

**THE RELATIONSHIP BETWEEN THE LEVEL OF KNOWLEDGE AND
ATTITUDES TOWARDS EARLY DETECTION OF CERVICAL CANCER WITH
THE LEVEL OF PARTICIPATION IN PAP SMEAR TEST ON FEMALE
EMPLOYEES IN MEDICAL FACULTY OF UNIVERSITAS BRAWIJAYA**

FINAL ASSIGMENT

To complete requirements for medical degree



BY:

Gajendren A/L Mohan

NIM: 155070108121019

MEDICAL EDUCATION STUDY PROGRAM

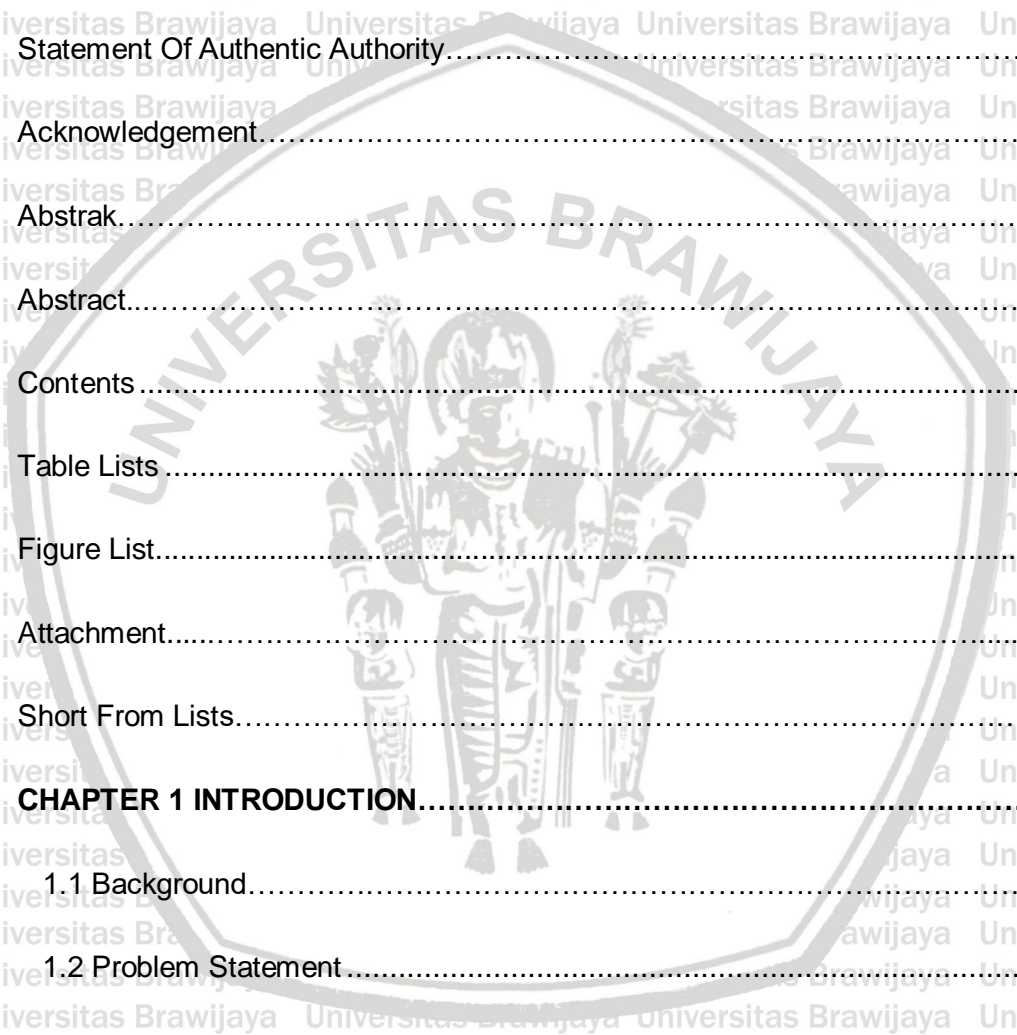
MEDICAL FACULTY

UNIVERSITAS BRAWIJAYA

MALANG 2019

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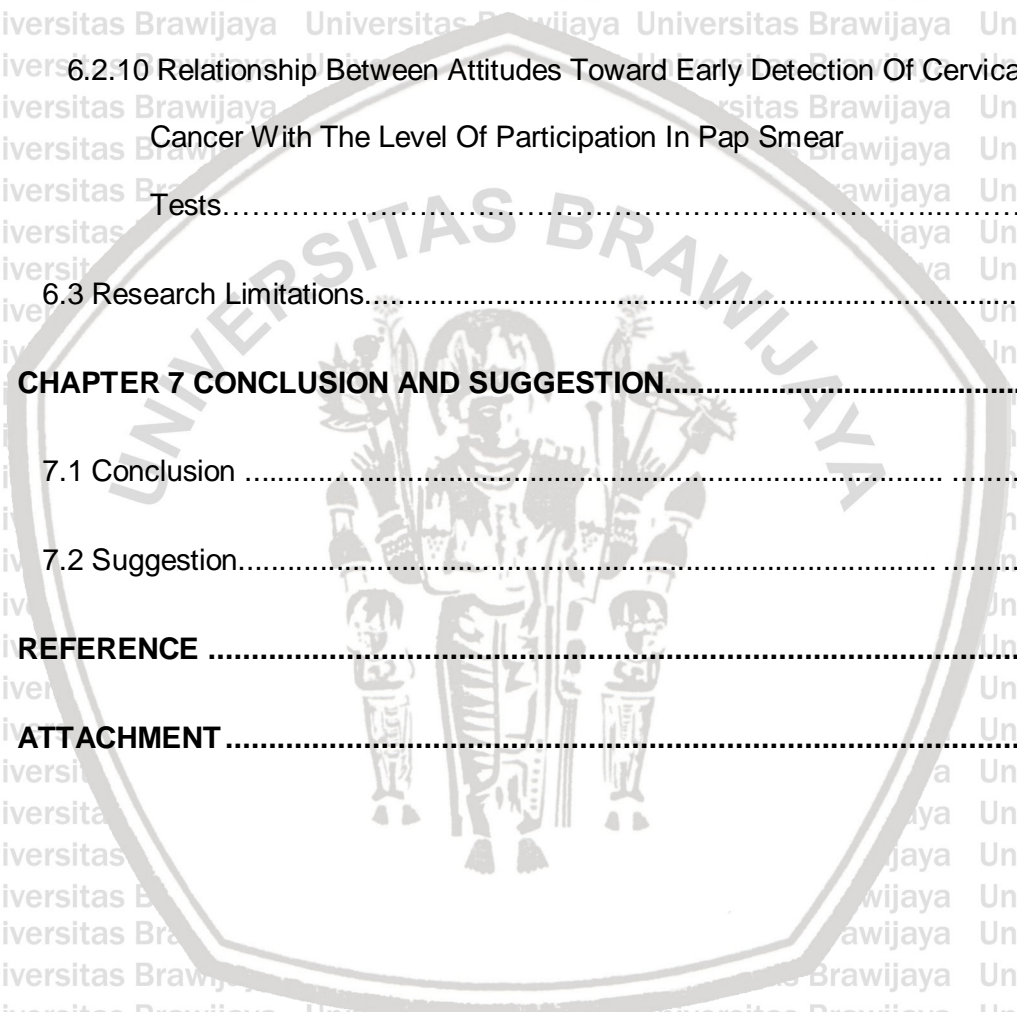


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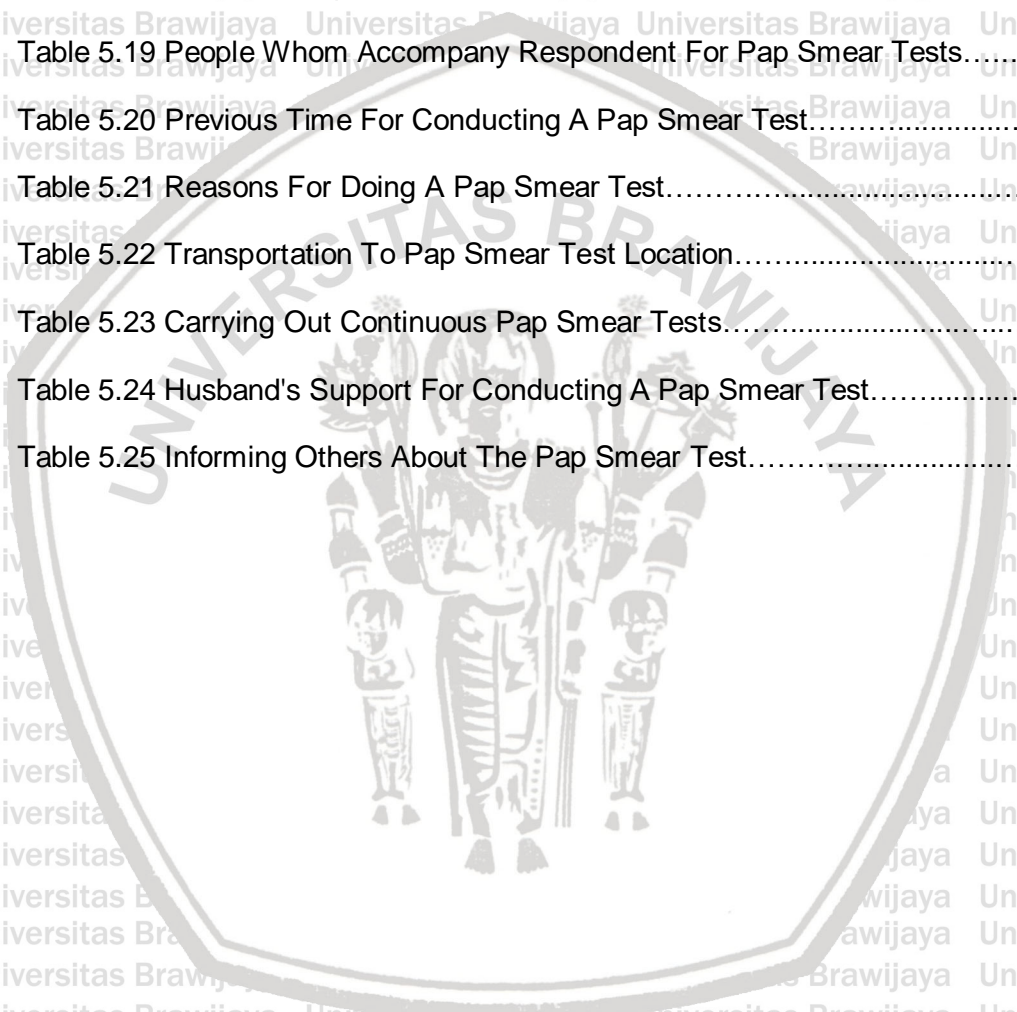


