

CERVICAL SCREENING IN TSHWANE, SOUTH AFRICA: WOMEN'S KNOWLEDGE OF CERVICAL CANCER, ACCEPTANCE OF VISUAL INSPECTION WITH ACETIC ACID (VIA) AND PRACTICAL LESSONS LEARNT

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ABSTRACT

Cervical cancer is a global health problem and the most common cancer in women living in sub-Saharan Africa (SSA). Various barriers to cervical screening have been identified. These include cytology based screening. Cervical screening by means of visual inspection with 3% to 5% acetic acid (VIA) can be implemented in a wide range of settings as no laboratory processing is required. This study was a pilot study to determine the knowledge of women, employed by one institution in Tshwane, regarding cervical cancer, whether VIA screening would be acceptable, what the results of such screening would be as well as the practical lessons that could be learnt to improve the screening process. The research study was an exploratory, descriptive and contextual survey. The sampling method was convenient (n=31). Data were gathered by means of self-reports using structured interviews. The results of the screening were documented on a clinical record. The study provides evidence that VIA screening was acceptable to women. However the knowledge of women, despite having a higher level of education, was low. Although one of the participants was VIA positive, none was VIA positive/invasive cancer. Lessons learnt included that the number of women that could be screened in a given time should not be

overestimated and that clinical breast examinations should be offered concurrently with cervical screening campaigns.

KEYWORDS: cervical cancer, knowledge of cervical cancer, VIA screening

BACKGROUND

Cervical cancer is a global health problem. It is estimated that every year 493 000 women are newly diagnosed with this life-threatening disease. Cervical cancer will kill approximately 274 000 women each year (Population Reference Bureau & Alliance for Cervical Cancer Screening, 2004). According to the Population Reference Bureau and Alliance for Cervical Cancer Screening (2004), approximately 83% of newly diagnosed women live in developing countries. In addition, cervical cancer is the most common cancer in women in sub-Saharan Africa (World Health Organization and International Union Against Cancer, 2005) and in 2000, 3 498 South African women died from it (South African Medical Research Council, 2008). Although developing countries have the highest incidence, and therefore the greatest burden of cervical cancer, successfully organised population-based cervical cancer screening programmes still need to be developed.

Literature provides specific information on cervical cancer screening. An important barrier is lodged with women themselves. Competing health needs and the fact that women are disempowered and uninformed are some of the barriers to cervical cancer screening (Denny, Quinn & Sankaranarayanan, 2006). A relationship between low health literacy and poor cancer screening knowledge and practices has been established (Lindau, Tomori, Lyons, Langseth, Bennet & Garcia, 2002). Knowledge of cervical cancer screening does not guarantee adherence (Cronje & Beyer, 2007) as some women do not make use of the opportunity to have Pap smears done. Wellensiek, Moodley, Moodley and Nkwanyana (2002) found that 87% of women from higher social and educational backgrounds did not undergo cervical screening, despite having knowledge and access to screening facilities. Except for a lack of knowledge, other reasons for not utilising the opportunity included that a Pap smear was not suggested by a doctor or nurse, they were not feeling ill, fear they suffered from, the poor quality of health services, geographical and economic inaccessibility of health care and lack of support from family and husbands (Lartey, Joubert & Cronje, 2003; Nene, Jayant, Arroshi, Shastri, Bukukh, Hingmire, Malvi, Dinshaw & Sankaranarayanan, 2007). According to Goldie (2002), fewer than 5% of women are screened in the developing countries where more than 80% of women with cervical cancer reside. Cronje and Beyer (2007) found that the screening rate in the Free State Province of South Africa was 4.1% of the female population between the ages of 15 and 65. According to Albrecht (2007) only 2% of South African women are annually screened for cervical cancer. The fact that screening services offered at primary health clinics are not available outside office hours can also be seen as an obstacle.

Another system-based barrier is related to the complexity of cytology-based screening. Due to the complexity of cytology, the time delay before obtaining the results of the Pap smear represents a barrier. It was found that “*large numbers of women*” did not return for the results (Denny et al., 2006). Cytology-based screening programmes can only be successful if infrastructure is in place and laboratory quality assurance is consistent (Alliance for Cervical Cancer Prevention, 2004).

