDS is not necessarily associated with a positive attitude toward those patients or with willingness to care for such patients in the future (15).

Some studies indicated that after the intervention, nurses exhibited high enough willingness to take care of HIV/AIDS patients. Ezedinachi et al. (24) reported that increased willingness to provide care and to provide training to others is a specific improvement. Other authors, such as McCann and Sharkey (25), found that there were several significant pretest/posttest differences in willingness to work with people with HIV/AIDS. As for nurses' willingness to care for patients with HIV/AIDS, there was a stronger level of agreement in the posttest that patients with HIV/AIDS should be given the same care as an HIV-negative patient. In addition, there was stronger agreement that nurses would take additional precautions on finding out that one of their patients was HIV-positive.

Buskin et al. (24) found that 33% of nurses would be unwilling to work with a coworker infected with HIV; others would be willing to care for a family member with infection. Before the lectures, 57% of the participants stated they would be willing to work with a coworker infected with HIV, and this proportion was increased to 79% after the lecture. McCann and Sharkey (25) also found a significant change in attitudes to working with colleagues with HIV/AIDS. In the pretest, the respondents indicated that they were willing to employ people with HIV, but only as a last resort, while in the posttest, subjects stated that knowledge of an applicant being HIV-positive would not be detrimental to their prospect of employment. The posttest results show a greater willingness to work with a colleague who has HIV/AIDS.

Slaten et al. (20) reported that participants appeared to leave the training with more compassion for persons with HIV and greater willingness to incorporate the consideration of patients' rights and welfare. Williams et al. (15) observed that willingness to provide nursing care to HIV/AIDS patients was improved at the conclusion of the workshop, whereas Buskin et al. (22) found that additional education could help to eliminate a substantial amount of unwillingness to be in proximity of a person with HIV. Additionally, Williams et al. (15)

have concluded that health care workers must be prepared to care for patients from a variety of cultural and social backgrounds whose experiences and values may differ from their own.

### Discussion

The purpose of this study was to describe the current literature on intervention programs related to nurses' knowledge and attitudes to HIV/AIDS, their willingness to take care of patients with HIV/AIDS, and impacts of these intervention programs.

Most of the studies (n=6) were conducted in the United States and their main purpose was to assess the effects of an HIV/AIDS educational intervention on nurses' knowledge, attitudes, and willingness to take care of patients with HIV/AIDS. Because of the differences in sample sizes (from 12 to 552), the duration of intervention (from 2 days to 20 months), and research designs, it is difficult to make direct comparisons between the programs. Studies with relatively small sample sizes may have had a diminished ability to detect real changes from baseline to follow-up.

The methods used in the educational interventions included workshops, lectures, and training. Teaching strategies included discussion sessions, multimedia presentations, lectures and question-and-answer sessions, role-plays, and case stories. Different studies have shown the beneficial effects of various forms of education on nurses' HIV/AIDS-related knowledge and attitudes. Some of the authors (17) reported that a workshop including role-play and small group activities resulted in improved attitudes.

Wu et al. (23) reported that training-of-trainers workshops to disseminate information about HIV/AIDS and to change attitudes and behaviors are relatively inexpensive. Some of the authors (15) found that group discussion was necessary to modify attitudes and effective responses among health care providers, and reduced fears of contagion were related to participation in the education of a person with AIDS. Some of the researchers (15, 30) indicated that didactic education, which targets only the cognitive domain of learning, has proved inadequate to combat fears of HIV among North American and European health care workers or to increase their empathy with and willingness to care for patients with HIV/AIDS. Furthermore, some of the authors (26) found that 1–2-day workshops had a significantly positive impact on health care professionals' HIV-related knowledge and attitudes.

In all the studies analyzed for this review, nurses reported that HIV/AIDS health education was informative, applicable, and directly useful to their work needs. Moreover, the reduction in nurses' fears of HIV patients and HIV transmission seems to have resulted in a reduction in stigmatizing attitudes. Pissal et al. (9) reported that nurses have exaggerated fears about the infectiousness of HIV. Nurses who had experience in providing care to patients with HIV/AIDS scored higher on the knowledge portion



of the study questionnaire. The more a nurse had cared for patients with HIV/AIDS, the better her knowledge score was likely to be. In contrast, experience with HIV/AIDS patients was not associated with a more positive attitude toward those patients or with increased willingness to provide nursing care to them. These results confirm earlier studies elsewhere in the world that knowledge alone is not sufficient to ensure the willing delivery of compassionate care (15, 30). An indicator of the degree of success of the program is the increased willingness of the participating nurses subsequently to work with and treat HIV/AIDS patients.