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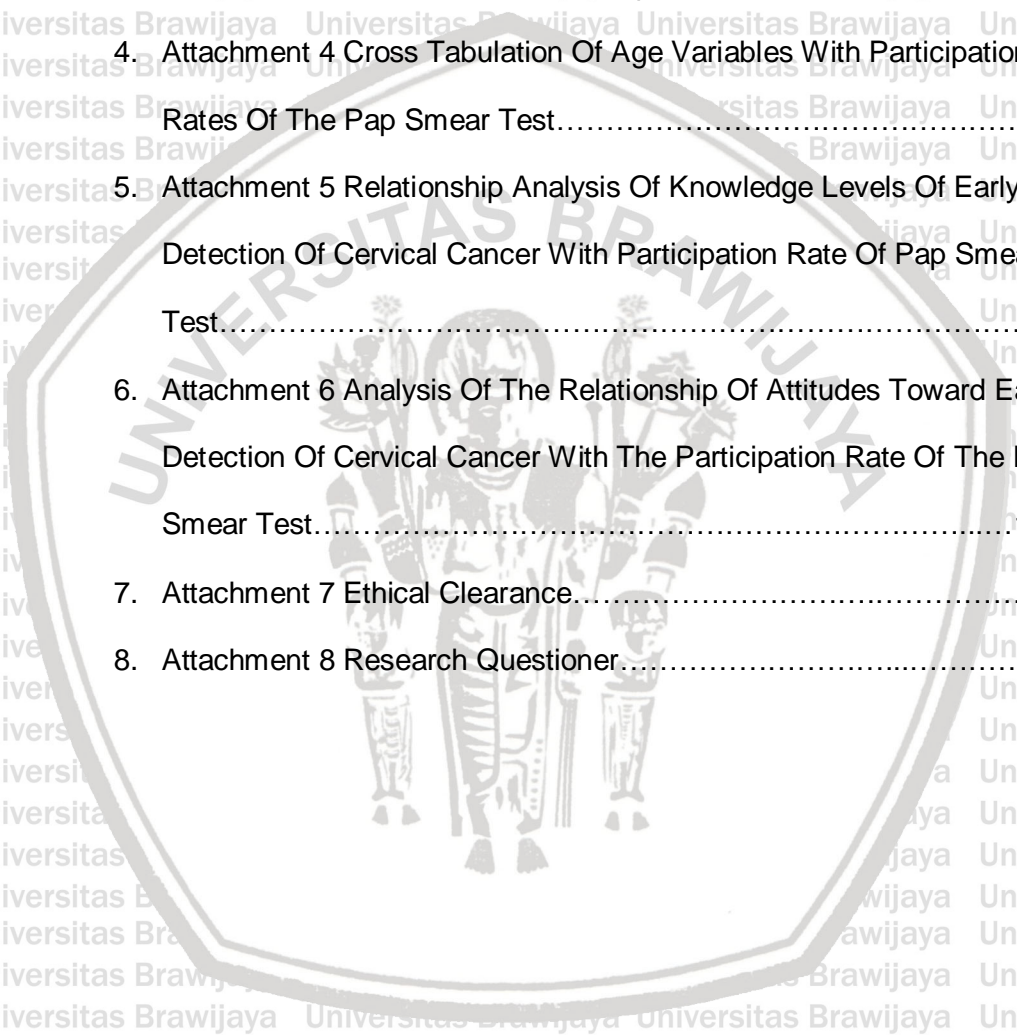
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SHORT FORM LISTS

HPV : Human papillomavirus

HIV : Human immunodeficiency virus

DNA : Deoxyribonucleic acid

T-Zone: Transformation zone

CT : Computed tomography

MRI : Magnetic resonance imaging

US : United States

FIGO : International Federation of Gynecology and Obstetrics

AJCC : American Joint Committee on Cancer

Mm : Millimeter

ASCUS: Atypical squamous cells of undetermined significance

ASC : Atypical squamous cells

VIA : Visual inspection after application of acetic acid

VIAM : Visual inspection after application of acetic acid with magnification

VILI : Visual inspection after application of Lugol's iodine

USPSTF: United States preventive services task force

HC2 : Hybrid capture 2

IgA : Immunoglobulin A

IgG : Immunoglobulin G

ECC : Endocervical curettage



**CERTIFICATION PAGE
FINAL ASSIGNMENT**

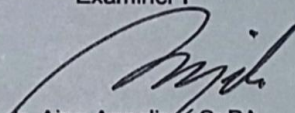
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To fulfill the Requirement for Degree of Bachelor of Medicine

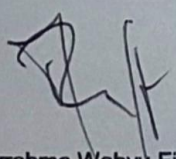
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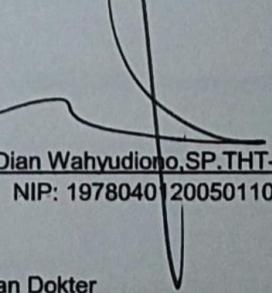
Examiner I


dr. Aina Angelina, SpPA
NIP. 198509032019032007

Advisor I/Examiner II


dr. Nurrahma Wahyu Fitriyani, MMedEd
NIP: 198503042009122003

Advisor II/ Examiner III


dr. Ahmad Dian Wahyudiono, SP.THT-KL
NIP: 197804012005011001


Acknowledge,
Ketua Program Studi Pendidikan Dokter

dr. Triwahju Astuti, M.Kes., Sp.P(K)
NIP. 196310221996012001

ABSTRAK

Mohan, Gajendren. 2019. **Hubungan Tingkat Pengetahuan Dan Sikap Terhadap Deteksi Dini Kanker Serviks Dengan Tingkat Partisipasi Tes Pap smear Pada Karyawan Wanita Fakultas Kedokteran Universitas Brawijaya.** Tugas Akhir, Program Studi Kedokteran, Fakultas Kedokteran Universitas Brawijaya. Pembimbing: (1) *dr. Nurrahma Wahyu Fitriyani, MMedEd.* (2) *dr. Ahmad Dian Wahyudiono, Sp.T.H.T.K.L.(K).*

Kanker serviks terjadi di sel serviks yang berada di bagian bawah rahim yang menghubungkan vagina. Human Papillomavirus (HPV) Infeksi adalah penyebab utama 90% dari kasus kanker serviks invasif di seluruh dunia. Banyak orang yang menderita kanker di Indonesia untuk segala usia di tahun 2013 memiliki persentase 1,4% atau 347.792 orang. Di Yogyakarta prevalensinya memiliki penyakit kanker tertinggi dengan jumlah 4,1%, sedangkan untuk Jawa Tengah adalah 68.638 orang dan Jawa Timur 61.230 orang. Kanker serviks memiliki salah satu prevalensi tertinggi di Indonesia pada tahun 2013. Untuk mengetahui hubungan antara tingkat pengetahuan dan sikap tentang deteksi dini kanker serviks dengan partisipasi tes Pap smear pada wanita yang bekerja di fakultas kedokteran Universitas Brawijaya menggunakan lembar kuesioner dengan populasi 129 karyawan wanita di fakultas kedokteran Universitas Brawijaya. Data diambil 100 karyawan wanita di fakultas kedokteran Universitas Brawijaya. Hasil penelitian menunjukkan tidak ada hubungan yang signifikan. Berdasarkan Uji Chi-Square menunjukkan tingkat pengetahuan dan sikap terhadap deteksi dini pap smear ($p = 0,131$). Di antara alasan lain untuk partisipasi rendah dalam tes Pap smear termasuk wanita tidak menganggap diri mereka rentan terhadap kanker serviks karena mereka tidak memiliki gejala penyakit dan ini semakin diperkuat karena informasi yang tidak memadai dan pengetahuan tentang pentingnya skrining Pap smear. Kesimpulannya hasil ini menunjukkan bahwa tidak ada hubungan yang signifikan antara sikap terhadap deteksi dini kanker serviks dan tingkat partisipasi dalam tes Pap smear.

Kata kunci : *Human papillomavirus, kanker serviks, Pap smear, Pengetahuan, Attendude, Partisipasi.*

ABSTRACT

Mohan, Gajendren. 2019. **The Relationship Between The Level Of Knowledge And Attitudes Towards Early Detection Of Cervical Cancer With The Level Of Participation In Pap Smear Test On Female Employees In Medical Faculty Of Universitas Brawijaya.** Final Assigment, Medical Program, Faculty of Medicine, Brawijaya University. Supervisors: (1) *dr. Nurrahma Wahyu Fitriyani, MMedEd.* (2) *dr.Ahmad Dian Wahyudiono, Sp.T.H.T.K.L.(K).*

Cervical cancer occurs at the cervix cell which is at the lower part of the uterus which connects the vagina. Human papillomavirus (HPV) Infection is the main cause for 90% of invases cervical cancer cases worldwide. The people that have cancer in Indonesia for all ages in the year of 2013 have the percentage of 1.4% or 347 792 people. In Yogyakarta the prevalence has the highest cancer disease with the number of 4.1 %, meanwhile for Jawa Tengah is 68 638 people and Jawa Timur 61 230 people. Cervix cancer have one of the highest prevalence in Indonesia in 2013. To find out the relationship between the level of knowledge and attitudes about early detection of cervical cancer with the participation of Pap smear tests on women who work in Universitas Brawijaya's medical faculties using questionnaire sheets with a population of 129 female employees in the medical faculty of Universitas Brawijaya. Data taken 100 female employees in the faculty of medicine Universitas Brawijaya. The results showed no significant relationship. Based on Chi-Square Test shows the level of knowledge and attitudes towards early detection of pap smears ($p = 0.131$). Among other reasons for low participation in Pap smear test included women not perceiving themselves as being susceptible to cervical cancer because they had no symptoms of illness and this is further strengthened because of inadequate information and knowledge about the importance of Pap smear screening. In conclusions these results indicate that there is no significant relationship between attitudes toward early detection of cervical cancer and the level of participation in Pap smear tests.

Keyword: *Human papillomavirus, Cervical cancer, Pap smear, Knowledge, Attitude, Participant.*



CHAPTER 1

INTRODUCTION

1.1 Background

Cervical cancer occurs at the cervix cell which is at the lower part of the uterus that which connects the vagina. Human papillomavirus (HPV) and cervical cancer link was first demonstrated at the beginning of 1980 by German virologist named Harold zur hausen. With the association between smoking and lung cancer, HPV and cervical squamous cell carcinoma is higher. HPV has been implicated for 99.7% of cervical squamous cell cancer cases worldwide (Burd, 2003).

The most common cancers in women is cervical cancer with the number of 440 000 new cases annually and 80% these happen in developing and underdeveloped countries. Human papillomavirus (HPV) Infection is the main cause for 90% of invases cervical cancer cases worldwide (Wong, 2009). It's the 3rd most common malignancy in women worldwide, and still stands as a leading cause of cancer-related death in women in developing countries. Cervical cancer is the 2nd most common cancer in developing countries, it's the 10th most common in developed countries. In United States, cervical cancer is common, since 2004 the rates have decreased by 2.1% per year in women younger than 50 years age and above. This trend has been attributed to mass screening with Pap smear test, cervical cancer is continuously increase in developing countries. (Boardman, 2018). The people that have cancer in Indonesia for all ages in the year of 2013 have the percentage of 1.4% or 347 792 people. In Yogyakarta the prevalence has the highest cancer disease with the number of 4.1 %, meanwhile for Jawa Tengah is 68 638 people and Jawa Timur 61 230 people. Cervical cancer have one of the

highest prevalence in Indonesia in 2013. Yogyakarta has high cervical cancer which is 1.5%. Based on the estimation Jawa Timur and Jawa Tengah has cervical cancer and breast cancer the most number (Kemenkes, 2015).

The age-adjusted yearly cases of cervical cancer to occur is 6.6 cases per 10 000 women, based on the data from 2008. It is predicted that 12 200 new cases of cervical cancer and 4210 death in the United States in the year of 2010. Death due to cervical cancer in the United States have reduced a lot since the implementation of cervical cancer screening is spread. In most cases women who has cervical cancer has not been properly screened. Women who follow up their screening results in reducing cervical cancer incidence and mortality is better in the United States (Moyer, 2012).

In general, 5-year survival rate: Stage 1 – >90%, Stage 2 – 60%-80%, Stage 3 – approximately 50%, Stage 4 - <30%. American Cancer society predicted 4220 women die due to cervical cancer in United States in 2012 (Boardman, 2018).

The risk factors for cervical cancer include smoking, infection with HIV, lack of previous screening and multiple sexual partners (Obalase *et al*, 2017).

There are a few myths that the society still believe until today. One of them are cervical cancer can't be cured. Next, some people think they are too young to get cervical cancer and old people are only can get it. Furthermore, some people believe that if they do not have intercourse with their partner then there no need for HPV vaccines and they also believe after taking HPV vaccine they do not need Pap smear test. Finally, some of the society thinks that they are too old to take Pap smear test. These are one of the reasons why pap smear test are not properly taken at appropriate time and delayed of the test may result in late diagnose of the cancer which leads to more health complications (Destriyana, 2015).

