

The Knowledge of South African Men Relating to Cervical Cancer and Cervical Cancer Screening

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Abstract Cervical cancer is the second most common cancer in South African women, but the most common cancer in Black women. Despite having a national cervical cancer screening programme, most women present with advanced disease. Men play a role in cervical cancer as the HPV, the major cause of cervical cancer, is sexually transmitted. The purpose of our study was to describe the knowledge men, living in Muldersdrift, had about cervical cancer, cervical cancer screening and the cervical cancer screening programme and how they preferred to be taught about these health issues. We used a survey design and convenience sampling to select 101 men older than 18 years ($n = 101$). A pretested self-developed questionnaire was used as the data collection instrument, and the data were analyzed using the SPSS version 22-computer program and quantitative content analyses. The Fischer's exact test measured associations between variables ($p = 0.05$). The ages of the sample ($n = 101$) ranged from 18 to 92 years; most were from the Zulu cultural group, unemployed and unmarried. The majority (66.3%, $n = 67$) had not heard of cervical cancer, the cervical cancer screening programme (60.4%, $n = 61$) or the Pap smear (67.3%, $n = 68$). Age and educational level did not influence having ever heard of these health issues. HPV infection was the most well-known risk factor, and the very late symptoms of cervical cancer were the least known. Most men preferred to be educated in a group, which provided a practical, feasible and cost

effective way of educating men living in this community about these health issues.

Keywords Cervical cancer · Cervical cancer screening · Knowledge · Men · South Africa

Introduction

Cervical cancer is the fourth most common cancer in women worldwide, accounting for almost 12% of all cancers in women. Approximately, 85% of the global burden occurs in the less developed regions of the world [1]. In South Africa, cervical cancer is the second most common cancer in women, but the most common in Black women, responsible for 29.26% of the total number of cancers diagnosed in this group [2]. Cervical cancer develops slowly, and this invasive cancer is normally preceded by long phases of pre-invasive disease. Cervical cancer can be prevented by means of population-based screening, and countries that have implemented formal screening programmes to detect cervical cancer precursors have dramatically reduced the prevalence of cervical cancer [3, 4].

Cervical cancer is primarily caused by persistent infection with HPV, most commonly types 16 and 18, which are responsible for approximately 70% of cervical cancers worldwide. Women suffering from HIV and AIDS have an increased risk for cervical cancer due to the increased risk of persistent HPV infection and premalignant lesions compared to women not infected with the virus [4]. According to Snyman [4], evidence suggests cervical cancer occurs up to 10 years earlier in women infected with HIV. In addition, these women present with a more advanced cancer, experience more treatment-related complications and recurrences and are more likely to die from cervical cancer compared to women unaffected by HIV. Irrespective of being infected with HIV, most women in

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South Africa present with advanced cervical cancer [5, 6]. Snyman and Herbst [6], in a study conducted in a large public hospital in Gauteng Province, found most women present with stage IIIB disease, which means the cancer extends to the pelvic wall, with or without hydronephrosis or non-functioning kidney [7].

In 2001, South Africa launched a cervical cancer screening policy aimed at screening 70% of women, aged 30 years and older, within 10 years of initiating the policy [8, 9]. The healthcare provider targeted for these services is primary healthcare clinics, which are nurse-led, with adequate infection control and quality management systems. The screening programme offers women 30 years and older three Pap smears, free of charge, at 10 year intervals for population-based screening and a single smear for women who are screened for the first time at the age of 55 and older. Diagnostic screening is not included in the programme and women who need more than three smears are liable for the cost [9]. Unfortunately, screening uptake is low, and Mamahodi and colleagues [8] found a cumulative coverage of 13.9% in Limpopo Province in a 4-year period ranging from 2007 to 2010. Snyman and Herbst [6] blame this situation on the fact that the screening policy has not formally been implemented countrywide and that cervical cancer screening primarily takes place in an opportunistic fashion resulting in a coverage of less than 13%.

Cervical cancer screening faces various barriers. McFarland et al. [10], in an integrative review of literature focusing on barriers to cervical screening in Sub-Saharan Africa, categorise the barriers as system, client and provider barriers. Client barriers include lack of knowledge and awareness of cervical cancer and cervical cancer screening, fear of the Pap smear, beliefs and attitudes especially that screening is not necessary when healthy, cultural and religious factors and sociodemographic factors such as age, marital status and educational level. Provider barriers include healthcare providers not providing health education focusing on cervical cancer, do not encourage women to have a screening test and have negative attitudes towards patients. In addition, various studies support these findings and for the South African context, add lack of knowledge and awareness of the South African screening policy to the list [6, 11, 12].

