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Knowledge and attitudes as predictors of cervical cancer screening among women in a Venezuelan urban area.

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Keywords: Pap smear, cervical cancer screening, educational level, knowledge, attitudes.

Abstract. The purpose of this research was to investigate how the knowledge and attitudes have influence in Cervical Cancer (CC) screening among Venezuelan women, by realizing a cross-sectional descriptive study based on a structured non disguised questionnaire with closed ended questions: yes/no questions and multiple choices. The survey was performed on 691 volunteers, of which 595 were analyzed. Each patient was asked to fill in the questionnaire. Four hundred ninety three of 522 (94.4%) answered that they knew that Pap smear is for screening CC. Knowledge of Pap smear was statistically significant when it was compared to high educational level ($p<0.0001$) although 185 (76%) of 244 low educational level interviewees answered that they had the knowledge that the Pap smear is used for screening of CC. Four hundred four of 504 (84.7%; $p<0.001$) mentioned that they had a Pap smear at least once. One hundred ninety two (38.1%) of 504 women were adherent to an annual Pap smear test and more than half of the women (n=337, 67%) had the last Pap smear in the last 1-3 years. Women with a high educational level showed higher adherence to the annual Pap smear screening (68.2%). Two hundred fifty seven (87.4%) of 294 said that they remembered when they got the information about Pap smear. The conclusions of this investigation were that our women were aware about Pap smear, had a good attitude to have a Pap smear and to be adherent to a regularly performed screening.

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Conocimientos y actitudes como predictores en la pesquisa del cuello uterino en mujeres en un área urbana venezolana.
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Palabras clave: citología cérvico-vaginal, pesquisa de cáncer de cuello uterino, nivel educacional, conocimiento, actitudes.

Resumen. El objetivo de este estudio fue investigar como el conocimiento y las actitudes que poseen las mujeres venezolanas son elementos que influencian la pesquisa del Cáncer del Cuello Uterino (CCU). La investigación consistió en un estudio descriptivo transversal basado en un cuestionario estructurado no disfrazado con preguntas cerradas, usando respuestas si/no y múltiple escogencia. Se entrevistaron 691 mujeres; 595 fueron analizadas. Cada paciente llenó el cuestionario. Cuatrocientos noventa y tres de 522 (94,4%) respondieron que sabía que la citología cervico-vaginal (CCV) es para la pesquisa del CCU. El conocimiento sobre la utilidad de la CCV fue estadísticamente significativo cuando se comparó el nivel educacional de las entrevistadas ($p<0,0001$), sin embargo, 185 (76%) de 244 mujeres con bajo nivel educacional respondieron que ellas tenían el conocimiento sobre la utilidad de la CCV en la pesquisa del CCU. Cuatrocientos cuatro de 595 (84,7%; $p<0,001$) mencionaron que ellas se había realizado al menos una CCV. Ciento noventa y dos de 504 entrevistadas (38,1%) se realizaban una CCV anual y más de la mitad (n=337, 67%) de ellas se practicaban la CCV entre 1-3 años. Las mujeres con un nivel educacional elevado fueron más inclinadas a realizarse su CCV anual (68,2%). Doscientos cincuenta y siete (87,4%) de 294 entrevistadas mencionaron que ellas recordaban cuando se enteraron de la utilidad de la CCV. Las conclusiones de esta investigación fueron que nuestras mujeres están concientes de la utilidad de la CCV, tienen una buena actitud a realizársela, así mismo de practicársela regularmente.

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INTRODUCTION

Cervical cancer (CC) is the third most commonly diagnosed cancer, the fourth leading cause of cancer death in females worldwide and the second most common cancer in developing countries(1). CC represented 9% of the total new cancer cases (529,800) and 8% of the total cancer deaths among females worldwide in 2008 (275,100) (1). More than 85% of these cases and deaths occur in developing countries (1, 2).

In most developing countries, CC is the leading female malignancy and the leading cause of death by cancer, especially among middle-aged women (3). Fortunately, CC is among the few preventable and treatable cancers; early detection has decreased its morbidity and mortality around the world, although it still continues to plague the world, especially in developing countries (1).

Venezuela as a developing country does not escape from these problems. According to Globocan (1), South-America

had 24.1 × 100,000 women new cases of CC and a mortality rate of 10.8 × 100.000 women in 2008. The Pan American Health Organization (4) reported that Venezuela had an incidence rate of 36 × 100.000 women and a mortality of 16.8 × 100,000 women in 2002.