Many patient are diagnosed with late stage due to high level of illiteracy among women and their problematic health seeking behaviour for gynaecological signs and symptoms are responsible for the late stage of diagnosis of cervical cancer in Nepal. Prevention interventions must be focused on raising awareness of gynaecological symptoms and improving health seeking behaviour in women (Gyenwali, 2013). The problem that rises are late reporting, ignorance and cultural issues relating to cervical cancer screening are main factors influencing the disease control in Nigeria. The prevalent rates are very high in low resources rural places of the country based on the variable statistic in the country (Obalase *et al*, 2017). Some research are been conducted on why women are not getting screen and the results are because of lack access to care, having no usual source of care or having higher urgent demands on their conditions. Educations, poverty, lower socioeconomic status or even cultural issues may contribute why women do not regularly do screening (Bucco, 2017).

As early as 21 years old women can get screened for every 3 years substantially lessen cervical cancer incidence. Women younger than age 21 years, screening women below 21 years old doesn't reduce cervical cancer incidence and mortality compared with beginning screening at age 21 years old (Moyer, 2012).

To screen cervical cancer we can use Pap smear test which is scraping and brushing cells from cervix and is sent to lab to be examine. Next is HPV DNA test which is cells are collected from the cervix for infection with any of the types of HPV that are most likely to lead to cervical cancer which are recommended for women age 30 and older.

The education status has a significant influence on knowledge of cervical cancer screening and control. When there are services for screening available,

many women are not aware of the services due to the location of the services which are mainly available in some secondary and tertiary health facilities and the cost is attached to the services provided, thus they are not accessible and affordable to many women. Cervical cancer is a preventable disease if the precancerous lesions are identified and are treated at an early stage. Screening is the most acknowledged to be the most effective approach to controlling this type of cancer. Cervical cancer can be reduce by changing lifestyle such as reducing the number of partners, avoiding early initiation of sexual intercourse, HPV vaccination and screening for precancerous changes (Obalase *et al* 2017).

Based on a recent study conducted in Nigeria on knowledge and awareness of cervical cancer screening among women of reproductive age, there is no significant difference in the influence of knowledge of cervical cancer screening among the respondents on parity. There is significant difference between the mean score of family type on knowledge of cervical cancer screening, parity, economic status and family type were implicated in the factors responsible for the causes of cervical cancer. Educational status has significant influence on knowledge of cervical cancer screening and control (Obalase *et al*, 2017).

Medical Faculty of Universitas Brawijaya employees are estimated 129 people working which are in reproductive age, respectively. This group are prone to cervical cancer but there is not much information regarding knowledge and awareness of cervical cancer among female employees in Medical Faculty of Universitas Brawijaya. Thus, we would like to conduct this research.

1.2 Problem statement

What is the relationship between knowledge and attitudes towards early detection of cervical cancer with the participation of Pap smear tests on female employees in Universitas Brawijaya's medical faculty?

1.3 Objective of Research

This research has 2 outline purposes, which is a general purpose and a specific purpose.

1.3.1 General Purpose

To find out and analyse the relationship between the level of knowledge and attitudes about early detection of cervical cancer with the participation of Pap smear tests on women who work in the medical faculty of Universitas Brawijaya.

1.3.2 Specific Purpose

- a. Knowing the relationship between the level of knowledge about early detection of cervical cancer with the level of participation in Pap smear tests.
- b. Knowing the relationship between attitudes about early detection of cervical cancer with the level of participation in Pap smear tests.

1.4 Significance of Research

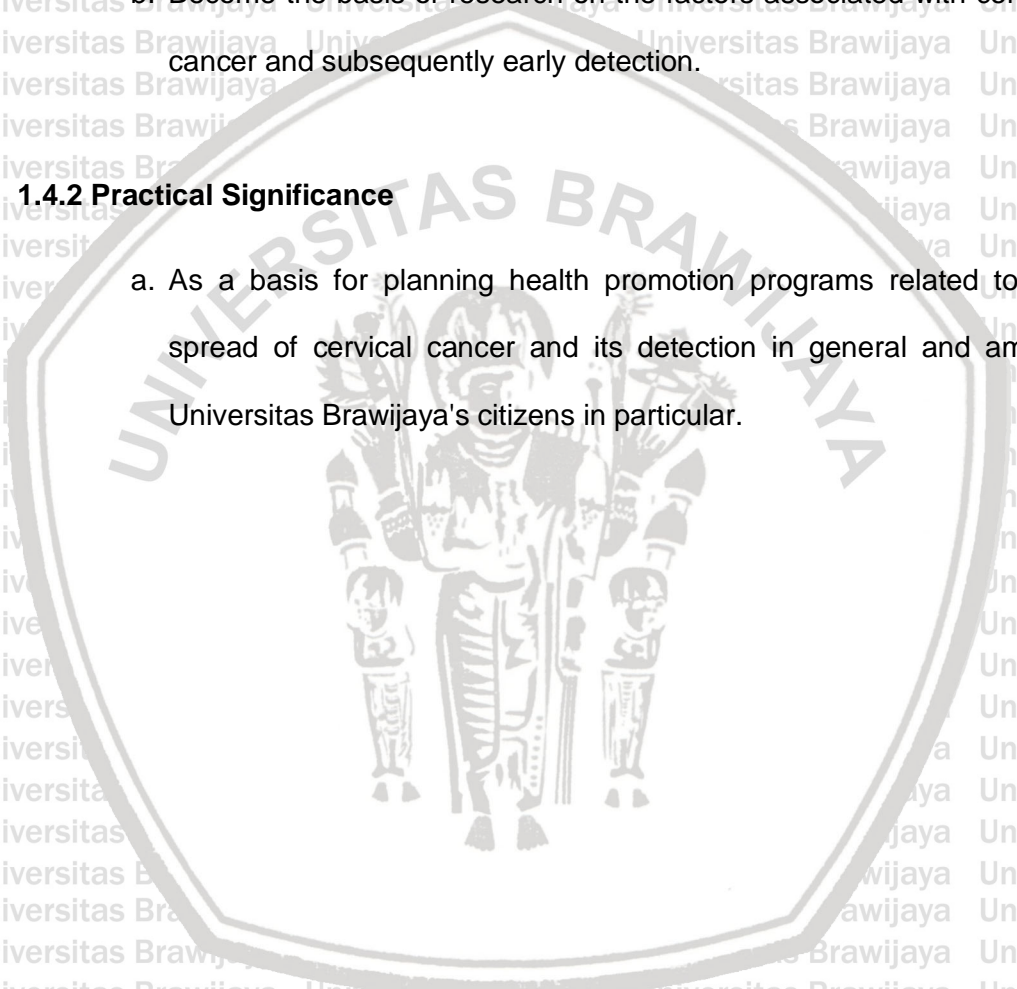
This research has two outline significance.

1.4.1 Scientific Significance

- a. To provide information about the effect of knowledge and attitudes on cervical cancer prevention behaviour with a Pap smear test.
- b. Become the basis of research on the factors associated with cervical cancer and subsequently early detection.

1.4.2 Practical Significance

- a. As a basis for planning health promotion programs related to the spread of cervical cancer and its detection in general and among Universitas Brawijaya's citizens in particular.



CHAPTER 2

LITERATURE REVIEW

2.1 Cervical cancer**2.1.1 Definition of Cervical cancer and Pap smear**

Cervical cancer is a cancer which starts in the cervix, a narrow opening into the uterus from the vagina. The normal ectocervix which is the portion of the uterus extending into vagina, it is a healthy pink colour and is covered with flat, thin cells called squamous cell. The cervical canal is made up from columnar cells. The area which these cells meet are called transformation zone (T-Zone) and is the most likely location for abnormal or precancerous cells to occur. The most cervical cancer that occur which is 80% to 90% are squamous cell cancers.

Adenocarcinoma is the second most common type of cervical cancer, it develops from the glands that produces mucus in the endocervix (Ramondetta, 2013).

Papillomaviruses come from papoviridae family. It is small, non-enveloped virus, it has diameter of 55nm. It also have two capsid proteins which are L1 and L2. In each virion capsid has a few copies (around 12 per virion) of the minor capsid protein, L2. It resembles a golf ball when it is seen under an electron microscope.

The HPV genome has a single molecule of double stranded, circular DNA which has 7900 bp associated with histones (Burd, 2003).

If there is suspected cervical cancer the doctor will use colposcopy to examine abnormal cells, to collect the cell the doctor may use punch biopsy which is by using sharp tool to pinch off small sample of cervical tissue or endocervical curettage which uses a small spoon shaped tool or a thin brush to scrape off some

tissue sample from the cervix. Other technic can be use are electrical wire loop or cone biopsy. To diagnose the staging of the cervical cancer, the doctor may perform imaging test such as x-ray, CT scan or MRI. Visual examination of bladder and rectum also can determine the stage of cervical cancer.

Papanicolaou test is known as Pap smear, developed in 1940 by Georgios

Papanikolau. It includes exfoliating cells at the transformation zone of the cervix to enable examination of these cells microscopic observation. When abnormal cells are formed in the Pap test, diagnostic testing colposcopy is often indicated.

Evidence proves that almost 99%-100% of cervical cancer are related to infection by high-risk types of the human papillomavirus. HPV is double-stranded, circular DNA viruses that can infect skin or mucosal cells, including oral cavity and can be transmitted easily by sexual intercourse or direct contact (Boardman, 2018). The accuracy of Pap test are very accurate and by regular Pap screenings can reduce cervical cancer rates and mortality by 80 percent. It may feel uncomfortable but a brief discomfort can help to ensure a good health in the future (Weber, 2017).

2.1.2 Epidemiology

The most common cancers in women is cervical cancer with the number of 440 000 new cases annually and 80% these happen in developing and underdeveloped countries. Human papillomavirus (HPV) Infection is the main cause for 90% of invases cervical cancer cases worldwide (Wong, 2009). It's the 3rd most common malignancy in women worldwide, and still stands as a leading cause of cancer-related death in women in developing countries. In US is uncommon. Cervical cancer is the 2nd most common cancer in developing

countries, it's the 10th most common in developed countries. In US, cervical cancer is common, since 2004 the rates have decreased by 2.1% per year in women younger than 50 years age and above. This trend has been attributed to mass screening with Pap smear test, cervical cancer is continuously increase in developing countries (Boardman, 2018). The people that have cancer in Indonesia for all ages in the year of 2013 have the percentage of 1.4% or 347 792 people. In Yogyakarta the prevalence has the highest cancer disease with the number of 4.1 %, meanwhile for Jawa Tengah is 68 638 people and Jawa Timur 61 230 people.

Cervix cancer have one of the highest prevalence in Indonesia in 2013. Yogyakarta has high cervix cancer which is 1.5%. Based on the estimation Jawa Timur and Jawa Tengah has cervix cancer and breast cancer the most number (Kemenkes, 2015). HPV transmission happens mainly by skin to skin contact. Sexual activity influences the role of getting genital HPV infection and cervical cancer. HPV is heat resistant and resistant to desiccation and nonsexual transmission by fomites too can by prolonged exposure to share contaminated clothing. Having multiple sexual partners increases the risk sexual activity at early stage places the person at risk too. By using condom may not adequately protect that person from expose to HPV since it can be transmitted by contact with infected labial, scrotal, or anal tissue that are not protected by condom. By using oral contraceptives for a long time has a significant risk factors for high grade cervical disease. Smoking is the most important risk factor independent of HPV infection for greater grade of cervical disease. A crucial factor in development of cervical neoplasia is the role of HPV variants differ in biological and chemical properties and pathogenic (Burd E M, 2003). The incidence of cervical cancer has a link with early onset of sexual activity,

multiple sexual partners, smoking, low socioeconomic status, poor nutrition, oral contraceptive uses, and immunosuppression (Person, 2018).