It is well known that men play a role in cervical cancer as the HPV is sexually transmitted [13]. Chelimo et al. [14] state the main risk factors for genital HPV infections in women are related to the acquisition of new male sex partners, an increasing number of sexual partners and having non-monogamous male partners. The World Health Organisation [7] emphasises the key role men play in the prevention of cervical cancer and guides healthcare practitioners on how to involve men in preventing this disease. These recommendations include spreading the message about cervical cancer and HPV amongst men and encouraging their partners to be screened.

The research problem for this study was the knowledge men, living in Muldersdrift, had about cervical cancer. The study formed part of a larger study in which the authors attempted to improve cervical cancer screening uptake by involving men as motivators. The findings of the current study guided the development of an educational programme, which was pilot tested as part of the larger study. The purpose of the current study focused on describing the knowledge men, living in Muldersdrift, had about cervical cancer, cervical cancer screening, the cervical cancer screening programme and how they preferred to be taught about these health issues [10].

Methods

The study setting was Ward 23 in Muldersdrift, a semi-urban, resource poor area situated northeast of Johannesburg. The population for the area was approximately 19,959, with the majority being between 20 and 34 years of age with some secondary education. Different languages are spoken, of which isiZulu and Setswana are predominant [15]. Ward 23 consists of an established informal settlement, with an unknown number of informal dwellings as buildings are constantly being erected (but estimated at 980) and 214 new small brick houses built as part of the Reconstruction and Development Programme of the National Government. It was unclear how many people actually lived in Ward 23, as it was possible that more than one family occupied one house. There is no direct running tap water available in the yards of the informal houses and inhabitants use communal taps. Pit latrines are available, but it is unclear how many homes share one. There is no electricity in the informal dwellings, however it was reported the newly erected houses have prepaid electricity. The Muldersdrift Primary Health Care Clinic, which is nurse-led, provides primary healthcare to the community.

We conducted a survey among men, 18 years and older, living in the specific community. Although we planned a door-to-door survey using a simple random sample, we found the men assembled between the homes at the time of data collection. Therefore, all men, 18 years and older, were recruited for the study and became the convenience selected sample; 101 participated ($n = 101$).

A self-developed questionnaire was used to collect the data. The questionnaire, based on literature and expert opinion, had both open- and closed-ended questions and consisted of five sections. Section A focused on demographic data, Section B explored men's knowledge about cervical cancer, Sections C and D explored knowledge of the cervical screening programme and knowledge of the Pap smear and Section E consisted of health education preferences. The questionnaire, which was translated into isiZulu and Setswana, was pretested using 10 men from a similar resource poor community. Due to cultural preferences and the sensitive nature of

the study topic, five male fieldworkers, able to speak the indigenous languages, were recruited and trained to assist with the collecting of data under supervision of the first author. There were no problems experienced with the questionnaire and no changes were made after the pretest. The respondents preferred the English questionnaire and none wanted to answer the questions in isiZulu and Setswana.

We planned the data collection as follows: after obtaining ethical clearance from the university (# M121008), we presented the study to the Muldersdrift Clinic Stakeholder Committee, which included the ward counsellor, community leader and two community representatives, and their support was obtained. The community representatives assisted with the recruitment of the fieldworkers and determined suitable dates for the data gathering. During data collection, the first author explained the purpose of the study, that participation was voluntary and that the questionnaire, which was available in English, isiZulu and Setswana, could be answered in their preferred language. All men, 18 years and older, were invited to participate. After obtaining informed consent in writing, the fieldworkers assisted with the completion of the questionnaires as not all men were functionally literate and none wanted to complete the questionnaire or answer the questions in the indigenous languages. No specific precautions could be taken for privacy. The completed questionnaires and informed consent forms were placed into two sealed boxes, each labelled for its content.

The data were collected during June 2013 and after collection, the questionnaires were numbered sequentially and checked for quality before being entered onto an Excel spreadsheet. The data were cleaned and analysed using the SPSS version 22-computer program. The open-ended questions were analysed using quantitative content analyses. The Fischer's exact test was used to measure the associations between variables, with the significance level set at 0.05 ($p = 0.05$).

Results

The ages of the sample ($n = 101$) ranged from 18 to 92 years, mean 39.3 (SD \pm 15.1) and median 36. Most of the respondents were from the Zulu cultural group and the majority were unemployed and unmarried. The general characteristics of the sample are presented in Table 1. When the respondents were asked whether they knew which primary health clinic their partners attended, the majority (53.3%, $n = 54$) indicated they knew. The Muldersdrift primary health clinic serving the community was most commonly mentioned, followed by a clinic in Krugersdorp, a large town near to the study setting; clinics from other provinces were also mentioned.