To date, the detection of premalignant and malignant lesions of the cervix by the Papanicolaou (Pap) smear test is widely recognized as an effective, efficient and affordable method to screen and to prevent CC (5, 6). Since the 50's, the implementation of the Pap smear as a screening test has led to a major reduction in the annual mortality rate by CC on a worldwide basis, especially in developed countries (6).

Pap smear plays an important role in screening programs in reducing the incidence and mortality of CC (7) and routine cancer screening has become more frequent (8). However, most developing countries have not been able to decrease the incidence and mortality of CC (9). In these countries, screening programs have many obstacles such as inadequate equipment and supplies, inadequate training of providers, limited cytology services, difficult in patient follow-up and treatment, low coverage, and inadequate or lack of information about CC and Pap smear in the population especially in the lower socio-economic levels (9, 10). Lower socio-economic level is associated with low educational level (11). Cullati *et al.* (8), Saifari *et al.* (12) and Seow *et al.* (13) have reported the association between low educational level and poor knowledge about Pap smear. However, Núñez *et al.* (14) showed that low educational level was not a limitation for knowing about and having a Pap smear in Venezuela.

In Venezuela, Pap smear screening services are provided by and through the public health system supported by the government since 1936 (15), by private institutions and by private practice medical doctors. In our country, Pap smear is recommended to be done annually to any woman who has already had sexual activity.

This survey was performed in order to get information from the women that the previous one did not include (14) and was conducted to assess the knowledge and attitudes of the Pap smear that affect the cancer screening among Venezuelan women.

MATERIAL AND METHOD

Study population

A cross-sectional descriptive study was designed based on structured non disguised questionnaire with closed ended questions, using yes/no questions and multiple choice answers.

A survey was done in 691 volunteer women from February 2007 to March 2009. Ninety six questionnaires were not included because they were not filled out properly.

This study was performed at San Rafael neighborhood located in front of Manuel Noriega Trigo Hospital (MNTH), at different waiting areas of the MNTH such as the Gynecological Out-Patient Clinic, Family Planning Clinic, Obstetrics and Gynecology emergency area, etc., and at the private practice of one of the authors. MNTH is a tertiary and urban referral hospital in Maracaibo, Venezuela.

The study was approved by the ethics committees of the MNTH and the Faculty of Medicine, University of Zulia. All participants read and signed an informed consent agreement before enrolment in the study. The participants were also informed of the anonymity and confidentiality of the survey.

The Interviewee was told about the purpose of the survey by the authors. Each patient was asked to fill out the questionnaire by herself. The questionnaire was developed by one de authors and based on a previous one and was expanded to obtain additional information (14). Demographic,

sexual and gynecological information: age, marital status, job, age of first intercourse, number of sexual partners, pregnancies and deliveries, were assessed for each participant, together with questions regarding to educational background, knowledge of the Pap smear: what it is (yes/no) and what is used for (screening CC, diagnosis of vaginal infections, other answer), when she had the last Pap smear, how many Pap smears had the patient taken in the past, date of first Pap smear (after the first sexual intercourse, first pregnancy, first delivery), the reason or reasons why she have never had a Pap smear or why she have not had one in the past year (multiple choice). How many Pap smears had the patient taken in the past, the reason or reasons why she have never had a Pap smear or why she have not had one in the past year, were the variables that allowed us to determine the attitudes about Pap smear of our interviewees. During the period when the survey was performed, three additional questions were added to the questionnaire: if she remembered when she got the information about what the Pap smear is used for, what age she got the information, and how she got it (multiple choice). Two hundred ninety four women were included in the analysis for these three last questions.

The educational level was classified as low educational level if the woman had less than 11 grade of education, this is all those with uncompleted secondary school, and high educational level were those who had 11 or more years of education.

The investigation considered a woman adherent on her Pap smear test if she reported that she had her last Pap smear every year preceding her enrollment in this survey.