2.1.3 Risk Factor of Cervical cancer

About 20 to 25 percent of women diagnosed with ovarian cancer have a hereditary tendency to develop the disease. The most significant risk factor for ovarian cancer is an inherited genetic mutation in one of two genes: breast cancer gene 1 (*BRCA1*) or breast cancer gene 2 (*BRCA2*). These genes are responsible for about 10 to 15 percent of all ovarian cancers. Women with a grandmother, mother, daughter or sister with ovarian cancer but no known genetic mutation still have an increased risk of developing ovarian cancer. The lifetime risk of a woman who has a first degree relative with ovarian cancer is five percent (the average woman's lifetime risk is 1.4 percent). All women are at risk of developing ovarian cancer regardless of age however ovarian cancer rates are highest in women aged 55-64 years. The median age at which women are diagnosed is 63, meaning that half of women are younger than 63 when diagnosed with ovarian cancer and half are older. Women who use menopausal hormone therapy are at an increased risk for ovarian cancer. Recent studies indicate that using a combination of estrogen and progestin for five or more years significantly increases the risk of ovarian cancer in women who have not had a hysterectomy. Ten or more years of estrogen use increases the risk of ovarian cancer in women who have had a hysterectomy.

Various studies have found a link between obesity and ovarian cancer. A 2009 study found that obesity was associated with an almost 80 percent higher risk of

ovarian cancer in women 50 to 71 who had not taken hormones after menopause (Ocra, 2019).

2.1.4 Etiology and Pathophysiology

Human papillomavirus (HPV) is the most vital etiologic factor in cancer cervix with most 99.7% tumours having HPV DNA. HPV-16 and HPV-18 are the 2 most common high-risk types found in more than 70% of malignancies. Other High-risk types includes 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 73, and 82. The peak infection incidence is at late teens and early 20s but in 80% of patients, the infection resolves in 12-18 months with median duration of infection of roughly 8 months. After the infection resolves, the risk of cervical cancer returns to baseline. Cervical cancer in the absence of demonstrable HPV infection does occur, but it is not common, and HPV testing appears to be more sensitive than and superior to standard Pap smear screening (Person, 2018).

Basal cell of stratified squamous epithelium may be infected from HPV. The replication of HPV has not been successfully. Some epithelial cells lives derived from HPV-infected patients, W12E cells harbouring HPV-16 and CIN 612-9E cells harbouring HPV-31b, have been with great success cultured on rafts. HPV raft cultures, the epithelial cell lives which has latent HPV are produce with collagen matrix remain on a firm support. By creating a based composed of bovine tendon type 1 collagen, the raft culture systems are prepared. Differentiating suprabasal cell permits the replication of HPV. It is predicted that HPV replication cycle starts by the entry of virus into the cell of the stratum germination of the epithelium. It is thought that HPV infection off basal layer requires mild abrasion or micro trauma

of the epidermis. HPV-16 and HPV-33 attach to the host cells by cell surface heparan sulfate. There is also secondary receptor or stabilizing proteoglycans involve in the attachment of HPV. Cellular factors necessary for virion uptake are not known. After it enters the, HPV replicates as the basal cell differentiate and goes to the surface of the epithelium. At the basal layer, viral replication is accepted to be non-productive and the virus establishes itself as low copy number episome by using the host DNA replication machinery to synthesis its DNA on average once per cell cycle for differentiated keratinocytes of the suprabasal layer of the epithelium, the virus changes to a rolling circle mode of DNA replication, amplifies its DNA to High copy number, synthesis capsid proteins and causes viral assembly to happen.

HPVs encode only eight to ten proteins, they must employ host cells to regulate viral transcription and replication. It begins by host cell factors which communicates with LCR part of HPV genome and starts transcription of viral E6 and E7 genes. E6 and E7 gene product deregulates the host cell growth cycle by attaching and inactivating tumour suppressor proteins, cell cyclins and cyclin dependent kinases. E6 and E7 gene functions as the subverting the cell growth regulatory pathways and cellular environment in order to alter facilitate viral replication in a cell that terminally differentiate and has exited the cell cycle. Cell growth is conducted mainly by two cellular proteins which are the tumour suppressor protein, p53 and the retinoblastoma gene product, pRB. P53 in cervical cancer is wild type and doesn't mutate. The product of HPV E6 binds to p53 and targets it for rapid degradation by a cellular ubiquitin ligase, it has the equal effect as in inactivating mutation. Resulting in normal activities of p53 which governs G1 arrest, oppotosis, and DNA repair are abrogated. In low risk HPV E6 proteins

doesn't bind to p53 at detectable levels and have no effect on p53 stability in vitro.

The HPV E6 protein able to form complexes with minimum six other cellular proteins which are not well characterised. The HPV E7 gene product attaches to hypophosphorylated form of the RB family of proteins.

The attachment ruins the complex between pRB and cellular transcription factor E2F-1, producing liberation of E2F-1 that lets transcription of genes whose product are needed for the cell to go to S phase of the cell cycle while E7 gene product can associate with other mitotically interactive cellular proteins for example cyclin E. this results in stimulation of cellular DNA synthesis and cell proliferation E7 attach to pRB with decreased affinity while E5 gene product enhances the mitogen-activated protein kinase activity, thus stimulating cellular response to growth and differentiation factors. This leads to proliferation and delayed differentiation of the host cell. E1 and E2 gene products are synthesised next. E2 gene product is DNA binding proteins which blocks transcription of E6 and E7 genes and lets E1 gene product to attach to the viral origin of replication located within the LCR. The attachment stimulates replication of the viral genome as extrachromosomal elements in the S phase of cell cycle genome copy number remains at the same level in these cells, and a low level of transcripts is expressed.

The E2-mediated down-regulation of E6 and E7 transcription makes the release of p53 and pRB proteins and the normal differentiation process of the host cell is allowed to continue. Viral particles are assembled in nucleus and complete virions are released as the cornified layers of the epithelium are shed. When replication process happens, the viral DNA become established throughout the whole thickness of the epithelium but intact virions are found only in upper layers of tissues. Viral replication is connected with proliferation of all epidermal layers

except the basal layers in warts or condylomata. This leads to acanthosis, parakeratosis, hyperkeratosis and deepening of rete ridges, creating the typically papillomatous cytoarchitecture seen in histologically.

Cervical cancer is a good example on how a viral infection moves forward to become malignancy. The infection with high-risk HPV types disrupts the function of the cell proteins and with expression of cellular gene products. By using microarray analysis of the cell infected with HPV-31 shows 178 cellular genes are up-regulated and 150 cellular genes are down-regulated by HPV (22). For down-regulated are primarily included in regulation of cell growth, some keratinocyte-specific genes, and interferon (IFN)-response genes. For benign lesions due to HPV, the viral DNA is located extrachromosomally in nucleus. HPV DNA is generally integrated into the host genome. The integration of HPV DNA interferes or deletes the E2 ORF, leads to loss of its expression creating loss of function of E2, which normally down-regulates the transcription of E6 and E7 gene and leads to increase of expression of E6 and E7. They both have high affinity to p53 and pRB in high-risk-HPV. When the binding is distributes it can give rise to increase proliferation rate and genomic instability. Creating, host cell accumulates more and more damaged DNA that can't be repaired. Mutations accumulates that leads to full transformation to cancerous cells. Effect of activated oncogenes and chromosome instability, which may lead to transformation include methylation of viral and cellular DNA, tolerance activation, and hormonal and immunogenetic factors. It may take 10 -20 years to progress into cancer but some lesions become cancerous rapidly maybe within a year or two years (Burd, 2003).

2.1.5 Clinical Manifestation of sexually transmitted infections

Sexually transmitted HPV infections leads to one of three possible outcome. First is anogenital warts (condyloma acuminatum) on or around the genital and arms in both gender. It is generally associated with HPV-6 and HPV-11 and do not lead to cancer. They are mostly asymptomatic and may resolve within three to four months by its own. Second, is latent or inactive infection, some person might know if they have contracted the infection due to the noticeable symptoms are less likely to occur and infected area appears some cytologically fine as usual. Finally the third is an active infection that is related with greater risk of HPV types by the virus changes in infected cells resulting in penile, urethral, bladder, vaginal, vulva or cervical intraepithelial neoplasia. Studies shows that 15 to 28% women in whom HPV DNA was detected developed SIL within two years while only one to three percentage of women in whom HPV DNA was not detected.

The risk of progression for HPV-16 and -18 was greater compared to other HPV types (Burd, 2003).

2.1.6 Cervical cancer stages

After the patient is diagnosed with cervical cancer, the next step is to determine the cervical cancer stage to give treatment accordingly. To determine the cancer's stage after a cervical cancer diagnosis, the doctors will find how far has the cancer grown into the cervix and has the cancer reach the nearby structures and also has the cancer spread to nearby lymph nodes or to distant organs. The stage is one of the most important factors in deciding how to treat the cancer and determining how successful treatment might be. The FIGO

(International Federation of Gynecology and Obstetrics) staging system is used

most often for cancers of the female reproductive organs, including cervical cancer.

For cervical cancer, the clinical stage is used and is based on the results of the doctor's physical exam, biopsies, imaging tests, and a few other tests that are done

in some cases, such as cystoscopy and proctoscopy. It is not based on what is found during surgery. If surgery is done, a pathologic stage can be determined

from the findings at surgery, but it does not change the clinical stage. The treatment plan is based on the clinical stage. The American Joint Committee on Cancer

(AJCC) TNM staging system is another staging system based on 3 key pieces of information, T describes how far the main (primary) tumour has grown into the

cervix and whether it has grown into nearby tissues, N indicates any cancer spread to lymph nodes near the cervix. Lymph nodes are bean-sized collections of

immune system cells, to which cancers often spread first, M indicates if the cancer has spread (metastasized) to distant sites, such as other organs or lymph nodes

that are not near the cervix. FIGO stages are the same as AJCC stages. Numbers or letters after T, N, and M provide more details about each of these factors. Higher

numbers mean the cancer is more advanced. Once a person's T, N, and M categories have been determined, this information is combined in a process called

stage grouping to assign an overall stage. Cervical cancer has a few stages which is stated as in the table below.

Table 2.1 Shows staging of Cervical Cancer (Falco, 2017).

Stage	Stage grouping	FIGO Stage	Stage description
I	T1 Any N M0	I	<p>The cancer cells have grown from the surface of the cervix into deeper tissues of the cervix.</p> <p>The cancer may also be growing into the body of the uterus, but it has not grown outside the uterus (T1).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
IA	T1a Any N M0	IA	<p>There is a very small amount of cancer, and it can be seen only under a microscope (T1a).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>





IA1	T1a1	IA1	<p>The area of cancer is less than 3 mm (about 1/8-inch) deep and less than 7 mm (about 1/4-inch) wide (T1a1).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
	Any N		
	M0		
IA2	T1a2	IA2	<p>The area of cancer invasion is between 3 mm and 5 mm (about 1/5-inch) deep and less than 7 mm (about 1/4-inch) wide (T1a2).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
	Any N		
	M0		
IB	T1b	IB	<p>This includes stage I cancers that can be seen without a microscope as well as cancers that can only be seen with a microscope if they have spread deeper than 5 mm (about 1/5 inch) into connective tissue of the cervix or are wider than 7 mm (T1b).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p>
	Any N		
	M0		



			It has not spread to distant sites (M0).
IB1	T1b Any N M0	IB1	The cancer can be seen but it is not larger than 4 cm (about 1 3/5 inches) (T1b1). It might or might not have not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).
IB2	T1b2 Any N M0	IB2	The cancer can be seen and is larger than 4 cm (T1b2). It might or might not have not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).
II	T2 Any N M0	II	The cancer has grown beyond the cervix and uterus, but hasn't spread to the walls of the pelvis or the lower part of the vagina (T2). It might or might not have not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).