When asked whether the respondents had ever heard of cervical cancer, the majority (66.3%, $n = 67$) reported they

Table 1 The general characteristics of the sample ($n = 101$)

	Number	Percent
Age groups		
18–29	38	37.6
30–39	18	17.8
40–49	21	20.8
50–59	17	16.8
60+	7	6.9
Sociocultural group		
Setswana	19	18.8
Southern/Northern Sotho	14	13.9
Tsonga/Shangani	7	6.9
Zulu	26	25.7
Venda	10	9.9
Ndebele	8	7.9
Xhosa	4	4.0
Sepedi	7	6.9
Swati/Swazi	6	5.9
Level of education		
Never went to school	11	10.9
Up to grade 7	35	34.7
Grade 8 to 10	23	22.8
Grade 11 to 12	28	27.7
University or college	4	4.0
Marital status		
Single	60	59.4
Married traditionally	26	25.7
Married customary	9	8.9
Widower	4	4.0
Divorced	1	1.0
Separated	1	1.0
Employment status		
Unemployment	40	39.6
Full time employment	36	35.6
Part time employment	10	9.9
Temporary jobs	15	14.9
Source of personal income		
Employment	48	47.5
Social grant	20	19.8
Family support	17	16.8
Other	16	15.8
Monthly personal income		
No income	38	37.6
Less than R1000 (\pm 67 USD)	23	22.8
R1001 to R1300 (> 67 USD–87 USD)	12	11.9
R1301 to R1600 (> 87 USD–107 USD)	9	8.9
R1610 to R 3000 (> 107 USD–200 USD)	12	11.9
R3000 + (> 200 USD)	7	6.9
Number of people supported with personal income		
1 to 5	49	48.5
6 to 9	10	9.9
No answer	42	41.6

Table 1 (continued)

Have a female companion		
Yes	76	75.2
No	25	24.8
Know the name of the primary healthcare clinic companion visits		
Yes	54	53.5
No	47	46.5

never had, 30.7% ($n = 31$) had heard about it and 3.0% ($n = 3$) were unsure. It was primarily those who were younger than 30 who said they had heard about cervical cancer (24.8%, $n = 25$). The Fisher's exact test yielded non-significant results between marital status and educational level and ever had heard of cervical cancer, $p = 0.746$ and $p = 0.275$, respectively. Respondents who had heard of cervical cancer were asked to explain what they understand cervical cancer to be. Explanations included the "womb" (uterus), a "growth in the underpart of a woman" and that it is a disease that only affects women. Those who had never heard of cervical cancer were also asked what they thought cervical cancer could be; answers included "it is dangerous.", "it kills" and it was a disease people get when they smoke.

When asked about prevention, the majority of the respondents (74.3%, $n = 75$) reported that cervical cancer can be prevented, 15.8% ($n = 16$) were not sure, whilst 9.9% ($n = 10$) indicated that cervical cancer cannot be prevented at all. The greatest percentage of respondents (26.7%, $n = 27$) who indicated cervical cancer can be prevented were younger than 30 years. There was no statistically significant difference between age groups and educational levels and the opinion that cervical cancer can be prevented, Fisher's exact test, $p = 0.889$ and $p = 0.088$, respectively.

Respondents were asked what they thought could be done to prevent their sexual partners from getting cervical cancer. The majority (81.2%, $n = 82$) agreed that motivating your partner to have a Pap smear can prevent cervical cancer, 79.2% ($n = 80$) agreed that being faithful to one partner can protect their sex partner, 70.3% ($n = 71$) agreed with using a condom and 67.3% ($n = 68$) agreed with motivating their partner not to smoke. Respondents were asked what changes would make them suspect their female sex partner had cervical cancer; slightly less than 20% (19.8%, $n = 20$) were able to identify all 11 symptoms presented to them, whilst 6.9% ($n = 7$) could not identify any. A bad smelling vaginal discharge was the most known sign identified by 74.3% ($n = 75$), whilst breathlessness was the least known (45.5%, $n = 46$). Respondents were also asked what they thought the causes of cervical cancer might be. Only 7.9% ($n = 8$) were able to identify all eight symptoms presented, whilst 4% ($n = 4$) could not identify any. HPV was the most identified cause of cervical cancer (60.4%, $n = 61$), whilst multi-parity was the least known (27.7%, $n = 28$) (Table 2).

