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#### Letter from the Editor-in-Chief

Myanmar and Korea have many similarities and are complementary relationship. Therefore, we believe that research exchange will expand mutual understanding between Myanmar and Korea, and will be the cornerstone for mutual development.

KOMYRA and YUE have co-published The Myanmar Journal since August 2014. So far, many scholars have published numerous papers through the journal, and We are sure that this journal has helped many people understand Myanmar and Korea more clearly and closely.

The Myanmar Journal covers various issues in Myanmar and Korea. It covers various topics that can promote bilateral development and mutual understanding, not limited to specific topics such as economy, industry, society, education, welfare, culture, energy, engineering, healthcare, and agriculture.

We hope that this journal will continue to promote understanding of the current status and potential capabilities of Myanmar and South Korea and promote in-depth international exchange and cooperation.

We would like to express our deepest gratitude to the editorial board and YUE and KOMYRA for their valuable support in The Myanmar Journal publication.

August 30, 2021

Youngjun Choi **IJj Choi** 

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This journal aims to promote the mutual cooperation and development of Myanmar and Korea through intensive researches in the entire filed of society, economy, culture, and industry.

It will cover all general academic and industrial issues, and share ideas, problems and solution for development of Myanmar.

Articles for publication will be on-line released twice a year at the end of February and August every year on the Myanmar Journal webpage (http://www.komyra.com/bbs/board.php?bo\_table=articles).

# FACTORS AFFECTING CERVICAL CANCER SCREENING AMONG WOMEN LIVING IN THE URBAN AREA OF TAUNGOO

# Yin Yin Wint\* · Phyu Phyu Khaing\*\*

Meiktila University of Economics

ABSTRACT : Cervical cancer is one of the priority health issues in the world. It is preventable if it is detected and treated at an early stage. But the burden is still huge and remains a major cause of morbidity and mortality among women in the world. In Myanmar, Cervical cancer is the first common cancer among 15-44 years women. The easiest way for prevention is screening. Improving uptake of screening may reduce the burden of the disease. This study aims to investigate the rate of screening practice and explore the influential factors of screening practice. Two stage sampling technique was used to select the eligible sample women. Chi-square and Binary Logistic Regression analysis were applied for analysis. The total of 645 women who aged 18 years and above was interviewed. Among them, 6.49% of the sample women took screening at least one time with VIA or Pap-smear method of screening. Most of the screened women took screening in private hospital. Only women's education level and cervical cancer history in her surroundings are statistically associated with screening practice. Educational attainment and experience of the disease lead to increase health knowledge and to seek more healthy behaviors and better decision making for healthy life.

*Key words* : Cervical Cancer Screening, Chi-square Analysis, binary Logistic Regression, Odd Ratio, Marginal Effect

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#### I. Introduction

Today, the world is developing through rapid societal, economic changes, the shifts toward lifestyles of industrialized countries and it lead to a rising burden of cancers. Cancer is a group of diseases involving abnormal cell growth with the potential to invade to other parts of the body. Over 100 types of cancers affect humans It is also a leading cause of disease worldwide. In 2018, International Agency for Research on Cancer (IARC) estimated that there are 18.1 million new cancer cases and 9.6 million deaths in global. About 1 in 6 deaths is due to cancer. By the projections based on the GLOBOCAN (2012) there will be a substantive increase of 19.3 million new cancer cases per year by 2025 due to growth and aging of the global population (WHO, 2012). There are five main types of cancer that affect women's reproductive system, namely cervix, ovary, uterus, vagina and vulva. Of these, the most common one is cervical cancer. The burden of cervical cancer is distributed unequally between developed and developing countries. The mortality rates in developing countries are about four times than those in industrialized countries (Family Health Division, 2015). Myanmar is one of the developing countries and has a population of 20.19 million women aged 15 years and older who are at risk of developing cervical cancer. Current estimates indicate that every year 5286 women are diagnosed with cervical cancer and 2998 die from the disease (ICO/IARC, 2017).

If it can be found in the early stages, it is easier to have medical treatment. It is a serious burden on the reproductive health of women, despite the fact that it is preventable. Several studies have been done to explore the key factors for prevention of cervical cancer. In 2015, the cross sectional study was done among rural to urban migrant women in Myanmar which revealed the prevalence of cervical cancer screening in the previous three years was 19.1%. Marital status, family history of cervical cancer, knowledge, affordability for extra pay to get screening, providers' rapid response, waiting time, sources of information and encouraging support, perception regarding perceived threats, benefits, barriers and cues to actions are influencing factor of screening practice of migrant women (Nandar et. al, 2015). The previous study found that only 9.33% of women had previous cervical cytology test. It is suggested that giving correct information and health education are important. Especially, cost-effective way of cervical cancer screening program is necessary for cervical cancer prevention in Myanmar (Win et. al, 2014).