IIA	T2a	IIA	The cancer has not spread into the tissues next to the cervix (called the parametria) (T2a).
	Any N		
	M0		It might or might not have not spread to nearby lymph nodes (N0).
			It has not spread to distant sites (M0).
IIA1	T2a1	IIA1	The cancer can be seen but it is not larger than 4 cm (about 1 3/5 inches) (T2a1).
	Any N		
	M0		It might or might not have not spread to nearby lymph nodes (N0).
			It has not spread to distant sites (M0).
IIA2	T2a2	IIA2	The cancer can be seen and is larger than 4 cm(T2a2).
	Any N		
	M0		It might or might not have not spread to nearby lymph nodes (N0).
			It has not spread to distant sites (M0).
IIB	T2b	IIB	The cancer has spread into the tissues next to the cervix (the parametria) (T2b).
	Any N		



		Mo		<p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
III	T3	III	Any N	<p>The cancer has spread to the lower part of the vagina or the walls of the pelvis. The cancer may be blocking the ureters (tubes that carry urine from the kidneys to the bladder) (T3).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
IIIA	T3a	IIIA	Any N	<p>The cancer has spread to the lower part of the vagina or the walls of the pelvis. The cancer may be blocking the ureters (tubes that carry urine from the kidneys to the bladder) (T3a).</p> <p>It might or might not have not spread to nearby lymph nodes (N0).</p> <p>It has not spread to distant sites (M0).</p>
IIIB	T3b	IIIB		<p>The cancer has grown into the walls of the pelvis and/or is blocking one or both ureters</p>

	Any N		causing kidney problems (called hydronephrosis) (T3b).
	M0		It might or might not have not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).
IVA	T4	IVA	The cancer has spread to the bladder or rectum or it is growing out of the pelvis (T4).
	Any N		
	M0		It might or might not have not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).
IVB	Any T		The cancer has spread to distant organs beyond the pelvic area, such as distant lymph nodes, lungs, bones or liver. (M1)
	Any N		
	M1		

2.2 Early detection

2.2.1 General early detection

There a few test available to screen women for cervical precancers and cancers. Each test has its own ups and downs, it depends on the setting in which it is to be used.

Cytology-based screening programs continue to be the mainstay of cervical cancer prevention worldwide and have been demonstrated of reduction in the cervical cancer incident and mortality, particularly in organized program settings with good-quality screening, adequate coverage, and with optimal frequency.

Pap test with conventional cytology it involves obtaining of cells gently scraped from the ectocervix and endocervix, either with a spatula or brush and preparing their smears. It is then examine under the microscope for abnormalities.

It has total of low sensitivity ranging between 37.8 and 81.3% at atypical squamous cells of undetermined significance (ASCUS) threshold with an average of 64.5%, but very high specificity varying from 85.7 to 98.5% with a mean of 92.3%. The test is highly specific, however false-negative rates have always been an area of concern in cytology-based programs, wherein premalignant or malignant cells have been misdiagnosed as normal.

Visual examination of cervix, there are a few methods such as unaided visual inspection, visual inspection after application of acetic acid (VIA), VIA with magnification (VIAM), visual inspection after application of Lugol's iodine (VILI).

For unaided visual inspection or visual inspection or down staging, it is naked eye visualization of the cervix without acetic acid but has been shown to perform poorly.

Visual inspection after application of 3 to 5% acetic acid, it is naked eye visual inspection of the cervix after application of 3 to 5% acetic acid. The application of 3 to 5% acetic acid causes a reversible coagulation or precipitation of the cellular proteins. Based on the accuracy of VIA to detect cervical neoplasia it has been extensively studied and found to be satisfactory the sensitivity of VIA ranges between 66 and 96% and specificity between 64 and 98%. Visual inspection after application of 3 to 5% acetic acid and under magnification devices which has the

similarity and specificity as compared with VIA and does not have any added benefit over VIA. Visual inspection after application of Lugol's iodine, precancerous lesions and invasive cancer does not take up iodine due to the absence of glycogen and appear as well-defined, thick, mustard or saffron yellow areas. The sensitivity and specificity of VILI was 87.2% and 84.7%.

A colposcope is a low-power, stereoscopic, binocular field microscope having a powerful light source, used for magnified visual examination of uterine cervix to diagnosis cervical neoplasia. It is painless and have no side effect and can be perform safely throughout pregnancy. It allows the examiner to take tissue samples from specific areas which are abnormal. A curette is used to scrape the endocervical canal and get the tissue lining.

Cervicography has distant evaluation of photographs of the cervix "cervicograms," taken with a specialized 35-mm camera, after application of acetic acid. It does not need experience in colposcopy and the photographs taken resemble a low-magnification colposcopic photograph. Cervicography can't be recommended for universal screening, however it may have a role in the follow-up of patients with a mildly abnormal cervical smear.

Human papillomavirus DNA test, the sample obtained is similar to Pap, with a cervical swab from the transformation zone and placed into transport medium.

The test detects whether a person is infected with one or more of the 13 high-risk HPV viral types (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, and 68). It is used as a routine screening test for women above 30 to 35 years in many regions and is especially useful to evaluate women with equivocal Pap test. The sensitivity of HPV testing for detecting CIN 2–3 lesions varied from 45.7 to 80.9% across

different study sites in India the specificity varied from 91.7 to 94.6%. HPV testing requires sophisticated laboratories and is currently unaffordable in less-developed countries (Mishra, 2011).

2.2.2 Specific early detection (Pap Smear test)

Pap test using liquid-based cytology, the cells are collected similar to conventional Pap, but using a brush instead of a spatula. The head of the brush is vigorously shaken or broken off into a small pot of liquid containing preservative solution. The sample is then filtered or centrifuged to remove excess blood and debris. The cells are then transferred to the slide in a "mono" layer. The test is more expensive compared to conventional cytology and it needs additional supplies and sophisticated equipment. In a meta-analysis comparing conventional Pap with LBC, there is no difference found in the relative sensitivity. A lower pooled specificity was found for LBC when presence of ASCUS was the cut-off (ratio, 0.91; 95% confidence interval, 0.84-0.98). Automated pap smears attempts to reduce errors by using computerized analysis to evaluate Pap smear slides. In AutoCyte Screen, many cells images are presented to a human reviewer, which then decides whether a manual review is required.

The preparation for Pap smear test is done when the patient isn't in her menstruating period. The patient also should avoid vaginal intercourse, douching, use of tampons, use of medicinal vaginal cream or contraceptive cream for 24-48hours prior to cervical screening. Ideally, pre-existing cervicitis should be treated prior to cervical screening. It should proceed in the presence of bleeding or cervicitis, as these symptoms may be related to cervical dysplasia or neoplasm,

which may be detected with cervical screening. The equipment used are examination table with foot supports, examination light, metal or plastic speculum, examination gloves, cervical spatula and cytobrush. Liquid-based cytology container or glass slide and fixative. The position of the patient should be as the following:

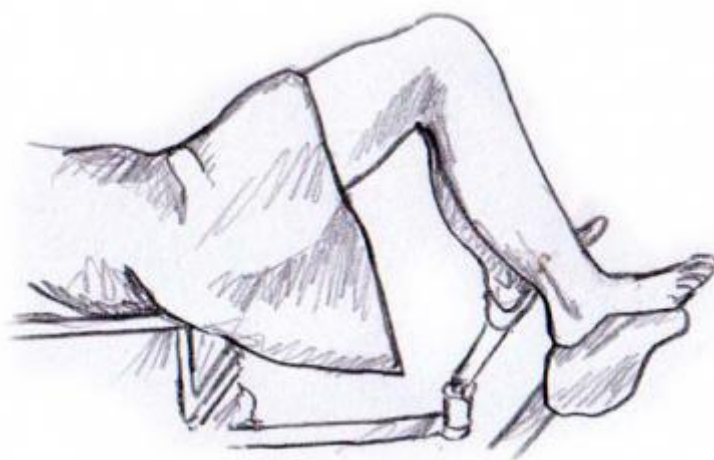


Figure 1 Position of Pap smear test (Karjane, 2018).

A metal or plastic speculum is placed in the vagina to examine the cervix. Lukewarm water can be used to lubricate and warm the speculum for patient comfort. To have an optimum sample is obtained, the surface anatomy of the cervix must be fully visualized, including the squamous epithelium of the ectocervix, squamocolumnar junction, and the external os. The transformation zone of the cervix is the region where squamous epithelium replaces glandular epithelium in a process called squamous metaplasia. Due to HPV has predilection at this area, screening is focus on sampling the cells at the transformation zone to adequately detect the presence of dysplasia. Discharge covering the cervix may be removed carefully using a large swab, ensuring that the cervix is minimally traumatized. To

collect specimen, a cervical broom or cervical spatula is applied to the surface of the cervix and turned in a single direction to achieve an adequate sample for cytology, making sure to rotate it at least 360° for the spatula and 5 rotations for the broom. If the spatula is used, a cytobrush is additionally needed and must be inserted into the cervix so that the outermost bristles are still visible at the external os. The brush is then rotated one half turn in a single direction to achieve an adequate cytology sample.

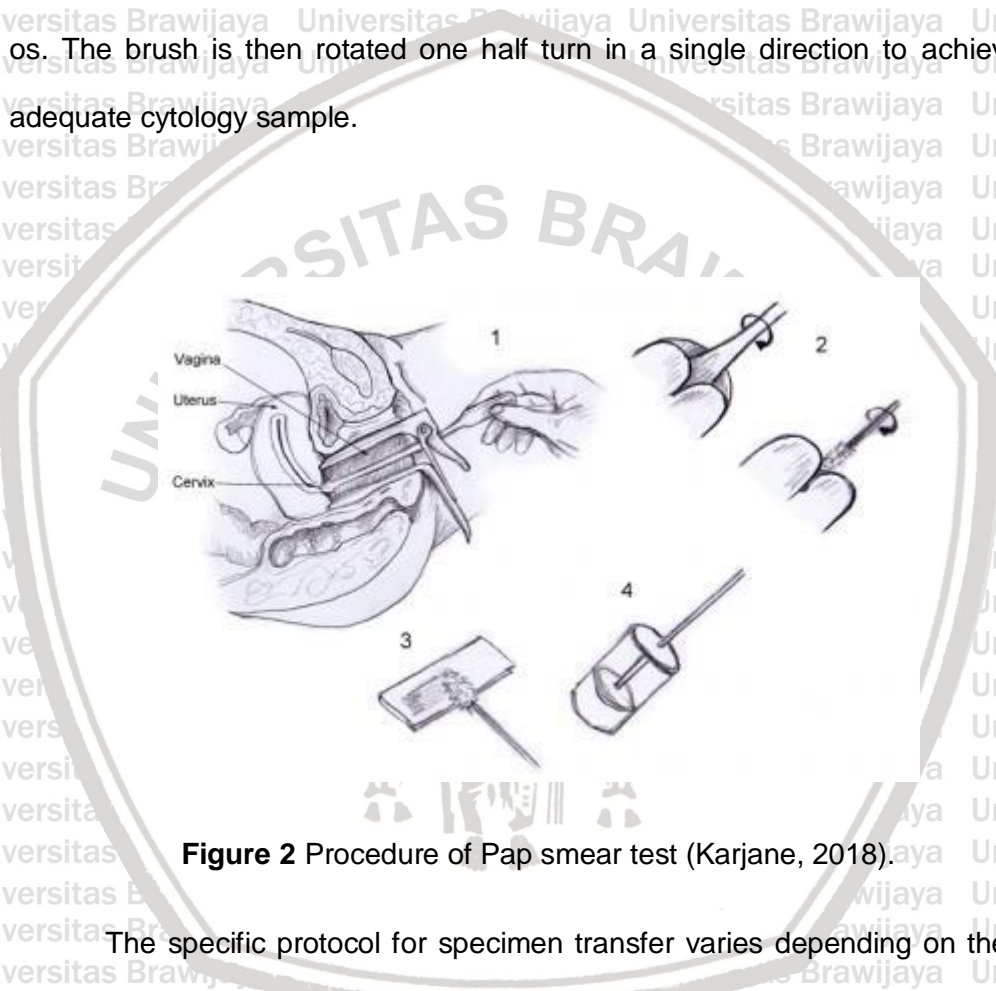


Figure 2 Procedure of Pap smear test (Karjane, 2018).