Statistical analysis

Mean values and SD of all continuous variables were calculated. Categorical variables were expressed as numbers and percentages of each group. To determinate statistical relevance of the various parameters of the questionnaire, Chi Square and Fisher tests were performed. A *p*-value of less than 0.05 was considered statistically significant. Odds ratios (OR) and 95% CI were calculated using logistic binary regression. The χ^2 and Fisher tests were used to correlate or examine the relationship between "knowledge about the Pap smear" and potential confounders such as age, pregnancy, delivery, educational level, have ever done a Pap smear, number of vaginal cytologies taken, frequency of Pap smear done and what age they got the information about the usefulness of the Pap smear. Logistic regression analysis was used to estimate association or crude ORs for the knowledge of usefulness of the Pap smear, using the "knowing about the Pap smear", educational level, number of Pap smears done, frequency of pap smears done as categories for reference. Also, ORs were calculated for each potential confounding or independent variable such as educational level (Low level: < 11 years *vs*. high level: ≥ 11 years), age (14-45 years old *vs*. ≥ 46 years old), have done a Pap smear ever (yes vs. no), number of Pap smears done (1-5 *vs*. ≥ 6), frequency of Pap smears done (1 year *vs*. ≥2 years and 1-3 years *vs*. ≥ 4 years), and at what age they got the information (16-20 years old *vs*. >20 years old). Hosmer-Lemeshow test (goodness of fit test) showed that data was adjustable to the logit model. All data were stored in an Excel 2007 (Microsoft Corporation Redmond, WA) spread sheet and upload to SSPS version 17 for Windows (SPSS Chicago, IL) for statistical analysis.

RESULTS

Five hundred ninety five of 691 women (86.1%) were included in the study. The

mean age was 38.6±14.5 years old (mean ± SD) (range: 14-83). Social and demographic variables are shown in Table I. Two hundred forty four (41%) women who had a low educational level: 52 (8.7%) did not finish primary school and 192 (35.4%) finished primary school but did not finish high school studies; 142 (40.5%) of 351 women who finished high school studies, had got a university or high technical degree. Sexual and reproductive data are shown at Table II.

Five hundred twenty two (87.7%) of 595 answered that they knew about the usefulness of the Pap smear. Four hundred ninety three of 522 women (94.4%) knew that the Pap smear is used for cervical cancer screening and 447 (85.6%) mentioned that Pap smear is also used to detect vaginal infections. Four hundred ninety four (83%) of 595 interviewees mentioned two answers about the usefulness of the vaginal cytology: to screen cervical cancer and to detect vaginal infections. One hundred eighty six (76.2%) of 244 patients who had low educational level gave these two answers about what the Pap smear is used for.

High educational level was found to have a significant impact in knowledge of the usefulness of the Pap smear when high and low education levels were compared. ($p<0.0001$ χ^2: 21.375; OR: 3.193; 95%: CI: 1.924-5.388) as it shows in Table III, al-

TABLE I
SOCIAL AND DEMOGRAPHIC VARIABLES (N=595)

Variables	Number	%	% Cumulative
Married	217	36.5	
Stable Sexual Partner	327	55	
Pregnancies	516	86.7	
Deliveries	455	88.2	
Education Level	595		
Low (< 11 grade)	244	41	41
High (≥11grade)	351	59	100
Age (years)			
14-25	121	20.3	20.3
26-45	281	47.3	67.6
46-55	118	19.8	87.4
≥ 56	75	12.6	100

TABLE II
SEXUAL AND REPRODUCTIVE VARIABLES (N=595)

Variables	Mean(±SD)+	Range
1st SI*	19(4)	11-38
No Partners	1.72(1.1)	1-13
No Pregnancies	3.2(2.4)	1-17
No Deliveries	3.1(2.2)	1-14

*1st SI: Age of 1st Intercourse; +SD: Standard Deviation.

though 80.3% (196 of 244) women with low educational level had the knowledge about the usefulness of Pap smear. Four (2.8%) of 142 women who had a university or technological degree, did not know anything about the usefulness of the Pap smear. When educational level was compared with the knowledge about the usefulness of the Pap smear to screen CC, no significant statistical difference was found (p=NS) although 185 (76%) of 244 low educational level interviewees answered that they had the knowledge that the Pap smear is used for screening of CC. When the knowledge to detect CC was analyzed by age, 319 of 493 (64.7%) women who knew about it were ≤45 years old however there was no statistical significance found.

