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## EDUCATION AND TRAINING

## A cross-sectional study on the effect of post-rape training on knowledge and confidence of health professionals in South Africa

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## ABSTRACT

**Objective:** To determine whether a national training program on post-rape care in South Africa resulted in improvements in knowledge and confidence in health professionals, and to distinguish baseline factors related to these changes in knowledge and confidence. **Methods:** Data for this cross-sectional study were collected over four training sessions in 2008 using questionnaires and multiple choice question papers given to 152 health professionals. Information was collected on demographics, service provision, and previous training. The change in knowledge and confidence was calculated from baseline and post-training scores. Factors related to these changes in knowledge and confidence were tested through the development of two models. **Results:** Seventy-four percent of the health professionals ( $n = 112$ ) who attended the training had completed all components of the data collection. The average age of the professionals was 41.6 years, 71% were females, and 68% nurses. Health professionals showed significant increases in percentage knowledge (40% at baseline vs 51% post training;  $P < 0.001$ ) and confidence (67% at baseline vs 80% post training;  $P < 0.001$ ) after the training. In the final multivariate models, empathy was significantly associated with a change in knowledge (coefficient  $-1.2$ ; 95% CI,  $-1.9$  to  $0.4$ ;  $P = 0.005$ ), while the facility level and baseline knowledge and confidence were significantly associated with change in confidence. **Conclusion:** The training program was found to improve levels of knowledge and confidence in health professionals. Rollout of this program is critical with expansion into undergraduate curriculums.

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## 1. Introduction

In 2007 a training program on caring for survivors of rape was developed for the South African Department of Health by national and international experts [1]. This was done to address past inadequacies in training and to improve the delivery of care in the country. The 10-day training began with the circumstances of rape, barriers to reporting, health consequences, the social construct of gender, and sexual rights (Table 1). This was followed by the provision of medical care including mental health care, the prevention and management of pregnancies and infectious diseases, and follow-up care. Record-keeping was covered with the collection of forensic samples, and the legal aspects included an overview of the law and expert witness testimony. Other topics included monitoring and evaluation. Various teaching approaches were used to minimize didactic training. These

comprised of video clips, photo galleries, exercises, completion of medico-legal (J88) forms, and participation in mock trials.

A few training programs have been developed on rape care, but the majority targeted specific groups of professionals [2–7], covered mainly forensic care, or were very short [2,5–7]. The Sexual Assault Nurse Examiner (SANE) programs, which are the most developed, are only provided in Canada and the USA [8,9]. There have been reports of improvements in attitudes, knowledge, and clinical practice with some programs [2–4,6,7,10–13], although no studies have been conducted in low-resource countries or at a large scale with both doctors and nurses. Other training programs have been described both in high- and low-resource countries, but these have addressed intimate partner violence (IPV) more broadly, or have been incorporated into larger health system interventions. For example, a program in one hospital in South Africa that showed improved efficiency, quality of care, and patient satisfaction included five interventions, one of which involved training [14]. In such cases, improved outcomes cannot be assumed to be a result of the training alone.

The aims of the present study were to determine whether the pilot training program in South Africa resulted in improvements in

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**Table 1**  
Overview of the 10-day training program on caring for survivors of rape, developed for South Africa.

Day	Topics
Day 1	Circumstances, contexts, and magnitude of sexual assault in South Africa The social construction of gender Barriers and consequences to reporting rape Health consequences of sexual assault and rape
Day 2	Sexual rights and looking at specific needs of survivors The legal framework for sexual offences
Day 3	Developing communication skills Initial approach to the survivor and obtaining consent History taking
Day 4	Introduction and background to mental health care Cognitive Behavioral Therapy and in vivo exposure Imaginal exposure
Day 5	Prevention and management of pregnancy Prevention and management of infectious diseases Prevention of HIV Communication with rape survivor on pregnancy and infectious diseases including HIV Thinking through adherence
Day 6	Introduction to examining survivors and overview of genital anatomy Examination of the adult survivor Special examination techniques Special considerations during the examination of survivors
Day 7	Non-genital injuries Introduction to sexual assault in children Examination of the child, features of rape, and interpretation of findings
Day 8	Collection of forensic evidence Introduction to documentation and completion of J88 forms
Day 9	Follow-up care Introduction to the criminal justice system Giving expert testimony
Day 10	Understanding vicarious trauma and countertransference Monitoring and evaluation

knowledge and confidence of health professionals, and to distinguish baseline factors related to changes in knowledge and confidence.