The specific protocol for specimen transfer varies depending on the test used. For Sure Path, after the cervical broom or cervical spatula and cytobrush are removed from the cervix, they are placed specimen side down into the liquid cytology vial, each removable head is snapped off, and the vial is labelled and sent to pathology. For ThinPrep, the spatula and brush are to be swirled vigorously in the vial 10 times to release the specimen and then discarded. Similarly, if the broom is used, it is to be pushed into the bottom of the vial 10 times and then

swirled vigorously and discarded. When conventional cytology is to be performed, the specimens are smeared on a glass slide and subsequently sprayed with fixative or placed in 90% alcohol solution. Although the FDA-approved protocol for the cervical broom does not require use of the cytobrush, some practitioners use the cytobrush following the broom in an attempt to improve the likelihood of obtaining an endocervical component in the sample. Small studies show no significant difference in acquiring endocervical cells between the broom and spatula plus cytobrush however other studies have shown the spatula/cytobrush method to be better at sampling endocervical cells than the broom alone. Two much larger studies found that the broom/cytobrush combination improves sampling of the endocervix compared to the broom alone. Whether these potential sampling differences affect the sensitivity of cervical cytology for detecting moderate or severe dysplasia or cancer is unclear however, based on the available data, using the cytobrush to obtain endocervical cells in addition to the spatula or the broom is reasonable.

For complications to occur are extraordinarily rare and include minor bleeding and infection. The patient must be educated on the likelihood of vaginal spotting immediately after a pap smear is performed, as this is considered normal.

Although the Pap smear is one of the best screening tests in medicine and its implementation has decreased the incidence of cervical cancer by over 50%, it does have its limitations. First, the sensitivity of one Pap smear for cervical dysplasia ranges from 30-87%. Plus, the intraobserver and interobserver reproducibility is poor and ranges from approximately 43-68% at best. Nearly half of all new cervical cancers are found in women who have never had cervical cytology screening prior to diagnosis. Unfortunately, false-negative Pap smears

are associated with up to 30% of all new cervical cancer diagnoses. HPV DNA testing has improved sensitivity over cervical cytology but lower specificity. For women age 30 years and older, the sensitivity and specificity of the HPV DNA test for detecting CIN 2 or worse are roughly 95% and 87%, respectively. For younger women who are more likely to have transient HPV infections, the specificity is much lower (Karjane, 2018).

For screening, the patient population under consideration, it applies to all female who has cervix, not looking at sexual past. This statement do not apply females who have already get diagnosed of high-grade precancerous cervical lesions or cervical cancer, females with utero to diethylstilbestrol, or women are immunocompromised (HIV Patients)

Screen test, recent studies indicates that there are no clinically important differences between liquid-based cytology and conventional cytology. The USPSTF (U.S preventive services task force) noticed that the choices of cytology method may not be under the diet control of the clinician considers cytology screen in suitable age groups at suitable intervals tube of substantial not benefits, not containing the method used. HPV testing using Digene Hybrid capture 2 (HC2) (Qiagen, Germantown, Maryland) is usely used in the U.S, HC2 and polymerase chain reaction-based methods has been evaluated in effectiveness trials.

The screening intervals, age 21-65 years old need to screen every 3 years. For female age 30-65 years, HPV testing combination with cytology (co-testing) every 5 years is preferred for reasonable alternative for women in this age group who would prefer to extend the screening intervals. Treatment of lesions which would otherwise fix by their own is harmful because it makes to procedures with

unwanted side effects. Females who choose co-testing to increase their screening internal must be aware that positive screening results are more likely with HPV-based strategies than with cytology alone and that some females may require prolonged surveillance with additional frequent testing if they have persistently positive HPV results.

The time screening, cervical cancer is not common before the age 21 years old. There is that screening earlier than age 21 years old, regardless of sexual history, would lead to even greater harm compared to benefits it's because abnormal test results are likely to be transient and to resolve on their own, plus treatment may have an adverse effect on childbearing.

Assessment risk, females who have had hysterectomy with removal of the cervix and who doesn't have past of a high-grade precancerous lesion or cervical cancer are not at risk for cervical cancer and shouldn't be screened. Females that had their cervix removed by surgery for ovarian or endometrial cancer are not at high risk of cervical cancer and would benefit from screening (Mayer, 2012).

2.2.3 Treatment, Management and Prevention

Almost all HPV-induced cervical cells changes are transient and 90% regress spontaneously within 12-36 months as the immune system removes the virus. The main immune response to HPV infection is cell-mediated response induced at local lymph nodes. Humoral immune responds develops, but local levels of HPV-specific immunoglobulin G (IgG) and IgA in tissue doesn't correlate with the removal of virus. For systemic levels of HPV-specific IgA were correlated with virus clearance while systemic levels of HPV-specific IgG were detected more

frequently in patients with persistent HPV infection. Only a small amount of mild and moderate cervical disease develop into invasive cancer, but the risk of progression from severe cervical cellular abnormality to invasive carcinoma is at least 12%. Gene predisposition, frequency of reinfection, intratypic genetic variation with HPV type, coinfection with more than one HPV type, hormone levels and immune response may influence the ability to clear HPV infection.

With cryotherapy, abnormal tissue and the surrounding 5mm is frozen using super cooled probe. A single freeze is usually not enough to create necrosis, thus the area is allowed to thaw and is frozen once again. Ablation of tissue with carbon dioxide laser beam is as effective as cryotherapy, and tissue has healing time, but the procedure is expensive. Loop electrosurgical excision procedures are now considered to be chosen treatment for non-invasive squamous lesions.

For micro invasive cancer which is less than 3mm in size are managed conservatively by excisional cone biopsy. Early invasive cancer uses radical hysterectomy or external-beam high-energy radiotherapy and implants to treat it. This is to destroy malignant cells in the cervix, para cervical tissues and regional lymph nodes. For local advanced cancers are managed with radiotherapy to the main tumour and potential sites of regional spread. Surgical and cytoreductive procedures, several antiviral and immunomodulatory agents have been evaluated as treatment for HPV-associated cervical lesions. Podophyllin a cytotoxic agent that arrest mitosis in metaphase, in together with vidarabine, a DNA polymerase inhibitor, suppressed HPV gene expression and cell growth in cervical cancer cell lines. Combined topical therapy with podophyllin and vidarabine ointments in 28 patients with mild to moderate CIN resulted in regression of lesions and successful eradication of HPV-16 and HPV-18 DNA in 81% patients. IFNs and intravaginal 5-

flourouracil have shown variable response in clinical and in vitro studies (Burd, 2003).

For the management, women with ASC-US HPV testing is suggested if negative, repeat co-testing in 3 years, if positive perform colposcopy. Repeat cytology in 1 year is acceptable, if negative repeat cytology in 3 years, if ASC or greater perform colposcopy. Women aged 21-24 years with ASC-US, repeat cytology in 12 months, if repeat cytology is ASC-H, AGC, or HSIL, perform colposcopy, otherwise repeat cytology in another 12 months. Women aged 20 years or younger with ASC-US or LSIL, HPV infection and minor abnormal cytology results common in adolescents but invasive cancer is rare. Pregnant women with ASC-US, managed same as non-pregnant women and Endocervical curettage (ECC) is contraindicated in pregnant women and should not be collected if colposcopy is performed. For Management of women with ASC-H, perform colposcopy regardless of HPV status. For Management of women with LSIL, women aged 25 years or greater with LSIL perform colposcopy. Women aged 21-24 years with LSIL, repeat cytology in 12 and 24 months, follow guidelines for ASC-US. Pregnant women with LSIL, managed same as non-pregnant women. Postmenopausal women with LSIL, acceptable options include reflex HPV testing, repeat Pap at 6 and 12 months and colposcopy. Management of women with HSIL, refer to colposcopy regardless of age. Pregnant women with HSIL, managed same as non-pregnant women. Management of women with AGC, women with AGC including ASC-NOS, AGC-favour neoplasia and AIS, refer to colposcopy with endocervical sampling. Women with atypical endometrial cells, perform endometrial biopsy and endocervical sampling. If no pathology found, proceed with colposcopy. Management of women age 30 years and older who are Pap negative

and HPV positive, repeat cytology and HPV DNA testing in 12 months, if cytology negative, HPV negative, repeat co-testing in 3 years, if cytology abnormal with any HPV result perform colposcopy, if cytology negative, HPV positive, perform colposcopy. Another option would be to perform HPV 16 and 18 testing, if 16 or 18 positive, perform colposcopy, if 16 and 18 negative, repeat co-testing in 12 months, if cytology negative, HPV negative, repeat co-testing in 3 years, if cytology abnormal with any HPV result, perform colposcopy, if cytology negative, HPV positive, perform colposcopy (Karjane, 2018).

For prevention measures the main approaches is to prevent HPV infection include both risk reduction and development of HPV vaccines. Use latex condoms and spermicide can reduce HPV contraction vaccines directed against HPV are in phase 1 and phase 2 clinical trials but are not recently commercially available. HPV vaccines normally has virus-like particles, which are empty virus capsid which has major HPV capsid antigen and maybe the minor capsid antigen but lacking viral DNA. The vaccine are produced by expressing the L1 or L1 and L2 ORFs in eukaryotic cells. They afterwards self-assemble to VLPs that are highly immunogenic. Optimal vaccines would have a cocktail of VLPs of the most common high-risk HPV subtypes (Burd, 2003).

2.3 Health seeking behaviour correlation with education and knowledge

In considering the determinants of health, it's important to know that low physical circumstances are not the only factors harmful to health. Lack of education for example can lead to reduced ability to find, understand and use

health information. Thus, education is an important determinant of health status in both the developed and developing world.

The high health returns to investing in the education of women are indisputable. Well educated individuals experience better health than the poorly educated, as indicated by high levels of self-reported health and physical functioning and low levels of morbidity, mortality, and disability. In contrast, low educational attainment is associated with “high rates of infectious disease, many chronic non-infectious diseases, self-reported poor health, shorter survival when sick, and shorter life expectancy”.

The exact mechanism of education’s impact on health is not known, it has been suggested that educating women alters the traditional balance of power within the family, leading to changes in decision making and allocation of resources within the household. Therefore, educated mothers are more likely than uneducated women to take advantage of modern medicine and comply with recommended treatments.

Furthermore, education may change mothers’ knowledge and perception of the importance of modern medicine in the care of their children. In a study of child nutrition in the Philippines, access to healthcare services benefited children of educated mothers more than children of mothers with less schooling, a finding which suggested that educated mothers were more likely to take advantage of available public health services.

For example, findings from numerous studies of infant and child mortality conducted in developing countries over the last decade show a nearly universal positive association between maternal education and child survival. Education can

modify women's beliefs about disease causation and thus influences both childcare practices and the use of modern healthcare services. These facts reveal that women are important promoters of health education and practices within the home and the benefits of their education extend to their children and others.

Just as mothers are important providers of health information in the home, teachers serve as role models and can play a valuable role in health promotion in the classroom. In order for teachers to promote health practices, they must be "health literate". Teacher health literacy may be defined as "the capacity of teachers to obtain, interpret, and understand basic health information and services with the competence to use such information and services in ways that enhance the learning of health concepts and skills by school students."

School health education may be delivered in a variety of ways, with varying emphases on biological, behavioural, and pedagogical concepts. Teachers and other health professionals must be prepared to address the complex social, developmental, and health-related issues that youth bring to the classroom. Continued effort should be made to maximize the learning of critical issues and concepts in child and adolescent health.

In the developed world, school teachers are instructed in health education around several theme which is to teach health pedagogy skills, to provide health information from the 10 traditional health content areas (community health, consumer health, environmental health, family health, mental health, injury prevention/safety, nutrition personal health, diseases and substance abuse), to examine the six adolescent risk behaviour categories identified by the Centers for

Disease Control and Prevention, and also to describe the eight components of a coordinated school health program (Staple-clark, 2015).