Five hundred four (84.7%) patients answered that they had done at least a Pap smear in their life time (p<0.001). The number of Pap smear done in the interviewee´s life time is showed at Table IV. Twenty three (31.5%) of the 73 women who mentioned that they did not know anything about the Pap smear, had a Pap smear done. Ninety eight of 166 women (59%) who had ≥6 Pap smears in their life time were ≥46 years old. Eighty five (93.4%) of 91 patients who mentioned that they have never done a Pap smear were ≤45 years old. Two hundred four (83.6%) of 244 interviewees who had low educational level mentioned that they had a Pap smear taken. Forty three (82.7%) of 52 patients who did not finish primary school and 161 women (83.9%) of 192 who did not finish high school (low educational level) reported that they had done at least one Pap smear. One hundred twenty nine (90.8%) of 142 patients who finished university or high technical level (high educational level) men-

TABLE III
EDUCATIONAL LEVEL AND KNOWLEDGE OF USEFULNESS OF THE PAP SMEAR (N=595)

Educational Level	Yes		No		Total	
	Nº	%	Nº	%	Nº	%
Low	196	37.5	48	68.8	244	41
High*	326	62.5	25	34.2	352	59
Total	522	100	73	100	595	100

*p<0.0001 χ^2: 21.061; OR: 3.193; 95%:

TABLE IV
PAP SMEAR DONE

Variable	No	%
Ever had a Pap smear (n=595)		
Yes*	504	84.7
No	91	15.3
Number of Pap Smear done (n=504)		
1	99	19.6
2-5	239	47.4
≥6	166	33.0

*p<0.001.

tioned to have had at least a Pap smear done in their lifetime. When the educational level were compared to Pap smears done, educational level was not a predictor factor of having a Pap smear (p=NS). Results found that the older the woman, the higher the number of Pap smears done as it was expected.

Data regarding the frequency of Pap smears are summarized at Table V. One hundred ninety two (38.1%) of 504 women had a Pap smear taken every year. Table V shows that women younger than 45 years were more adherent to the annual Pap smear screening when they were compared to women older than 45 years [≤45 years old: 136(70.8%) vs. ≥46 years old: 56(29.2%). ($p<0.004$ χ^2: 8.371; OR: 1.758; 95% CI: 1.197-2.580). More than half of women (n=337, 69.9%) had the last Pap smear in the previous 1-3 years. Two hundred thirty five (46.6%) of 504 patients who had taken a Pap smear between 1-3 years were ≤45 years old ($p<0.0001$; χ^2: 20.367; OR: 2.338; 95% CI: 1.630-3.500). Women who knew the usefulness of the Pap smear were more adherent to annual Pap smear screening (190 of 192; 99%) and 310 of 456 interviewees (68%) who knew that Pap smear is used to screen CC had one more regularly (1-3 years). Women with a high educational level (131 of 192; 68.2%) were more adherent to have the annual Pap smear screening than women with a low educational level (61 of 192, 31.8%, $p<0.002$).

The most common answers given by 91 women who never had a Pap smear done were: 1.- they did not know anything about the usefulness of it (n= 32, 35.2%), 2.- embarrassment about having a male doctor (n= 31, 34.1%), 3.- fear to have something bad (n= 29, 31.9%) and 4.- fear to have pain produced by the procedure (n=29, 31.9%). Different answers given by the interviewers are summarized in Table VI. Out of 54 percent of 91 women who have never had a cytological study, 9 (9.9%) and 40 (44%) did not finish primary and high school, respectively. Thirteen of them (14.3%) had a college, university or high technical degree. Seven had never had sexual intercourse.

The most frequent answers gave by women who did not have a Pap smear regularly were: 1.- they did not have time (n= 172; 34.1%), 2.- fear to have something bad (n= 140, 27.7%), 3.- do not have any interest in having it done (n=126, 25%), and 4.- embarrassment about having a male doctor (n=102, 20.2%). Table VI shows the different answers given by women who did not have the Pap smear regularly.

TABLE V
FREQUENCY OF PAP SMEAR AND AGE (N=504)

Frequency of having Pap Smear	Age(years)				Total	
	14-45		≥46			
	No	%	No	%	No	%
1 year	136	42.9	56	29.9	192	38.1
2-3 years	99	31.2	46	24.6	145	28.8
4-5 years	46	14.5	27	14.4	73	14.5
6-10 years	26	8.2	26	13.9	52	10.3
>10 years	10	3.2	32	17.1	42	8.3
Total	317	62.9	187	37.1	504	100