When asked whether they knew of the cervical cancer screening programme, the majority of respondents (60.4%, $n = 61$) answered they had never heard of it. The highest percentage of men who said they knew of the screening programme (31.7%, $n = 32$) were younger than 30 years and unmarried. However, the Fisher's exact test found no statistically significant difference between had ever heard of the screening programme and age ($p = 0.779$) and marital status ($p = 0.310$). We also asked questions to investigate certain elements of the screening programme. The most known element was that women should go back to the clinic to get their test results (85.1%, $n = 86$) and that a women can have a test at the local clinic (Table 3).

When the respondents were asked if they knew of the Pap smear, less than a third (27.7%, $n = 28$) responded positively, whilst 67.3% ($n = 68$) reported they have never heard of it and 5% ($n = 5$) were not sure. Once again there was no statistically significant difference between having ever heard of the Pap smear and marital status ($p = 0.483$), education level ($p = 0.462$) and age ($p = 0.846$). We also asked those who indicated they had heard of the Pap smear ($n = 28$) to tell what they understood it to be. Most of the answers were not appropriate and included statements such as "when they check if the womb is clean or not" and "to clean lumps." Only 25% ($n = 7$) knew the Pap smear was a method used to "check" for cervical cancer, whilst 10.7% ($n = 3$) knew only women can have a Pap smear.

Lastly, we asked respondents to indicate whether they would like to receive health education about cervical cancer in a group or a one-on-one basis and what educational material they would prefer. The majority (57.4%, $n = 58$) preferred to be taught in a group, whilst only 13.9% ($n = 14$) preferred one-on-one health education; 28.7% ($n = 29$) did not answer the question. Only 31.7% ($n = 32$) of the respondents indicated their preference in terms of the preferred educational material that should be used during the health education, 12.9% ($n = 13$) said they would like to have "slides" (PowerPoint presentation), 7.9% ($n = 8$) preferred posters, 5.9% ($n = 6$) a drama and 5.9% ($n = 6$) a pamphlet.

Discussion

Literature investigating the prevention of cervical cancer focuses primarily on women and studies focusing on men are sparse, complicating comparisons. However, our study provided evidence that the majority of men had not heard of cervical cancer, whilst those who indicated they had heard had limited knowledge. Our study differs from the findings of a Kenyan study conducted by Rosser et al. [16], who found more than 90% of the men included in their study had heard of cervical cancer and Mwaka et al. [17], in a similar study conducted in Uganda, found more than

Table 2 Knowledge of causes and symptoms of cervical cancer (*n* = 101)

	Agree		Disagree		Not sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Causes of cervical cancer						
A virus known as HPV or human papillomavirus	61	60.4	8	7.9	32	31.7
Having sex before the age of 15 years	37	36.6	39	38.6	25	24.8
Having more than 5 children	28	27.7	45	44.6	28	27.7
Having many sexual partners	49	48.5	28	27.7	24	23.8
Sleeping with somebody who has multiple sexual partners	52	51.5	29	28.7	20	19.8
Smoking	56	55.4	30	29.7	15	14.9
Having sex without a condom	52	51.5	31	30.7	18	17.8
Having HIV/AIDS	45	44.6	31	30.7	25	24.8
Symptoms of cervical cancer						
Irregular bleeding from the vagina	69	68.3	6	5.9	26	25.7
Back pain	68	67.3	15	14.9	18	17.8
Bleeding after having sex	69	68.3	9	8.9	23	22.8
Bleeding after menstruation has stopped	62	61.4	13	12.9	26	25.7
Bad smelling vaginal discharge	75	74.3	10	9.9	16	15.8
Lower abdominal pain	70	69.3	12	11.9	19	18.8
Frequent urination	60	59.4	8	7.9	33	32.7
Weight loss	55	54.5	21	20.8	25	24.8
Swollen feet	48	47.5	18	17.8	35	34.7
Breathing problems	46	45.5	22	21.8	33	32.7
There will not be any changes unless the cancer is advanced	47	46.5	17	16.8	37	36.6

99% of the men in their study had heard of cervical cancer. In contrast, Maree et al. [18] and Williams and Amoateng [19], who investigated cervical cancer knowledge in men in South Africa and Ghana, found a similar low level of knowledge. Williams and Amoateng [19] provide an explanation for their situation by stating in the Ghanaian culture, it is unacceptable to talk about a person's health problems. However, gender can play a role in South Africa, as according to Maharaj and Cleland [20], culturally defined gender roles advocate communication should take place from a man to a woman. This might prevent women from

sharing “women's problems” with men resulting in not knowing about cervical cancer. However, this is a postulation and needs to be investigated before any conclusion can be made.