The easiest method for prevention of cervical cancer is screening. Screening and treatment tools that can significantly reduce premature illness and death from cervical cancer are currently available. However they do not reach most of the women living

in the developing world. The most common screening methods are Papanicolaou Smear test (PAP) and Visual Inspection of the Cervix with Acetic Acid (VIA) test. For the prevention methods to be fully utilized, women need to be aware of the availability of the methods and to have knowledge of the disease and prevention methods. They will enhance the uptake of the screening and reduction of morbidities and mortalities resulting from cervical cancer (Tapera et. al, 2017). In Myanmar, ad-hoc cervical cancer screening (CCS) has been available using conventional PAP tests. The coverage of cervical cancer screening among women aged 18-69 years was approximately 0.9% only, 1.9% in urban and 0.4% in rural areas The coverage was very limited amount according to World Health Organization recommendation (Thida et. al, 2015). Therefore, this study conducted to find out the screening practice for cervical cancer and the key factors for the prevention of cervical cancer. This information is important if cervical cancer control programs are to be successful.

#### II. Objectives of the Study

The objectives of the study are:

(1) to assess the condition of cervical cancer screening practice among women and

(2) to analyze the factors affecting on screening practice of cervical cancer among women.

#### **III. Materials and Methods**

The cross sectional study was performed on women aged 15 years and above. To select the participants, two-stage random sampling method was applied. In the first stage, only 7 (30 %) wards were randomly selected from 23 wards. In the second stage, the households included in the sample wards were proportionately selected and then a sample woman of age 18 years and above was interviewed from each sample household. In determining the require sample size, Cochran's formula for qualitative variables was used (Cochran, 1977).

The required sample size was

 $n_{o} = \frac{z^{2} p (1-p)}{E^{2}} = \frac{(1.96)^{2} 0.09 (1-0.09)}{0.03^{2}} = 34 \approx 93.55 \text{ housholds}$ 

#### Where

n0 = Sample size

- z = Reliability coefficient of 1.96 (95% confidence level) E = Margin of error = 0.03 (3%)
- p = 9%, estimated proportion of cervical cancer screening practice from previous study (Thida et.al, 2015)

The adjusted minimum sample size with population (N=17,107)

$$n \ge \frac{n_o}{1 + \frac{n_o - 1}{N}} \times deff = \frac{350}{1 + \frac{350 - 1}{17107}} \times 1.7$$

 $n \ge 5.8 \approx 0.8$  housholds,

Where, deff = design effect.

It is assumed that 10% of the non-response effect will be used to estimate the required minimum sample size.

$$n \ge 584 + (584 \times \frac{10}{100}) = 642.4 \approx 643$$
 household

Data were collected by using interviewer administered questionnaire in Myanmar language visited house-to-house and conducted face-to-face interview with the help of four assistant interviewers. Data ware checked for completeness, coded, cleaned and analysis using Statistical Package for Social Science (SPSS) version 23.0 and STATA version 15.0.

Descriptive and summary statistics were done. Chi-square analysis was used to determine the association between the practice on screening of cervical cancer and each predictor variables. For the determination of influencing factors on the screening practice, Binary Logistic Regression analysis was used.

#### **IV. Results**

#### 1. The Socio-economic Characteristics of the Respondents

Table (1) shows the socio-economic characteristics of the total 645 women who are 18 years old and above participated in this study. It is found that the mean age of respondents is 44.75 years with a standard deviation of 13.23 years. Among them, majority of the sample respondents 456 (70.7%) are married, 98 (15.19%) are single,

14 (2.17%) are divorces and 77 (11.94%) are widows. The age of the women who got first marriage ranges from 13 to 41 years. In this study, 121 married women (22.12% have more than 3 children while 40 married women (7.31%) have no children. Regarding education, only 16 (2.48%) of sample women are illiterate and 136 women (21.09%) completed high school education.

The study of occupation shows that 245 (37.98%) are dependents and 237 (36.74%) have their own business. But, only 11 women (1.71%) are civil servants of health sector and 4 women (0.62%) are private health personnel.