TABLE VI
ATTITUDES AND PAP SMEAR

Variable	No	%
Reasons for not having ever a Pap Smear (n=91)		
Did not know	32	35.2
Embarrassment about having a male doctor	31	34.1
Fear to the pain	29	31.9
Fear to have something bad	29	31.9
Physician did not explain	26	28.6
Did not have interest	23	25.3
Physician did not take it	20	22.0
Fear to vaginal speculum	16	17.6
Fear to bleed	15	16.5
Did not know about having free Pap Smear	11	12.1
No Intercourse	10	9.1
Expensive	5	5.5
Other	2	2.2
Reasons for not having a Pap Smear regularly (n=504)		
Busy (no time)	172	34.1
Fear to have something bad	140	27.7
Not have Interest	126	25.0
Embarrassment about having a male doctor	102	20.2
Fear to the pain	77	15.3
Fear to vaginal speculum	52	10.3
Did not know about having free Pap Smear	34	6.7
Expensive	34	6.7
Fear to bleed	26	5.2
Hospital far away	20	4.0
No Sexual Intercourse	4	0.8
Other	31	6.2

Four hundred four women (87.3%) remembered when their first Pap smear was taken as shown at Table VII. One hundred seventy six interviewees (40%) had done the test during their first prenatal exam, 153 (34.8%) answered that the first Pap smear was performed after their first delivery, and 111 (25.2%) after their first sexual intercourse. Seven women had never done a Pap smear because they had never sexual intercourse.

Two hundred fifty seven (87.4%) of 294 participants said that they remembered when they got the information about the

TABLE VII
GETTING THE KNOWLEDGE OF PAP SMEAR

Variables	No	%
Remember When had her 1er Pap Smear (n=504)		
Yes	440	87.3
No	64	12.7
When had her 1er Pap Smear (n=440)		
During the first prenatal control	176	40.0
After the 1er Delivery	153	34.8
After the 1er Sexual Intercourse	111	25.2
Remember when you got the information about Pap Smear (n=294)		
Yes	257	87.4
No	37	12.6
How old were you when you got the information? (n=257)		
10-15 years old	27	10.5
16-20 years old	116	45.1
21-25 years old	86	33.5
26-30 years old	16	6.2
> 30 years old	12	4.7
Who did give you the information? (n=257)		
Physician	107	41.6
Relative	100	38.9
Friend	41	16.0
Educational campaigns	41	16.0
High School	38	14.8
TV	13	5.1
Neighbor	11	4.3
Primary School	10	3.9
Magazines	9	3.5
Internet	7	2.7
Newspapers	5	1.9
Radio	4	1.6
Others	10	3.9

usefulness of the Pap smear. One hundred forty three women (55.6%) got it when they were ≤20 years old; 112 of them (78.3%; $p<0.05$) who got the information before 20 years old were highly educated. The most common ways that they got the knowledge of the usefulness of the Pap smear were by her physician (n= 107, 42%) and her relative (mother, sister, etc) (n=100, 39%) as it shows at Table VII.

DISCUSSION

Despite its effectiveness as a method of screening and controlling CC, the Pap smear is not, by itself, sufficient for reducing its mortality rate. Lack of information about cancer, misunderstanding of risk factors or screening guidelines, and inaccurate perception of cancer risk may also affect screening behavior (10). The positive effect of the Pap smear depends on its adequate utilization in the target population (12). The practice of having a Pap smear taken routinely depends on a range of factors that include the health care system and the women themselves (12). This investigation focused on to investigate the knowledge and attitudes about the CC screening from the perspective of Venezuelan women.

Pap smear has become a widespread and routine screening tool for CC worldwide. In Venezuela, the Ministry of Health recommends to start taking a Pap smear in every woman who has started to be sexually active and have it annually.

After more than 50 years of running the Venezuelan Official CC screening programs, CC still remains first in genital cancer morbidity and mortality (14). Venezuela faces the same difficulties as other developing countries such as the Pap smear transportation to laboratories for processing and interpretation, thereafter the results need to be communicated to the referring clinic or center and to the women who have been screened. This delay in itself is known to be a significant barrier to screening because a large number of women do not return for results (13). Other problem is that once the women have the diagnosis of premalignant or malignant lesion of the cervix, they can have difficult to access treatment (13). On the other hand, women in developing countries usually are poorly educated which has influences over their total quality of life, healthcare access, and their ability to generate income (13).

The answers to the reasons women have or have not taken the Pap smear is very important to the investigators who set the screening programs in order to encourage CC screening and prevent this disease (13).