Visual inspection with 3% to 5% acetic acid (VIA), also called direct visual inspection (DVI), is a widely studied approach to the prevention of cervical cancer and can be implemented in a wide range of settings as no laboratory processing is required. Applying acetic acid to the cervix causes a reversible coagulation of the cellular proteins and swelling of the particularly abnormal squamous epithelial areas. Aceto-whitening results and the white lesions can be seen with the naked eye against the pinkish colour of the normal squamous epithelium. Areas with the most nuclear activity and DNA content exhibit the most dramatic colour change. VIA allows for immediate treatment of the precancerous lesions using cryotherapy. The woman can also be referred for colposcopy (Sankaranarayanan & Wesley, 2003, Alliance for Cervical Cancer Prevention, 2004, De Souza, 2007).

VIA is a low-cost intervention, can be performed with modest equipment, does not need laboratory infrastructure and can be implemented in a wide range of settings by trained doctors, nurses and midwives. One of the main advantages of VIA is that the result of the test is immediately available therefore the treatment of abnormal lesions can be done during the same consultation (Denny et al., 2006). The sensitivity of VIA has been found to be equivalent or even better than cytology (Alliance for Cervical Cancer Prevention, 2004). The sensitivity of conventional cytology has been found to be 44% to 78%, and that of VIA 67% to 79% (Denny et al., 2006).

In South Africa, women have access to cervical screening (Pap smears) at primary health clinics. The clinics serve a demarcated area and offer a variety of services. Due to the demand for services, it is not possible to concentrate on the prevention of cervical cancer, as cervical screening is one aspect of the total services rendered. According to the Annual Report of the City of Tshwane Metropolitan Municipality (City of Tshwane Metropolitan Municipality, 2006) 15 479 women were screened for cervical cancer using Pap smears during the period July 2005 to June 2006. If the number of women older than 20 years of age were taken into account, approximately 2% of women were screened. Only 0.7% of the total primary health services rendered during the specific period were spent on performing Pap smears (City of Tshwane Metropolitan Municipality, 2006).

RESEARCH PROBLEM

Cervical cancer develops slowly (Walraven, 2003). Therefore it can take 30 years from the date of infection with the *Human Papillomavirus* to develop cancer (Population Reference Bureau & Alliance for Cervical Cancer Screening, 2004). Invasive cancer is

usually preceded by long phases of pre-invasive disease (Sankaranarayanan & Wesley, 2003) and high-grade dysplasia can generally be detected 10 years before cancer develops (Population Reference Bureau & Alliance for Cervical Cancer Screening, 2004). The International Society of Nurses in Cancer Care, through a position statement is committed to supporting “*strategies that will reduce the incidence, morbidity and mortality of cervical cancer*” (International Society of Nurses in Cancer Care, 2001). Due to the low incidence of cervical screening and the uncertainty of women returning for the results of a Pap smear, a screening strategy for women working at a specific institution in Tshwane, South Africa was designed. This pilot study was used to test whether VIA screening would be acceptable to women, to determine organisational skills needed to set up such screening, and to pre-test the questionnaires. The research questions for the study were: What is the knowledge of women employed at one institution in Tshwane, regarding cervical cancer; would VIA screening be acceptable to these women; what would the results of such screening be; and what practical lessons could be learnt to improve the screening process?

PURPOSE AND AIMS OF THE STUDY

The overall purpose of the study was to identify women’s knowledge about cervical cancer and their willingness to undergo VIA. The aims of the study were to explore and describe the level of cervical screening knowledge of women, employed at one institution in Tshwane. The study also attempted to determine whether or not VIA screening was acceptable to them as well as what the results of the screening would be. The study further aimed to describe practical lessons learned to improve the screening process.