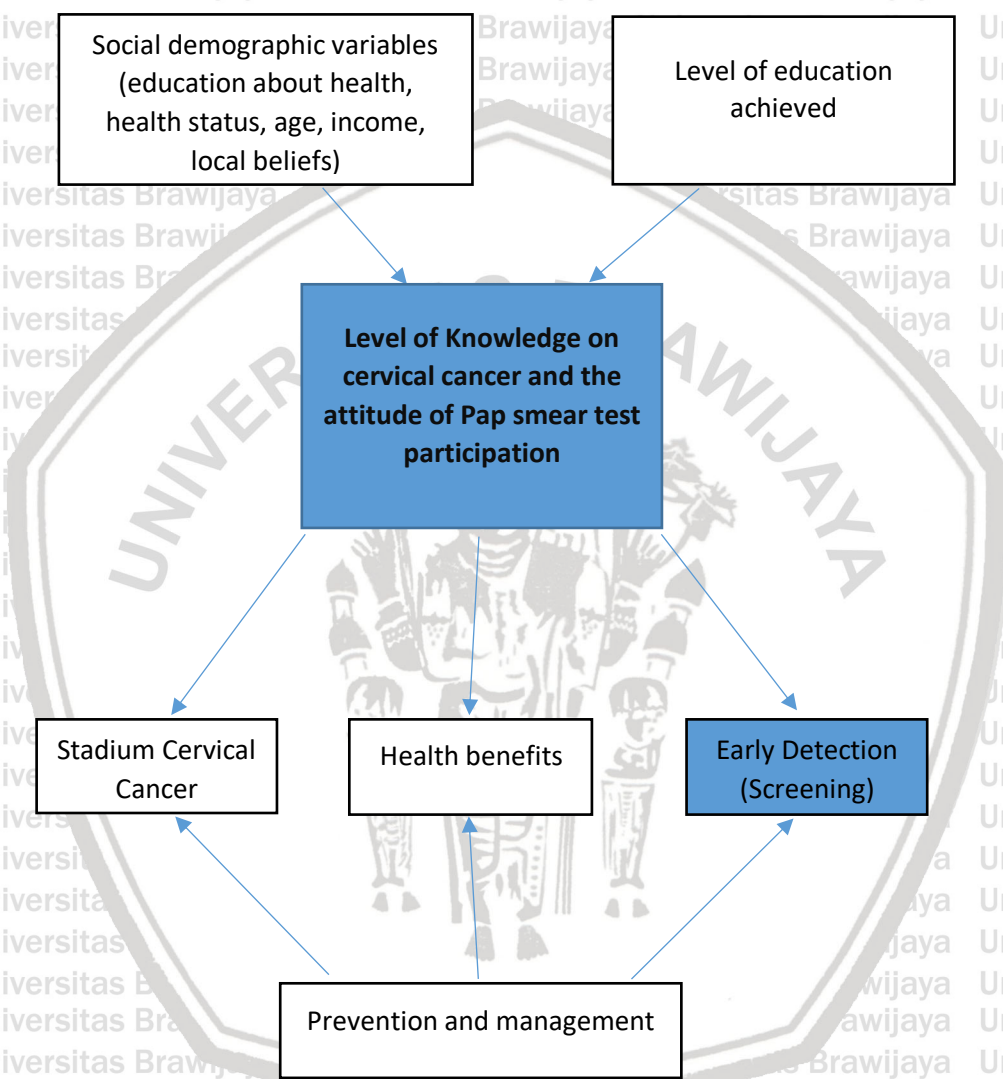
People with high educational level will differ significantly on their health seeking behaviour from those with low educational level. The result showed that educational level is statistically significant on health seeking behaviour.

Specifically, participants with high educational level reported higher score on health seeking behaviour. The study by (Monazza and Greta 2010) found that better educations were positively related to attitudes toward health (Ahmed, *et al*, 2009) revealed that level of schooling was found as important determinants of malaria knowledge and practices of malaria prevention. (Houston, *et al*, 1996) found out that level of education influences health seeking behaviour. (Carolyn, *et al*, 2010) found that people with low educational level had longer time to delay in seeking help when they noticed some symptoms unlike the better educated which had a faster response. From the above, it is accepted that education is a factor which influence ones response to issues patterning to health (Ihaji, 2014).

CHAPTER 3

CONCEPTUAL FRAME AND HYPOTHESIS

3.1 Conceptual Framework



Acknowledgement:

- Studied
- Not studied



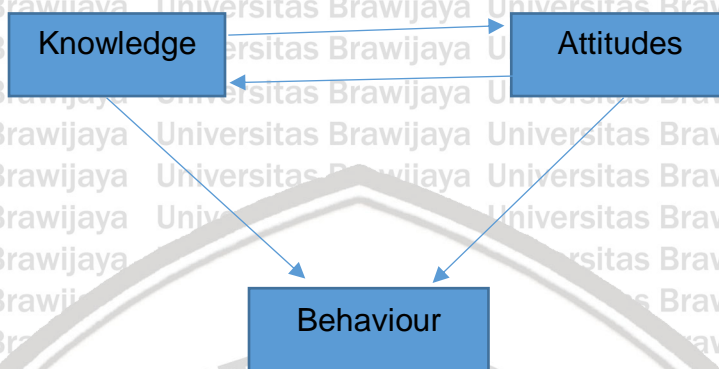
3.2 Conceptual Framework Description

Social demography variables and level of education achieved has correlation to the knowledge about cervical cancer and having Pap smear test to check their health status. Women are not getting screen and the results are because of lack access to care, having no usual source of care or having higher urgent demands on their conditions. Educations, poverty, lower socioeconomic status or even cultural issues may contribute why women do not regularly do screening (Bucco, 2017). Many patient are diagnosed with late stage due to high level of illiteracy among women and their problematic health seeking behaviour for gynaecological signs and symptoms are responsible for the late stage of diagnosis of cervical cancer (Gyenwali, 2013). Women younger than age 21 years, screening women below 21 years old doesn't reduce cervical cancer incidence and mortality compared with beginning screening at age 21 years old (Moyer, 2012). To screen cervical cancer we can use Pap smear test which is scraping and brushing cells from cervix and is sent to lab to be examine. Prevention interventions must be focused on raising awareness of gynaecological symptoms and improving health seeking behaviour in women (Gyenwali, 2013). To prevent this from happening we can prevent it by reduction of risk and vaccines, latex condom or spermicides. The education status has a significant influence on knowledge of cervical cancer screening and control (Obalase, *et al*, 2017).

3.3 Research hypothesis

There are relationship between the level of knowledge and attitude towards early detection of cervical cancer with the level of participation in Pap smear test on women who work in the faculty of medicine in Universitas Brawijaya.

3.4 Behaviour Frame



People with high educational level will differ significantly on their health seeking behaviour compared with low educational level people. The result showed that educational level is statistically significant on health seeking behaviour. Specifically, participants with high educational level reported higher score on health seeking behaviour. The study by (Monazza and Greta 2010) found that better educations were positively related to attitudes toward health. (Ahmed, *et al*, 2009) revealed that level of schooling was found as important determinants of malaria knowledge and practices of malaria prevention. (Houston, *et al*, 1996) found out that level of education influences health seeking behaviour. (Carolyn, *et al*, 2010) found that people with low educational level had longer time to delay in seeking help when they noticed some symptoms unlike the better educated which had a faster response. From the above, it is accepted that education is a factor which influence ones response to issues patterning to health (Ihaji, 2014). Healthy conditions can be achieved by changing behaviour from unhealthy to healthy behaviour and creating a healthy environment at home. Attitudes towards health a

healthy attitude starts with oneself by paying attention to health needs in the body rather than desires (Masayoe, 2016).



CHAPTER 4

RESEARCH METHOD

4.1 Research Design

To learn about level of knowledge and attitudes of cervical cancer and its relationship with Pap smear screening participation among female employees in the Universitas Brawijaya Medical School by using observational analytic methods with cross sectional planning approach.

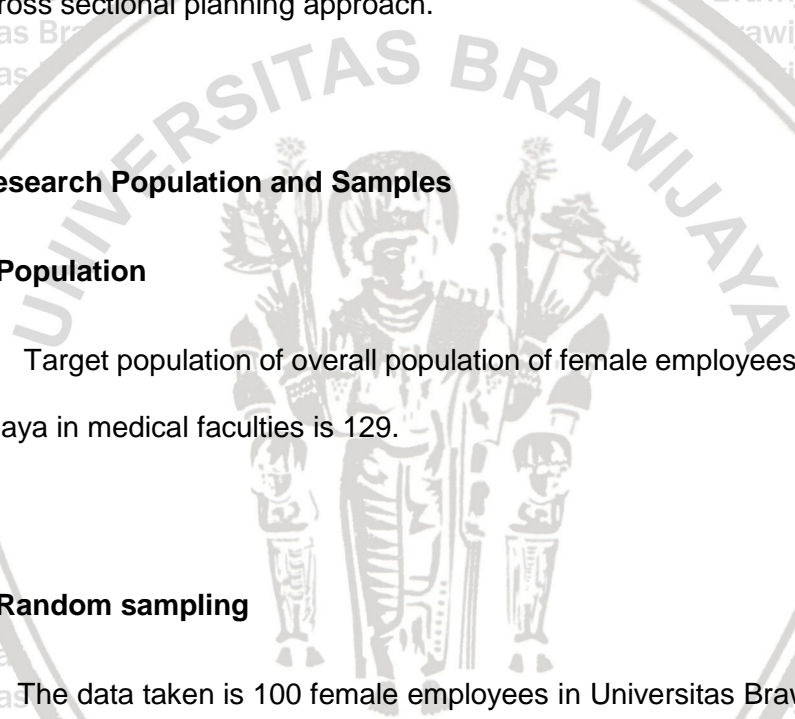
4.2 Research Population and Samples

4.2.1 Population

Target population of overall population of female employees in Universitas Brawijaya in medical faculties is 129.

4.2.2 Random sampling

The data taken is 100 female employees in Universitas Brawijaya medical faculties.



4.2.3 Research subjects

Rumus Slovin:

$$n = \frac{N}{1 + Ne^2}$$

$$\frac{129}{1 + 129(0.05)^2} = 97.5 \approx 98$$

1. Inclusive Criteria

Female employees of the Faculty of Medicine, Universitas Brawijaya who agreed to continue with the questionnaire.

2. Exclusive Criteria

Female employees who carry out the surgical removal of the uterus are done permanently and female employees who leave the questionnaire or do not complete the questionnaire.

4.2.4 Sampling techniques

The researcher uses the Slovin formula for sampling the Slovin formula

$$n = \frac{N}{1 + N(e)^2}$$

Where: n = sample size

N = population size

e = percent allowance



Sampling of data is done by purposive sampling with random sampling techniques with a confidence level of 95%. The number of samples obtained by researchers is 98 samples.

4.3 Research variables

4.3.1 Independent Variables

The level of knowledge and attitude about cervical cancer towards early detection of cervical cancer to take Pap smear tests among female employees in the medical faculty of Universitas Brawijaya

4.3.2 Dependent variables

The behaviour is manifested in the Pap smear participation rate.

4.4 Location and time of research

In Universitas Brawijaya's medical faculty, September 2019 to November 2019.

4.5 Research instrument

This study uses a research instrument using a questionnaire that has questions related to Pap smear tests and cervical cancer for female employees in the medical faculty of Brawijaya University.

1. The first part (A) contains demographic data such as basic personal data and reasons for conducting this research.
2. The second part (B) contains the variables of knowledge and attitudes about positive and negative questions and behavioural variables of the Pap smear health test, positive questions and negative questions using the Guttman scale by giving a sign (√) on the available choices.

Table 4.1 Positive and negative question score

Positive questions	Score	Negative Questions
Alternative answers		Alternative answers
Correct	1	Wrong
Wrong	0	Correct

For the questioner will be given to the sample is as in the attachment.

4.6 Data collection methods

Data collection used is primary data. Primary data is data obtained from the results of questionnaires by respondents using a checklist relating to research variables namely knowledge of cervical cancer and participation to take Pap smear tests among female employees in the medical faculty of Brawijaya University.