Characteristics	Classification	Number of	Percentage
		women	
A ~ 2	18–under 30	93	14.42
Age	30 - 65	507	78.60
(year)	Above 65	45	6.98
	Single	98	15.19
Marital Statuc	Married	456	70.70
Marilar Status	Divorced	14	2.17
	Widowed	77	11.94
Age at first	13 –17	73	13.35
marriage	18 – 30	410	74.95
(year)	31- 41	64	11.70
	None	40	7.31
Number of	1–3	386	70.57
children alive	4 and above	121	22.12
	Illiterate	16	2.48
	Read and Write	16	2.48
E du se tie e	Primary	128	19.84
Education	Middle	171	26.51
Level	High	178	27.60
	University/Graduate/Post	136	21.09
	graduate		
	Dependent	245	37.98
	Government employee (non-	57	8.84
	health sector)		
	Private employee (non-health	10	1.55
	sector)		
Occupation	Government Health personnel	11	1.71
	Private Health personnel	4	0.62
	Own business	237	36.74
	Casual workers	59	9.15

Table 1. Socio-economic Characteristics of the Respondents

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	Retired	22	3.41
Monthly family	Less than300,000	467	72.40
income	300,000-600,000	139	21.55
(Kyats)	Above 600,000	39	6.05
Having health	Yes	52	8.06
personnel within family members	No	593	91.94
History of	Yes	252	39.07
cancer	No	393	60.93
т	Cervical	36	5.58
history	Others	216	33.49
TIISTOLA	None	393	60.93

Source: Survey data (2018)

Family income of each respondent ranges from 45,000 kyats to 10,000,000 kyats per month and the median income is 250,000 kyats per month. Only 52 (8.06%) of sample women have health personnel within family members. There are 252 women (39.07%) who have a history of cancer themselves or in their surroundings, but only 36 (5.58%) of them have a history of cervical cancer.

#### 2. Screening Practice of Cervical Cancer

Some women who did not know about cervical cancer were excluded from the analysis because they could not contribute any information on cervical cancer and it is impossible to measure their screening practice. So, only 585 women among 645 respondents were included in the sample for analysis.

Descriptions	Number of	Percentage
	women	
Ever screen for cervical cancer	38	6.49
Frequency of screening		
1 time	22	57.89
2 times	6	15.79
3 times	7	18.42
Not remember	3	7.90
Age at first screening		
18-under 30	4	10.53
30-63	8	21.05
Not remember	1	2.63
Place of first screening		

Table 2. Practice on Screening of Cervical Cancer

Government hospital	4	10.53
Private hospital	8	21.05
Health care center	1	2.63
Method for first screening		
VIA test	1	2.63
Pap smear test	9	23.68
Don't know	3	7.90
Age at last screening		
18 – 29	4	10.53
30 - 63	31	81.58
Place of last screening		
Government hospital	10	26.32
Private hospital	22	57.89
Health care center	3	7.90
Method for last screening		
VIA test	2	5.26
Pap smear test	27	71.05
Don't know	6	15.79

Source: Survey data (2018)

According to the results of Table (2), 6.49% of the analytical sample women screened at least one time of screening with VIA or Pap smear method of screening. They took screening at the age between 18 and 63 years. Most of the screened women took screening of cervical cancer in private hospital and the second choice of screening place is government hospital. Majority of the women were screened for cervical cancer by using Pap smear test.

Descriptions (multiple response)	Number of women	Percentage
Little understanding of cervical cancer	32	5.47
It may be painful	6	1.03
Fear of a vaginal exam	14	2.39
Not knowing where to go for screening	28	4.79
Not suggested by anyone	18	3.08
Lack of convenient clinic time	28	4.49
I feel shy	2	0.34
I am healthy	160	27.35
It is expensive	12	2.05
I haven't just decided	6	1.03
Other (over age, no need after vaccination)	3	0.51
Don't know screening	299	51.11

Table 3. Reasons for Not Screening of Cervical Cancer

Note: Some respondents answered more than one reason. Source: Survey data (2018)

Table (3) shows that most of the sample women have not taken screening for

various reasons. 27.35% of analytical sample women gave reason about their health as being good and 5.47% answered they have little understanding of cervical cancer. Fourteen of them (2.39%) said that they are afraid the virginal exam and 4.79% answered they don't know where to go for screening of cervical cancer. Twel (2.05%) respondents did not take screening because the cost of screening is too expensive and 4.49% of respondents did not take screening due to the lack of clinic time and being busy with their daily activities. Another reason that was evident from 3.08% of the respondents is that they do not have anyone to suggest for screening of cervical cancer and 51.11% have never heard of cervical cancer screening. Particularly, the three reasons are no response from women because they perceived these items such as long distances to a health facility, afraid the screening test of cervical cancer, no informed or knowledge cervical cancer are not important reasons for not screening practice.