THEORETICAL FOUNDATION

The Self-Care Deficit Nursing Theory by Orem (Meleis, 1997) was employed to underpin this study. Orem’s theory is based on the belief that individuals have a need for self-care actions therefore nursing can assist in meeting that need. This theory focuses on the ability of the individual to initiate and perform health activities. According to Orem (Meleis, 1997; Alabaster, 2003), although individuals may be able to perform self-care measures they do require some nursing intervention to assist the person to develop the ability to act on her own behalf. Self-care refers to the individual’s power or learned ability to perform self-care. This includes knowledge, skill and motivation to perform self-care actions to promote life, health and wellbeing as well as to prevent disease and disability (Berbiglia, 2006). For this study, individuals refer to women, and self-care needs to the need to undergo cervical screening to prevent cervical cancer. The assistance of the nurse refers to the screening performed by the nurse to prevent and detect cervical cancer at an early stage. Understanding what women know about

cervical cancer and providing education where deficiencies exist, will facilitate self-care when a sign of cervical cancer is detected.

DEFINITIONS

Operational definitions for this study are:

Cancer refers to a group of diseases in which the regulation, characteristics and functions of normal cells are altered (Corner, 2008; Klemm & Hurst, 2009).

Cervical cancer refers to cancer that starts on the cervix and is caused by the *Human Papillomavirus* (World Health Organization, 2006).

Cryotherapy is the freezing of the cervix to eliminate precancerous lesions (Population Reference Bureau & Alliance for Cervical Cancer Prevention, 2004).

Knowledge of cervical cancer implied that women had to recognise at least four of the five early symptoms of cervical cancer (as portrayed in table 1).

Pap smear refers to a test in which a smear of cervical cells are taken and examined under a microscope for abnormal cells. When abnormal epithelial cells are detected, the results of the Pap smear are positive (Alliance for Cervical Cancer Prevention, 2004; World Health Organization, 2006)

Visual inspection with acetic acid (VIA) is a visual screening test to identify precancerous lesions on the cervix. Precancerous lesions appear white for a short period after applying acetic acid (Alliance for Cervical Cancer Prevention, 2004).

RESEARCH METHODS AND DESIGN

The research methods and design will be described in terms of the strategy and context, research design, population, data gathering and data analysis.

Research strategy and context

The strategy for the study was exploratory and descriptive. Exploratory research is designed to increase the knowledge of a field of study and allows the phenomenon to be investigated in its full nature, the manner in which it manifests and other factors to which it is related. A descriptive study allows more information to be gained within a specific field of study with the purpose of providing a picture of the situation as it naturally happens (Burns & Grove, 2007). Using an exploratory and descriptive strategy provided answers as to what women knew about cervical cancer, if screening by means of VIA would be acceptable, what the results of the screening were and what practical lessons could be learnt to improve the screening process.

Research design

A quantitative survey was conducted. Quantitative research is applicable to the investigation of phenomena that allows for precise measurement and quantification. By means of a survey direct questioning is used to obtain information about the activities, beliefs and preferences of people (Polit & Beck, 2008).

Research context

The research is contextual (Lo-Biondo Wood & Harber, 2006), implying that the results of the study are valid only for the situation in which the study was done. The context for the study was women employed by a specific employer. They reported for cervical screening on a specific agreed date. All women employed by the specific employer belonged to a medical aid scheme and therefore had access to private health care. They also had access to a designated primary health clinic if they so preferred.

Population

According to Burns and Grove (2007), a population constitutes all the elements (individuals, objects, events, or substances) that meet the sample criteria for inclusion in a study. The target population for the study was the women employed at a specific institution. Due to the fact that not all the women employed at the specific institution could be screened on the agreed date, all the women aged 18 and older who were able to speak Afrikaans, English or Setswana, who volunteered for cervical screening and were willing to participate in the study were included. The sampling method was convenient and data were gathered on a specific day. The sample size was 31 (n=31).

Data gathering

Two methods of data gathering were used. Data were gathered from the clients by means of self-reports using structured interviews. The results of the screening tests were documented on an adapted version of a clinical record designed for this purpose by Sankaranarayanan and Wesley (2003). Registered nurses trained in VIA documented the results.