Regarding the knowledge of the Pap smear, 94.4% of the women answered the questionnaire correctly that the purpose of the Pap smear was to screen for CC. These results were similar to a previous study reported in Venezuela (10). Claeys *et al.* (9) found 55% of the women knew that Pap smear is used to prevent CC in Nicaraguan women. Other authors such as Seow *et al.* (13) in Thailand found that 85.7% of the women mentioned that Pap smear was effective in detecting CC. Sairafi *et al.* (12) reported that 76.9% of Kuwaiti women had heard about the Pap smear and 41.3% knew that it was used to discover CC, 52.3% had adequate knowledge about the Pap smear. In Nigeria, Chigbu and Aniebue (16) found that 55.2% of 2048 interviewees were aware of CC screening and Asuzu *et al.* (17) 79% had the knowledge about the disease. Mutyaba *et al.* (18) reported that 83% of the patients had the knowledge about the Pap smear among female doctors, nurses and last year female medical students. Hild-Mosley *et al.* (19) mentioned that 93% of the women in Southern Illinois, USA, identified that the purpose of the Pap test was to check for cervical cancer.

CC is associated with a low socio-economic level, as defined by education or income status (11). Juon *et al.* (20) mentioned that the knowledge of Pap smear was associated with having regular CC screening. Different authors (8, 12, 13, 21, 22) have reported the association among low educational level, poor knowledge about Pap smear and poor adherence to annual CC screening. This study confirmed these findings, a higher level of education is associated and increased three folds the knowledge about the Pap smear is used to screen CC. However, the present study found that 76% of our low educated interviewees had the knowledge that the Pap smear is used for screening CC. Previous investigations in Venezuela (14) and Mexico (23) have mentioned that the low educational level was not a factor that impairs knowledge about the Pap smear as a screening test for CC.

This study found 84.7% women had a Pap smear taken at least one. In Venezuela, previous study (14) showed that 93% of women had had a Pap smear done at least once. Jennings-Dozier *et al.* (21) reported similar results. Hild-Mosley *et al.* (19) found that 65% of women had a Pap smear every 1-5 years. In Korean-American women, Juon *et al.* (20) found that 74.3% had never had, at least once, a Pap smear. Sairafi *et al.* (12) mentioned that a low percentage (35.2%) of Kuwaiti women had taken the test. Seow *et al.* (13) found that near 60% of women in Singapore have had a Pap smear taken. In North-American women, Nelson *et al.* (24) reported that 98% of women had had a Pap smear taken at some time in their life time. Cigbu *et al.* (16) found that 19% of southern Nigerian women had a Pap smear taken. Asuzu *et al.* (17) reported that 73.5% of the women interviewed had never taken a Pap smear. Mytyaba *et al.* (18) mentioned that 81% respondents had never been screened. Recently, MacLaughlan *et al.* (25) reported a prevalence of 83.9% of women having had a Pap smear in the last three years in USA.

Cullatti et at (8) reported that 76.6% of women had done a Pap smear in the past 3 years. In Greece, Tsakiroglou *et al.* (26) found that 76% of the women over 20 years old had a Pap smear within the last three years. Juon *et al.* (20) reported in Korean-American women who had the knowledge of the Pap smear had more than three times odds of having regular Pap smear; 51% had a Pap smear within the past 2 years and 39% mentioned that they had a Pap smear regularly. Sairafi *et al.* (12) in Kuwaiti women mentioned that 26.3% of them had had a Pap smear more than once, 35% had taken only ever one and 24% has routinely the Pap smear. Nelson *et al.* (24) that 90% of American women had had a Pap smear test within the past three years and, 84% of them kept doing the Pap smear regularly. Recently, Hild-Mosley *et al.* (19) reported that 95% of women responded that they had the Pap smear taken every 1-3 years. Nearly 40% of our participants were adherent to annual screening Pap smear test. Younger women were more adherent to this screening ($p<0.004$). Sixty seven percent ($n=337$) of our interviewee had their last Pap smear in the past 3 years. The study showed that women who knew the usefulness of the Pap smear were more adherent to the annual screening or had one more regularly. Also, women with high educational level were more adherent to the annual screening., however, his investigation found that educational level was not a determining factor on having taken a Pap smear (P=NS). This investigation showed that our women have a Pap smear regularly (every 1-3 years, 67%) similar to women from developed countries (8, 19, 24). Younger women (≤45 years old) were more likely to have the knowledge of the purpose of the Pap smear and the regular screening. Juon *et al.* (20) and Sairafi *et al.* (12) reported

this association in Korean-American and Kuwaiti women, respectively.