#### 3. Association between Practice on Screening of Cervical Cancer and Socioeconomic Characteristics

In Table (4), Chi-square test results for each socio-economic characteristic of respondents and screening practice are shown. Although 36 (6.15%) of 585 sample women have a cervical cancer history themselves or in their surroundings, 6 (16.67%) of them have taken practice on screening of cervical cancer in their life time. According to the Chi-square test results, it has been found that only one factor is significantly associated with cervical cancer screening. The significant associated factor is type of cancer history (Chi-square=8.905, df =2, p = 0.012 < 0.05). The other socioeconomic factors are not associated with cervical cancer screening.

		Screen	ing	value
Variables	Classification	No	Yes	(P value)
Age (years)	18 – under 30	83	2	2.810
	30 – 65	425	33	(0.245)
	Above 65	39	3	
Marital status	Married	386	31	2.105
	Single/widowed/ divorced	161	7	(0.147)
Number of	None	121	6	1.043
children	1– 3	332	26	(0.594)
	4 and above	94	6	
Education	Illiterate/Read and write/Primary/	276	14	2.635
	Middle	271	24	(0.105)
	High/University/ Graduate/ Post			

Table 4.	Association	between	Practice	on	Screening	of	Cervical	Cancer	and
		Socio-e	economic	Ch	aracteristic	s			

	graduate			
Occupation	Dependent/Retire	226	15	0.629
	Own business/ Casual workers	78	4	(0.730)
	Government/ private personnel	243	19	
	from public health and other			
	organizations			
Monthly	Less than 300000	392	26	0.250
family	300000 - 600000	121	9	(0.883)
Income	Above 600000	34	3	
(kyats)				
Having	No	501	36	0.467
health				
personnel	Yes	46	2	(0.494)
within family				
member				
Type of	None	332	16	8.905**
cancer	Cervical	30	6	(0.012)
history	Others	185	16	

\*\*\* ,\*\*, \* Statistically significant at 1% , 5% and 10% level. Source: Survey Data (2018)

# 4. Binary Logistic Regression Analysis for Practice on Screening of Cervical Cancer

The overall model evaluation criteria of logistic regression model are presented in Table (5).

Model fitting criteria	value	df	, P value
Hosmer and Lemeshow Test	12.176	8 λ	0.144
Omnibus Test Model coefficients	18.94	13	0.125
Cox and Snell R2	0.032	•	
Nagelkerke R2	0.083		
Overall correct percentage	93.5%		

Table 5. Model Fitting Information for Practice on Screening of Cervical Cancer

Source: Survey Data (2018)

The Hosmer-Lemeshow test explores whether the predicted probabilities are the same as the observed probabilities. An overall goodness of fit of the model is indicated by the p value >  $\alpha$  (Hosmer and Lemeshow, 2000). According to the overall model evaluation criteria of logistic regression model re sults presented in Table (5), Hosmer Lemeshow test indicated that there is no evidence of lack of fit based on Hosmer and Lemeshow statistics (Chi-square =12.176, df = 8, P value= 0.144 >  $\alpha$  = 0.01). Overall percentage classification shows 93.5% of the women are

predicted correctly. The value of Pseudo R2 indicates that 8.3% of the variance in screening.

The parameter estimates for socioeconomic factors of respondents in Binary Logistic Regression analysis are presented in Table (6). The results in the table show that only two predictor variables: women's education and the type of cancer history are significant. The woman's education level (high school and above high school) is statistically significant at 10% level and it has a positive relationship with the screening practice. The odds ratio (OR= 1.968) indicates that the screening practice of cervical cancer is approximately twice as likely to screen among women with high school and above high school education level than women with under high school education level when the influences of other variables are held constant. The marginal effect for practice on screening of cervical cancer shows that the percentage of practice on screening is 3.9% higher for women with high school or above high school education than women with under high school education, holding other independent variables are constant at the reference point.

In the analysis of cancer history, having cervical cancer history is significant at 1% level. The adjusted odds ratio (OR=4.192) shows that the women who have cervical cancer history themselves or in their surroundings are 4 times more likely to take practice on screening than women who do not have any cancer history when the influences of other variables are held constant. The marginal effect for practice on screening is 11.8% higher for women who have cervical cancer history than the women who did not have any cancer history, holding other independent variables are constant at the reference point. The remaining factors are insignificant for practice on screening of cervical cancer.