An interview has the advantage of not excluding women on the basis of literacy. Self-report gives access to information that is frequently difficult to gather by any other means (Polit & Beck, 2004). Structured interviews are based on the same questions, and posed in the same order to all the respondents. This ensured structural coherence throughout the interviews (Polit & Beck, 2004).

Female registered nurses, who were able to speak either Afrikaans, English or Setswana were trained to conduct the interviews. Using Afrikaans, English and Setswana ensured that the language was understood by the respondent. Informed consent was obtained from each respondent before the interview commenced. The field workers used the name of the participant during the interview and screening procedure. No name of any

respondent was entered onto the numbered interview schedule, to ensure anonymity and confidentiality.

Data analysis

The data were analysed using descriptive statistics. Descriptive statistics summarise data to manageable portions and describe its characteristics (Lo-Biondo Wood & Harber, 2006). The data were gathered in Excel spreadsheets and analysed using the SPSS version 14 program.

VALIDITY AND RELIABILITY

Validity and reliability were assured by applying the following methods (Burns & Grove, 2005):

- Structured interviews were conducted, using interview schedules to ensure structural coherence.
- The language used during the interviews was Afrikaans, English and Setswana to avoid communication problems due to language difficulties.
- Only female registered nurses were used as field workers to engender trust. The fieldworkers were trained to conduct the interviews and were supervised by the researcher.
- Only registered nurses trained in VIA conducted the screening tests.
- The structured interview schedules were given to the VIA trained registered nurses to determine content validity.
- The quantitative data analysis was done using SPSS version 14. Statistical analysis was done with the assistance of the statistical support division of Tshwane University of Technology.

ETHICAL CONSIDERATIONS

The following ethical principles were adhered to throughout the study:

- Informed consent was obtained from potential respondents before the study commenced. Informed consent was sought in a language that the potential respondent understood.
- Anonymity and confidentiality were ensured, as the structured questionnaires were numbered sequentially.
- The employer gave permission for the screening as well as for publishing the results of the screening intervention.

- No harm was intended. The women volunteered for cervical screening. The subject matter was of a sensitive nature and the screening procedure could have been perceived as embarrassing. The respondents could withdraw from the programme at any time.
- For the interview respondents were questioned individually. Screening was conducted in a private room by women to minimise embarrassment.
- The results of the VIA test was given to respondents immediately after completion of the test, and education regarding the way forward was given to all respondents.
- Respondents with VIA positive results were referred to a primary health clinic for follow-up investigations.
- Screening was not withheld from women who preferred not to take part in the study or who were unable to understand Afrikaans, English or Setswana. An interpreter was used to explain the procedure but these women did not participate in the study
- The research proposal was approved by the Departmental Research and Innovation Committee, Faculty Research and Innovation Committee and Ethics Committee of the Tshwane University of Technology.

RESULTS OF THE STUDY

The format for the description of the results will be that of the questionnaire and the screening.

The age group with the highest number of respondents (41.9%; n=13) was between 21 and 30, with 25.8% (n=8) between 31 and 40 as well as 41 and 50 and 6.5% (n=2) older than 51. Most respondents were Northern Sotho (35.5%; n=11), followed by Tswana (32.3%; n=10), and Zulu (16.1%; n=5) speakers. The rest comprised Afrikaans, Southern Sotho and Venda speakers. The educational level of the sample was high as 67.7% (n=21) had a tertiary qualifications while 12.9% (n=4) had completed grade 11 or 12. Regarding marital status, 51.6% (n=16) were single, 32.2% (n=10) married and 16.1% (n=5) divorced.

With regard to previous cervical screening, 77.4% (n=24) of the respondents indicated that they had had a Pap smear on a previous occasion. Reasons for not having had a Pap smear on a previous occasion were primarily (71%; n=7) that they had not known about cervical screening. The distance to the health care facility, lack of money and procrastination, were also mentioned as reasons for not having been screened on a previous occasion. When asking the respondents whether they knew when to go for a Pap smear, 67.7% (n=21) were unsure or did not to know. Of the respondents 32.3% (n=10) indicated that they had known when screening should take place.