Knowledge of the risk factors of cervical cancer varied and it was interesting that the most well-known risk factor was HPV infection. The high number of men who identified HPV as a risk factor compares favourably with other studies but also raises questions. For instance, Pitts et al. [21], in a study conducted in Singapore, found only 16% of their sample of men had ever heard of the HPV, whilst

Table 3 Knowledge of the screening programme (*n* = 101)

	Agree		Disagree		Not sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Only women can be checked for cervical cancer	53	52.5	28	27.7	20	19.0
Women aged 30 years and above must be checked	64	63.4	23	22.8	14	13.9
Screening must be done every 10 years until the age of 55 years	55	54.5	27	26.7	19	18.8
Checking can be done at the local clinic	85	84.2	5	5.0	11	10.9
Checking is free of charge	78	77.2	6	5.9	17	16.8
Pap smear is used for checking and testing	67	66.3	5	5.0	29	28.7
Women must go back to the clinic to get their test results	86	85.1	3	3.0	12	11.9
Women with an abnormal test results will be referred to the hospital for their cervixes to be checked and tested	81	80.2	8	7.9	12	11.9

McPartland et al. [22], in a USA study, found more than half of their participants had not heard of the HPV before they were recruited. In addition, the Kenyan study of Rosser et al. [16] revealed that 48% of their participants had heard of the HPV, whilst the Ghanaian study of Williams and Amoateng [19] found only one of the 29 men in their study was able to identify the HPV as risk factor. Considering the findings of the studies presented, the overall knowledge the men in our study had about cervical cancer and the high profile of HIV in South Africa, it could be argued that the men chose HPV not because they were aware of this risk factor, but by associating the HPV with the HIV, which is a well-known virus. Our study does not provide evidence that it was indeed the case, but such a link could be positive when educating men about the HPV.

It was positive to find more than half the men knew having sex without a condom was one of the risk factors for cervical cancer. This compared favourable to the findings of the South African study conducted by Maree et al. (18) and the UK study of Waller et al. [23], where less than 5 and 5.3% of the men in their studies knew of this risk factor, respectively. In contrast, our finding that less than 50% of men knew having sex with multiple partners is a risk factor compares negatively with the sample of Ugandan men, where 88.3% knew of this risk [17].

Our study provided evidence that the respondents had a low level of knowledge of the Pap smear and its application. Only a small number (27.7%, $n = 28$) had ever heard of this screening test and only seven of the 101 men knew what the test was used for. However, Maree et al. [18] and Williams and Amoateng [19] found a similar trend and report only two of 908 men (0.6%) and two of 29 (6.9%), respectively, either mentioned or indicated they had heard of the Pap smear. Although considered as “only” Pitts et al. [21] reported 46.2% Singaporean men had heard of the Pap smear, which compares positively with our finding.

Similar to the low level of knowledge of the Pap smear, our respondents had limited knowledge of the South African screening policy as only 31.7% indicated they had ever heard of this programme. It was interesting to note that only 27.7% of our sample indicated they had ever heard of the Pap smear, but when answering the questions about the screening programme, 67% said a Pap smear was used for checking and testing for cervical cancer. Therefore, it seems as if this answer was guessed and not supported by pre-existing knowledge. However, Rosser et al. [16] reported better results, as 89.1% of the Kenyan men included in their study had heard of their country’s screening programme.

Finding that most of the men (57.7%) preferred to be educated about cervical cancer in a group, provided us with a practical, feasible and cost effective way of educating men living in this community.

Limitations

The study has various limitations. The study was conducted within one semi-rural area, complicating generalisation. In addition, as the data collected was self-report, it may have led to guessing, recall or social desirable bias. Lastly, a survey tends to reflect relatively superficial knowledge and a not deep understanding of the phenomenon investigated. However, we believe the study provided sufficient data to guide the development of an educational programme for men living in this specific area.

Conclusion

Our study provided evidence that the levels of knowledge, regarding cervical cancer and cervical cancer screening were low. Only a small percentage of the men had ever heard of cervical cancer, the Pap smear and the cervical cancer screening programme. Age and educational level did not influence having ever heard of these health issues. In addition, even those who indicated they had heard of cervical cancer and the Pap smear could not explain what it was correctly. HPV infection was the most known risk factor but this raised questions as to whether the high percentage of respondents who identified this risk based their choice on knowledge or whether they associated it with the HIV, which is well known in South Africa. Knowledge of the symptoms varied and the very late symptoms of cervical cancer were the least known. However, finding that most of the men preferred to be educated about cervical cancer in a group provided us with a practical, feasible and cost-effective way of educating men living in this community on these health issues.

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