The most common answers such as absence of knowledge, fear to the pain, fear of the test, fear to have a cancer or infection, embarrassment about having a male doctor, never suggested by doctor, etc, given by women who never had had a Pap smear in their life were similar to those reported by other authors previously (9,27).

The most common answers given by our interviewees who did not have a Pap smear regularly was "did not have time to have it done". Other answers reported in this study have also been reported by different authors (12, 13, 20, 23, 28).

The main sources of information regarding the Pap smear screening were a physician and her family or relatives. Other authors such as Kietpeerakool *et al.* (27), Sairafi *et al.* (12), and Seow *et al.* (13) reported similar sources of information. Beside the traditional sources of information reported in this study and others (12, 13, 28), there are other different sources of information that help the population to get the knowledge included campaign to promote to have the Pap smear done using major media such as newspaper, TV, and radio.

This study found that the awareness and knowledge of the screening purpose of the Pap smear were high (94.4%) in our population and suggested that they knew that there was a test to detect CC. In our interviewees, the educational and social level was not a barrier to know and to have done a Pap smear test.

The stronger points of the survey were that the sample was randomly selected. Most of the interviewees were women who visited the different areas of MNT Hospital and lived at San Rafael neighborhood located in front of the hospital. Others were surveyed at the private practice of one of the authors. The questionnaire was answered by the patient herself.

The weaker aspects of the study were that we did not cover a rural area. Also, we did not ask: if they would return for the Pap smear diagnosis or result, the reasons why they would not return and, what they thought about the health services.

In conclusion, this study suggests that our women have an excellent attitude towards to the Pap smear as a screening test. These results showed that a high number of our women are aware or have enough knowledge about the usefulness of the Pap smear, had a good attitude towards having a Pap smear done and to be adherent to a regularly screening. Also, 67% of women in our population have had a Pap smear between 1-3 years. These findings suggest that the willingness of these women to return to have a subsequent test is in part on their belief in the efficacy of the Pap smear and on their previous experience having it. Educational level was not a barrier to know about the usefulness of Pap smear and to have the test done. Also, women with higher education levels were more aware and were more adherent to a regular screening. Women who felt that the procedure was unsafe, uncomfortable or embarrassing or the results were unreliable were less likely to return to have other Pap smear done (13).

The government should organize well-designed education programs on CC in order to increase the population covered by the screening programs. On that issue, a multimedia approach using TV, radio, newspaper, magazines, audio-visual and personal communication, etc, should be used about CC and the importance of the Pap smear. Other important point is the improvement of the health care services and their access must be increased and improved in order to achieve the goal in CC screening, and decrease the mortality rate. In addition, it would be interesting to establish a program to keep a continuous surveillance of CC screening programs.