When asking what changes in their bodies would alert them to the need for cervical screening, it became clear that only 29% (n=9) of the sample would recognise the early signs of cervical cancer. The early signs of cervical cancer and percentage of respondents that would recognise these are reflected in table 1.

Table 1: Changes in the body that would motivate women to go for cervical screening (Pap smear) (n=31)

Change in body	Go for cervical screening	
	n	%
Irregular vaginal bleeding	17	54.8
Bleeding after sexual intercourse	15	48.3
Post menopausal bleeding	9	29
Offensive vaginal discharge	26	83.9
Bleeding in between menstruation	15	48.4

With the exception of one participant who was unsure, all the respondents (96.8%; n=30) were of the opinion that offering cervical screening at their workplace was a good idea. The most common reason was that it “saves time”. Other reasons included that they would know their health status, it would save money, and was easily accessible. Furthermore they would like to be better educated about cervical cancer.

When the respondents were asked whether they would have gone for screening if it had not been offered by their employer on a specific day, only 12.9% (n=4) responded by saying that they would definitely have done so, while 35.5% (n=11) indicated that they would not have gone for screening. The gynaecologist was the preferred health professional for screening (51.6%; n=16) followed by the general medical practitioner (29%; n=9) and the primary health clinic staff (19.4%; n=6).

Factors, influencing the accessibility of cervical cancer screening from the perspective of the respondents, were also investigated (see figure 1).

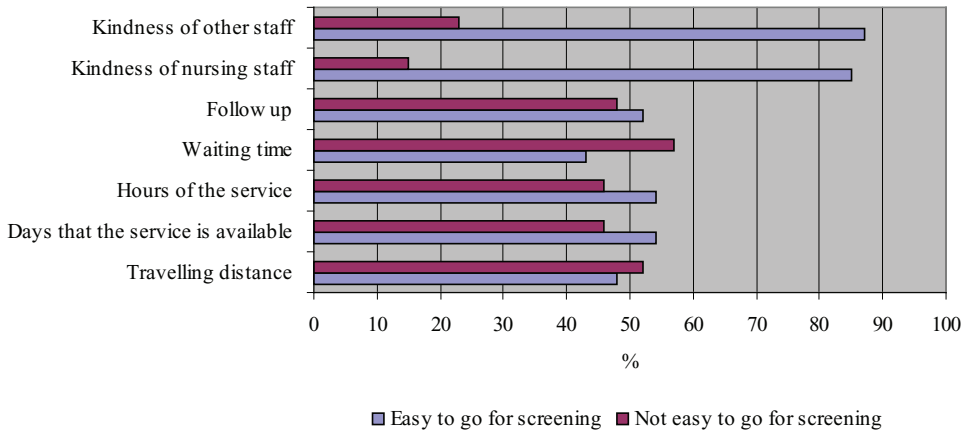


Figure 1: Accessibility to preferred screening service (n=31)

The sample was divided in terms of factors influencing the likelihood of cervical screening (see figure 1). Except for staff-related factors, all other factors investigated presented a problem to approximately half of the group. The distance to travel for cervical screening (51.6%; n=16), as well as the waiting time (58.1%; n=18), the days (54.8%; n=17) and hours (54.8%; n=17) that their preferred screening service was available, as well as the follow-up visit (51.6%; n=16) were problematic. More than 80% (n=26) of the respondents perceived the nurses and other staff members to be kind. The respondents offered suggestions to improve a screening service, as portrayed in table 2.

Table 2: Suggestions to change screening services to accommodate women (n=31)

Suggestion	n	%
Instant results	6	19.4
Screening available at schools, church, work and on Saturdays	5	16.1
More education	3	6.5
Better communication with nursing staff	2	10
More personnel	3	9.7
More information on places where services are available	3	9.7

From table 2, it is clear that receiving results immediately (29%; n=9) is preferable for the group. Only 16.1% (n=5) were of the opinion that screening on a Saturday at various other sites, more staff at the screening service, more information about where screening was available and more education would provide a better standard of service.

The results of the screening using VIA are presented in table 3.