## 2. Materials and methods

The data for this cross-sectional study were collected over four training sessions in 2008. Provincial managers from the Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, North West, and the Northern Cape were asked to send 20 health professionals each to the training, with some additional people attending from the National Department of Health. This sample was limited by budget, but this size would be sufficient to identify an increase in percentage knowledge from 50% to 70% with 80% power. A total of 152 professionals attended the training. Criteria for selection included doctors who had completed a year of internship (one year of work post qualification) and nurses with qualifications in midwifery. The doctors and nurses needed some experience related to rape care services although their level and time of the experience was not restricted. Health professionals completed self-administered questionnaires at the beginning and end of the training through which background information was collected.

A gender-related attitude score was calculated using 21 statements with a four-level Likert response, while a rape attitude score was calculated in the same way using another 21 statements. These scores were developed from research conducted in Brazil [15]. An empathy score, with a highest possible score of 20 was calculated using four statements with a five-level Likert response. This score was based on the works of Abbey et al. [16]. For all of the scores, a higher value indicated a more appropriate attitude or greater empathy.

Perpetration of IPV by men and experience of IPV by women were obtained using an adapted violence against women instrument [17]. Questions on the perpetration of IPV had previously been tested with men in South Africa [18–20]. Some research has looked at the influence of IPV on the quality of services provided by health professionals

[21–23], but no study was found that assessed the role of IPV on training outcomes. IPV was thus included in the present study as a possible factor that could influence openness and interest in training leading to differential changes in knowledge and confidence.

Information on the provision of rape care services was obtained, including the percentage of survivors seen and whether the health professional had examined a rape survivor in the last three months. Health professionals were also asked about previous training on counseling and rape care, and about where they had obtained their undergraduate qualifications. Many of the administered questions had been tested in previous studies [24].

Knowledge was calculated using 66 multiple choice questions as nine questions with high failure rates were excluded. Health professionals reported on confidence in conducting examinations, collecting evidence, and appearing in court using 10 statements with a score from 1 to 10. A higher score indicated more confidence in delivering the service. More details on the variables have been presented previously [1].

Stata 12 (StataCorp LP, College Station, USA) was used for data analysis. All data collection tools that could be linked were used for the analysis including those that had more than one question blank. Hence, a number of health professionals had missing data for the gender-related attitude score, rape attitude score, empathy score, and confidence score. If the score had one missing value, it was replaced with an average of the remaining score. This was done in 16 instances for the gender-related attitude score, 17 instances for the rape attitude score, 5 instances for the empathy score, and 10 instances for the confidence score. When more than one question was missing, no replacements were made.

Percentages were calculated for knowledge and confidence, and new variables were generated for the change in percentage scores from the commencement to the completion of the training. A four-level variable was also developed that grouped health professionals by baseline knowledge and confidence levels (Table 2). The first group consisted of health professionals with high knowledge (score of  $\geq 50\%$ ) and confidence (score of  $\geq 70\%$ ) at baseline; followed by group two with low knowledge (score of  $< 50\%$ ) and high confidence (score of  $\geq 70\%$ ); group three with high knowledge and low confidence; and finally group four with low knowledge and confidence at baseline. These cutoff levels were based on the mean baseline percentage scores.

Descriptive statistics were performed followed by bivariate analysis to explore baseline factors related to changes in knowledge and confidence levels. Two models were developed for knowledge and confidence using backward selection, a conventional approach to model-building where  $P < 0.05$  was used to retain variables in the final models.

All general ethical principles were adhered to, participation was voluntary, and written informed consent was obtained. All data collection tools were linked by a unique code that was generated by the professionals to ensure anonymity. The University of the Witwatersrand's Human Research Ethics Committee (Medical) approved the study (Approval No. M071140).

## 3. Results

The data collection tools could only be linked in 112 professionals (73.7%), which included mainly nurses ( $n = 76$ ; 68%) and female professionals ( $n = 80$ ; 71%) (Table 3). The mean age was 41.6 years and

**Table 2**  
Groupings of providers by baseline knowledge and confidence percentage scores ( $n = 96$ ).

		Baseline confidence levels	
Baseline knowledge level	High ( $> 50\%$ )	High ( $> 70\%$ )	Low ( $\leq 70\%$ )
		Group 1	14 (14.6%)
Low ( $\leq 50\%$ )	Group 2	Group 3	36 (37.5%)
		Group 4	34 (35.4%)

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