The studies reviewed suggest that there are several reasons for success in the increase in knowledge resulting from HIV/AIDS health education. First, the use of qualitative data methods to try to understand the basic needs of nurses ensured that the HIV/AIDS health education covered information of direct relevance to the nurses. Williams et al. (15) indicated that many of the participants who had attended HIV/AIDS workshops reported that this was the first course specifically designed for nurses. They believed that the content of physician-oriented workshops was not suitable for nursing.

Stewart et al. (17) suggest that cultural stereotyping may play a role in nurses' initial assessment of patients' risk and that such stereotyping may result in inadequate screening. Special efforts to recruit and train participants from diverse populations should be

encouraged so that the efficacy of these workshops can be tested with diverse groups of nurses. As it has been reported in other settings, cultural values and gender issues as well as professional and social structures may pose significant barriers for nurses to substantially reduce stigma and discrimination (31).

Theoretical change models suggest that changes in attitude occur slowly over time. The fact that care providers reported less frustration with high-risk patients may reflect a more realistic understanding of the process of behavior change.

### Conclusions

1. Most of the researchers from different countries indicated that interventions have quite a positive effect on nurses' knowledge, attitudes, and willingness to take care of HIV-positive patients or those with AIDS in different countries. As emphasized by Williams et al. (15), it is nevertheless important to document such changes to build future educational programs on a sound foundation.

2. Future studies should examine not only the effectiveness of intervention programs in changing knowledge, attitudes, and willingness to care in the short term, but also the sustainability of its impact.

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## Intervencijos programų poveikis slaugytojų žinioms, požiūriui ir pasirengimui slaugyti sergančiuosius žmogaus imunodeficito sindromu / įgytu imunodeficito sindromu. Aprašomoji apžvalga

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**Raktažodžiai:** ŽIV/AIDS, slaugytojas, intervencija, mokymas, žinios, požiūris, pasiruošimas.

**Santrauka.** *Tyrimo tikslas.* Straipsnyje apžvelgiama naujausia literatūra apie intervencijos programas, skirtas gerinti slaugytojų žinias ir požiūrį į sergančiuosius žmogaus imunodeficito virusu/įgytu imunodeficito sindromu, jų pasirengimą rūpintis pacientais, sergančiais žmogaus imunodeficito virusu/įgytu imunodeficito sindromu. Taip pat yra tiriama šių intervencijos programų poveikis.

*Tyrimo medžiaga ir metodai.* „MEDLINE“ ir „Pubmed“, „Science Direct“, „Cochrane Library“, „Ebsco-Host“, „ERIC“ duomenų bazėse ieškota tinkamų straipsnių anglų kalba nuo 1997 iki 2007 m. pagal šiuos paieškos terminus: žmogaus imunodeficito virusas/įgytas imunodeficito sindromas, slaugytojas, intervencija, mokymas, žinios, požiūris ir pasirengimas. Tinkami straipsniai buvo atrinkti, apžvelgti ir įvertinti. Analizei pasirinkta 16 straipsnių.

*Rezultatai.* Mes identifikavome straipsnius, kuriuose rašoma apie intervencijos programas, pagerinusias slaugytojų žinias, požiūrį ir jų pasirengimą rūpintis sergančiais žmogaus imunodeficito virusu/įgytu imunodeficito sindromu. Aštuonios intervencijos studijos paskaitas įtraukė į intervencijos mokymo metodus. Dalyvavusių slaugytojų skaičius (n) svyravo nuo 12 iki 552. Daugelis studijų apėmė vieną eksperimentinę/intervencinę grupę ir vieną kontrolinę grupę. Intervencijos programos skyrėsi savo metodologiniu tikslumu. Beveik visos studijos pateikė vieną ar daugiau statistiškai patikimų duomenų.

*Išvados.* Apžvalgoje įvardytas poreikis gerai parengto, tyrimais metodologiškai pagrįsto slaugos švietimo būtinumo. Taigi, studijos turėtų nagrinėti ne trumpalaikį intervencijos programų efektyvumą, pagrįstą besikeičiančiais požiūriais ir didėjančiu pasirengimu rūpintis, bet ir jo būsimąjį poveikį.

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