Variables	Classification	Adj OR	P value	Marginal
	Classification			Effect
	Constant	0.006	0.000	
Age (years)	18 –under 30(Ref)			
	30 – 65	3.436	0.104	0.049
	Above 65	4.761	0.113	0.072
Marital	Single/widowed/ divorced			
Status	(Ref)	1.977	.187	0.035
	Married			
Number of	None (Ref)			
Children	1– 3	1.017	0.976	0.001
	4 and above	0.789	0.730	-0 .013
Education	Illiterate/Read and			
	write/Primary/ Middle			

Table	6.	Parameter	Estimates	of	Binary	Logistic	Regression	Model	for	Practice	on
			Scr	eer	ning of	Cervical	Cancer				

	(Ref)	1.968	0.073	0.039
	High/University/			
	Graduate/ Post			
	graduate			
Occupation	Dependent/ Retired (Ref)			
	Own business /Casual	1.202	0.628	
	workers	0.620	0.439	0.011
	Government /private			-0 .023
	personnel from public			
	health and other			
	organizations			
Monthly	Less than 300000(Ref)			
family	300000 - 600000	0.999	0.998	-0.00006
Income	Above 600000	1.448	0.582	0.025
(kyats)				
Having	No (Ref)			
health				
personnelin				
family	Yes	0.548	0.433	-0.029
members				
Type of	None (Ret)			
cancer	Cervical	4.192	0.007	0.118
history	Others	1.732	0.143	0.031

Reference category is woman who did not take cervical cancer screening. ource: Survey Data (2018)

#### V. Conclusion and Recommendations

The women who aged between 30 and 65 years are eligible age group for screening practice. In this study, the age of women is not a significant factor of cervical cancer screening practice. The remaining factors marital status, number of children, occupation, family income and having health personnel in family members are also insignificant. This might be due to lack of knowledge on the standard criteria for having cervical cancer screening so awareness rising should implement for women to get cervical cancer screening. Women require knowledge on the significance of regular screening.

Concerning the aspect of education, women with high school or above high school education are more likely to take cervical cancer screening. It indicates that educational attainment is linked with health practice as it can lead to increase health knowledge, healthy promoting behaviors and better decision making in health-related options for healthy life.

Moreover, the likelihood of screening is 4 times higher among women with cervical

cancer family history compared to women who did not have any cancer history. These finding indicated that experience of cervical cancer can motivate the women to seek more healthy behaviors and practices on screening of cervical cancer.

Based on the findings, some recommendations can be made to promote the practice on screening of cervical cancer among women. This study proved that the sample women very low practice of cervical cancer screening among women. In addition, they had some barriers to practice on screening of cervical cancer. Subjective barriers based on personal feeling while objective barriers are influenced by environmental factors. Subjective factors include fear of diagnosis and result, less knowledge about cervical cancer, healthy self-esteem, ignorance of symptoms and socio-economic problems. Objective barriers include distance from local health facility, cost for practices, limited availability of services and other logistics problems. Therefore, health educational programs should be extended to eliminate the barriers. Increasing information dissemination and counseling will help to protect the barriers of the women's practice on screening of cervical cancer. There is need for the service factors such as Ministry of Health and Sports, NGOs and INGOs to enhance education sessions on cancer of cervix at the health facilities according to the socio-economic status such as age, marital status educational status, occupation and income to promote knowledge about cervical cancer and cervical cancer examination. This is because, some women believed their information obtained from the health personnel and followed their suggestions from health personnel rather than information from others. There is required to explore new avenues of disseminating information like health talks to women in the places where most of the women populated. Media such as televisions and radio stations that most of the people listen to would facilitate creation of awareness and encourage more women to seek for the screening services regardless of their health status.

The study had some limitations. As a cross-sectional study requires respondents to remember information retrospectively, recall and social desirability bias are the potential limitations of this study. This study relied on self-reported practice of screening, and unable to check or link medical records, therefore, the rates of practice might be different from actual rates. Further studies should be performed to address other barriers and motivators of health knowledge and preventive practice and need to look at the socio-cultural factors and service-related factors affecting uptake of screening. Moreover, this study was conducted among only women in urban area hence it could not generalize for all Myanmar women. So, future studies are necessary to look both rural and urban areas. This study did among community side, so that researches on provider's side are expected in the future studies.

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