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REFERENCES

1. **Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D.** Global cancer statistics. CA Cancer J Clin 2011; 61: 69-90.
2. **Waggoner SE.** Cervical cancer. Lancet 2003; 361:22 17-25.
3. **Bosch FX, de Sanjosé S.** Human papillomavirus and cervical cancer: Burden and assessment of casualty. J Natl Cancer Inst Monographs 2001; 31:3-13.
4. **Lewis, M J**. A Situational Analysis of Cervical Cancer in Latin America and the Caribbean. Washington, DC. Pan American Health Organization / World Health Organization (PAHO/WHO), 2004. Available from URL: http://www.paho.org/english/ad/dpc/nc/pcc-cc-sit-data.htm. Accesed in May 08, 2012.
5. **Dalstein V, Riethmuller D, Sautière JL, Trétet JL, Kantelip B, Schaal JP, Mougin C.** Detection of cervical precancer and cancer in a hospital population: benefits of testing for human papillomavirus. Eur J Cancer 2004; 40:1225-32.
6. **Linos A, Riza E.** Comparison of cervical cancer screening programmes in the European Union. Eur J Cancer 2000; 36: 2260-2265.
7. **Brink AATP, Zielinski GD, Steenbergen RDM, Snijders PJF, Meijer CJLM.** Clinical relevance of human papillomavirus testing in cytopathology. Cytopathology 2005; 16:7-12.
8. **Cullati S, Charvet-Bernard AI, Perneger TV.** Cancer screening in a middle-aged general population: factors associated with practices and attitudes. BMC Public Health 2009; 9:118. http://www.biomedcentral.com/1471-2458/9/118.
9. **Claeys P, González C, González M, Page H, Bello RE, Temmerman M.** Determinants of cervical cancer screening in a poor area: results of a population-based survey in Rivas, Nicaragua. Trop Med Int Health 2001; 7(11):935-941.
10. **Kim SE, Pérez-Stable EJ, Wong S, Gregorich S, Sawaya GF, Walsh JME, Kaplan CP**. Association between cancer risk perception and screening behaviour among diverse women. Arch Intern Med 2008; 168(7):728-734.
11. **Parikh S, Brennan P, Boffetta P.** Meta-analysis of social inequality and the risk of cervical cancer. Int J Cancer 2003; 105:687-691.
12. **Sairafi MA, Mohamed FA.** Knowledge, attitudes, and practice related to cervical cancer screening among Kuwaiti women. Med Princ Pract 2009; 18:35-42.
13. **Seow A, Wong ML, Smith WCS, Lee HP.** Beliefs and attitudes as determinants of cervical cancer screening: a community-based study in Singapore. Prevent Med 1995; 24:134-141.
14. **Núñez-Troconis J, Velásquez J, Mindiola R, Munroe DJ.** Educational level and cervical cancer screening programs in a Venezuelan urban area. Invest Clin 2008; 49(3): 331-339.
15. **Ministerio del Poder Popular para la Salud de Venezuela.** Available from URL: http://es.wikipedia.org/wiki/Ministerio_del_Poder_Popular_para_la_Salud_de_Venezuela. Accessed in June 15, 2012.
16. **Chiqbu CO, Aniebue U.** Why southern Nigerian women who were aware of cervical cancer do not go for cervical cancer screening. Int J Gynecol Cancer 2011; 21(7):1282-1286.
17. **Asuzu CC, Unegbu J, Akin-Odanye E.** Knowledge, attitudes and behavior of the University of Ibadan women towards cancer of the cervix and its prevention. Psychooncology 2012; 21(9):1010-1015.
18. **Mutyaba T, Mmiro FA, Weiderpass E.** Knowledge, attitudes and p5actices on cervical cancer screening among the medical workers of Mulago Hospital, Uganda. BMC Med Educ 2006; Mar (1); 6-13.
19. **Hild-Mosley KA, Patel DM, Markwell S, Massad LS.** Knowledge of cervical cancer screening, human papillomavirus, and HPV

vaccine among midwestern gynecology patients. J Low Genit Tract Dis 2009; 13(4): 200-206.
20. **Juon HS, Seung-Lee C, Klassen AC.** Predictors of regular Pap smears among Korean-American women. Prev Med 2003; 27:585-592.
21. **Jennings-Dozier K, Lawrence D.** Sociodemographic predictors of adherence to annual cervical cancer screening in minority women. Cancer Nurs 2000; 23(5): 350- 356.
22. **Flores K, Bencomo C.** Preventing cervical cancer in the Latina population. J Womens Health 2009; 18(12):1935-1943.
23. **Torres-Mejia G, Salmerón-Garcia J, Téllez-Rojo MM, Lazcano-Ponce EC, Juárez-Márquez SA, Torres-Torija I, Gil-Abadíe L.** Characteristics of respondents to cervical cancer screening program in developing countries. Arch Med Res 2002; 33(3): 295-300.
24. **Nelson W, Moser RP, Gaffey A, Waldron W.** Adherence to cervical cancer guidelines for US women aged 25-64: Data from the 2005 Health Information National Trends Survey (HINTS). J Womens Health 2009; 16(11):1759-1768.
25. **MacLaughlan SD, Lachance JA, Gjelsvik.** Correlation between smoking status and cervical cancer screening: a cross-sectional study. J Lower Gen Tract Dis 2012; 15(2):114-119.
26. **Tsakiroglou M, Bakalis M, Valasoulis G, Paschopoulos M, Koliopoulos G, Paraskevaidis E.** Women´s knowledge and utilization of gynecological cancer prevention services in the Northwest of Greece. Eur J Gynaecol Oncol. 2011; 32(2): 178-181.
27. **Lamadrid-Alvárez S.** Knowledge and fears among Chilean women with regards to the Papanicolaou test. Bulletin of PAHO 1996; 30: 354-361.
28. **Kietpeerakool C, Phianmongkhol Y, Jitvatcharanun K, Siriratwatakul U, Srisomboon J.** Knowledge, awareness, and attitudes of female sex workers toward HPV infection, cervical cancer, and cervical smears in Thailand. Int J Gynecol Obstet 2009; 107:216-219.