Table 3: Results of the VIA screening (n=31)

Results	n
Successfully screened	30
Not successfully screened	1
VIA negative	29
VIA positive	1
VIA positive / invasive cancer	0
Excessive vaginal discharge	28
Referred to preferred health care provider for treatment of discharge	28

Of the 31 women, 30 were successfully screened. Only one was VIA positive with an acetowhite lesion involving two quadrants of the cervix. An excessive vaginal discharge was found in 28 (90.3%) of the 31 respondents. The vaginal discharge of one of the respondents was so severe that screening was unsuccessful. All respondents with a vaginal discharge were referred to their preferred health care professional for treatment after having received health education about the possible infection. The participant who was VIA positive was referred for a follow-up Pap smear to be done by her preferred health care provider.

DISCUSSION OF THE RESEARCH RESULTS

The study provides evidence that VIA screening is acceptable to women. Despite the total sample having access to private health care by being on a medical aid and 80.6% (n=25) of the sample preferring a medical practitioner for cervical screening, they voluntarily came for VIA. The fact that 29% (n=9) indicated that a cervical screening service where the results were available immediately, would be preferable, supports this finding. This finding also supports the findings of the Royal College of Obstetricians and Gynaecologists and the JHPIEGO Corporation Cervical Cancer Prevention Group (2003) and Blumenthal, Gaffikin, Deganus, Lewis, Emerson and Adadevoh (2007) that VIA screening is acceptable to women.

The level of knowledge about cervical cancer and cervical screening was low (<30%). This finding was further supported by the fact that less than a third of the respondents recognised post menopausal bleeding, the most common sign of cervical cancer, as a sign of this disease. In the studies conducted by Liao, Wang, Lin, Hseih and Sung (2006) and Seth, Kotwal, Thakur, Singh and Kochupillai (2005), it was found that knowledge of cancer was related to a higher level of education of eight years and more. The low level of knowledge about cervical cancer was not associated with the educational level of the women, as only 6.5% (n=2) had fewer than eight years' education. A possible explanation for this phenomenon could relate to the health literacy level of women

which could be as low as five years below the highest level of education (Lindau et al., 2002, Scudder, 2006).

The high prevalence of excessive vaginal discharge among women is not unusual as Denny (2007) states that "few poor women are asymptomatic." Over 80% of women presenting for cervical screening have symptomatic discharge due to infections such as Trichomonas vaginitis, Bacterial vaginosis, Chlamydia and gonococcus. While one of the sample of 30 successfully screened respondents was VIA positive, none was VIA positive/invasive cancer. According to De Souza, (2007) it can be expected that 8-15% of women screened will be VIA positive if the staff are skilled.

Accessibility to cervical screening is not easy for many women especially with regard to waiting time and travelling distance. With the small percentage of even less than 2% (Albrecht, 2007) of South African women being screened annually, screening services should be better tailored to meet the needs of women. Olowokure, Caswell and Duggal (2006) agree with this finding and suggest that appointment times should be scheduled to accommodate the women. Research to determine the impact that these changes have on service provision and the number of women screened, should follow.

LESSONS LEARNED

The registered nurses conducting the VIA successfully had completed a training course in VIA and cryotherapy. This is the first pilot study in which screening was conducted without the supervision of the trainers. Lessons learnt from this pilot study were:

- Do not overestimate the number of women that can be screened within one day. Women need time to talk and share experiences to make cervical screening a positive experience.
- Divide the screening into three sections - registration and education, screening and post-screening. Time is saved if after being screened the woman can accompany the screener to another room for further discussion and questions. This makes the screening facility available to the next person.
- Have one trained person check the findings before the vaginal speculum is removed.
- A microscope that will assist with the identification of any co-morbid vaginal infections can guide the preferred health care provider to treatment.
- If possible, include clinical breast screening in such a project as more than 50% (n=16) of the sample requested a breast examination.

CONCLUSION

VIA screening is acceptable to women (or even preferred to Pap smears), due to the fact that results are available immediately. The level of knowledge regarding cervical cancer and cervical screening is so low that this negatively impacts on self care. Nurses should therefore develop and implement educational interventions according to the health literacy level of women to empower them to apply self care.

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