4.7 Definition of operational research

1. Level of knowledge

Measured by a questionnaire consisting of 23 question items with weights per item (0, 1 and 2). The level of knowledge will be classified into three good categories: High 33-46 and moderate: 17-32 and low: 0-16.

2. Attitude

Attitudes toward early detection. Measured using a 4-scale Likert scale questionnaire (STS-TS-S-SS). Good attitude is above average and bad attitude is below average. The scoring are classified as categorised very good (16-20): good (11-15): moderate (6-10): low (0-5).

3. Behaviour

Conduct a Pap smear test for early detection of cervical cancer. Measured with a right or wrong questionnaire.

4. Female staff in the medical faculty, they were chosen because they were optimal for the research studies to be carried out.

4.8 Techniques of collecting data

The data collected mainly uses observations with questionnaire sheets made related to the research conducted.

4.9 Research procedures



Table 4.2 Research Procedures

Female employee at the Medical faculty of Universitas Brawijaya.
Data from 100 female employees used the questioner survey.
The level of knowledge and attitudes towards early detection of cervical cancer with the level of Pap smear test participation in female employees in the Universitas Brawijaya.

This research is specifically for female employees of Universitas Brawijaya, totalling around 100 and each of them will be given a questionnaire and data will be collected. This research is mainly to find out the level of knowledge about cervical cancer and Pap smear tests among female employees in the Universitas Brawijaya Medical School.

The preparation phase is to conduct a research proposal afterwards when the research proposal has been approved, the proposal is then registered by the secretary for the final project. Next is validating the test and questionnaire. The stage taken is to collect data using a questionnaire that has become a validity test. The management phase is to use computer statistical software after interpreting data and compiling data.

4.10 Data analysis

Univariate data analysis was performed to look at demographic data descriptively for respondent characteristics. Chi-square data analysis uses regression correlation analysis to see the relationship between the level of



knowledge and attitudes towards early detection of cervical cancer with the behaviour of conducting a Pap smear test.

4.11 Instrument research tests

Questioners in research are used as analytical tools

4.12 Research

Summary of research procedures:

1. Preparation, teaching research proposals, research registration, research validity tests.
2. Implementation of research using a questionnaire that has been tested for validity.
3. Analysis of management research data and organizing research results

Plot

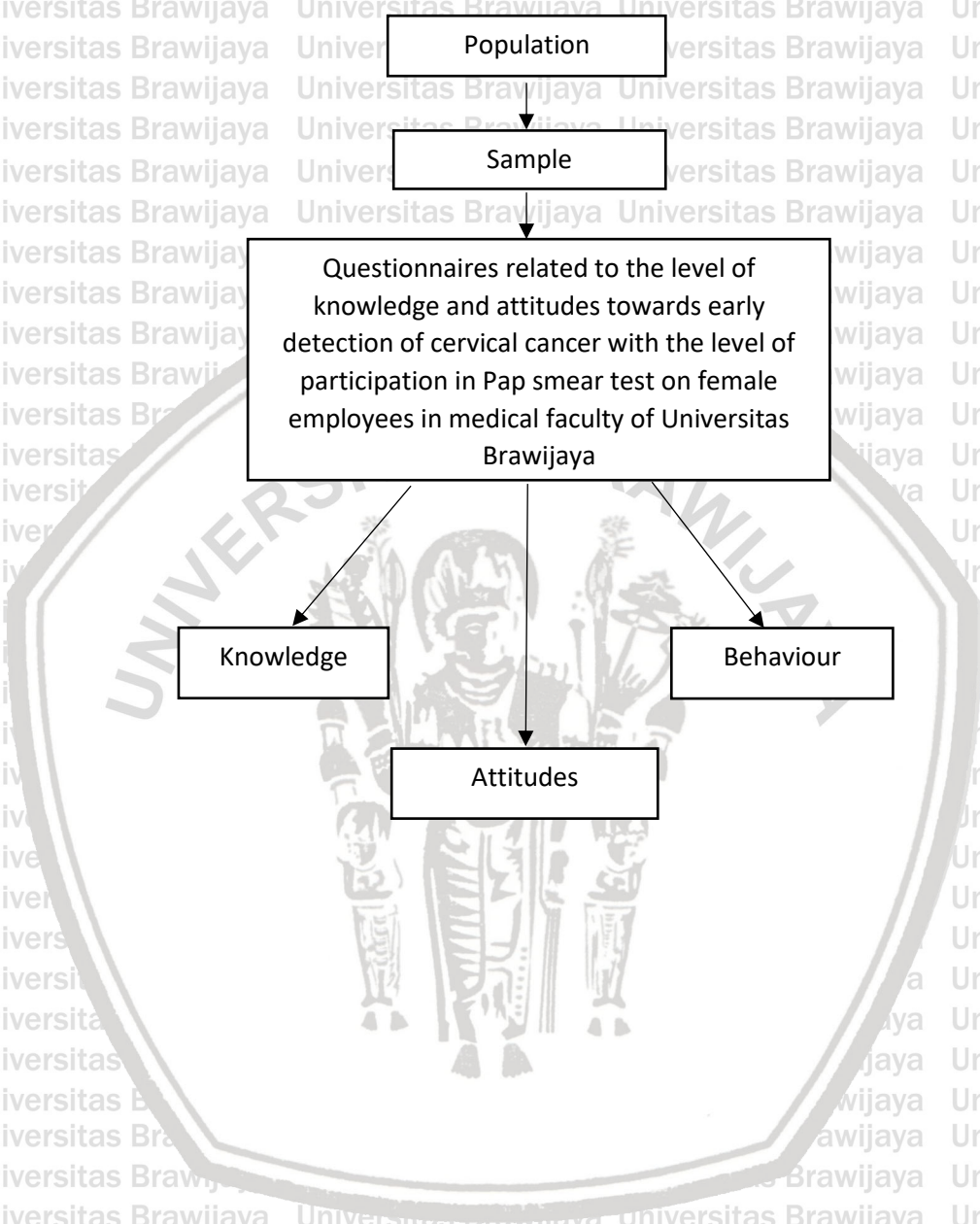
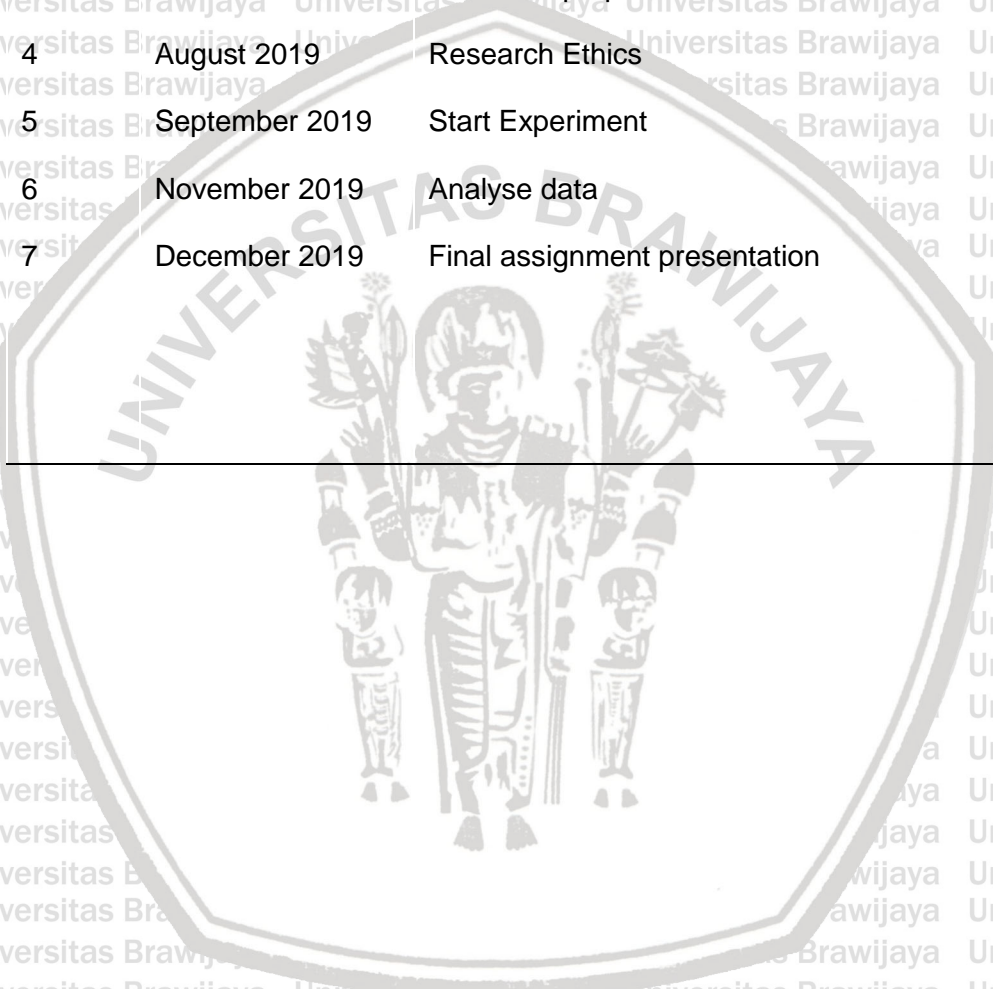


Table 4.3 Research Planning

Number	Month	Planning
1	October 2018	Looking for research sources
2	November 2018	Preparation for Semester proposal
3	December 2018	Semester proposal
4	August 2019	Research Ethics
5	September 2019	Start Experiment
6	November 2019	Analyse data
7	December 2019	Final assignment presentation



CHAPTER 5

RESEARCH RESULTS AND DATA ANALYSIS

5.1 Testing Research Instruments

The questionnaire that will be used as a data collection tool is first tested by a research instrument. Tests conducted are testing the validity and reliability. This test is intended to measure the level of accuracy and reliability of the questionnaire as a data collection tool. The results of the validity and reliability test of the research questionnaire can be explained as below:

5.1.1 Testing Instrument Validity

5.1.1.1 Testing the Validity of Attitude Variable Instruments

Testing the validity of the attitude variable instrument is done by correlating each item score to the total score using the Pearson Correlation technique (Product Moment), testing criteria using the Pearson Correlation technique states if the correlation coefficient (r_{IT}) \geq table correlation (r_{table}) means the questionnaire items are declared valid or capable measure the variables it measures, so it can be used as a data collection tool. The summary of validity testing results is as the following table:

Table 5.1 Validity of Attitude Variable Instruments

Variable	Item	Correlation coefficient	Information
Attitude	Q4	0.822	Valid
	Q9	0.724	Valid
	Q11	0.842	Valid
	Q12	0.820	Valid
	Q15	0.544	Valid
	Q19	0.637	Valid

Based on a summary of the results of testing the validity of the research variables note that all items have the value of the item correlation coefficient with a total score (r_{iT}) > correlation table value (0.361). Thus the questionnaire items on the attitude variables are declared valid or able to measure these variables, so it can be used as a data collection tool in this study.

5.1.1.2 Testing the Validity of Instrument Variables for Actions

Testing the validity of the instrument of action variables is done by correlating each item score to the total score using the Biserial Point technique.

Test criteria state if the correlation coefficient (r_{iT}) \geq correlation table (r_{table}) means the questionnaire items are declared valid or able to measure the variables

measured, so that it can be used as a data collection tool. The summary of validity testing results is as the following table:



Table 5.2 Validity of Instrument Variables for Actions

Variable	Item	Correlation coefficient	Information
Action	Q10	0.700	Valid
	Q12	0.700	Valid

Based on a summary of the results of testing the validity of research variables note that all items have the value of the item correlation coefficient with a total score (r_{IT}) > table correlation values ($r_{table} = 0.361$). Thus the questionnaire items on the action variables are declared valid or able to measure these variables, so that it can be used as a data collection tool in this study.

5.1.2 Instrument Reliability Testing

5.1.2.1 Instrument Reliability Test Attitude Variables

The attitude variable reliability testing is intended to determine the reliability and consistency of the research instrument as a tool to measure the variables it measures. Reliability testing uses the Cronbach's Alpha technique. The test criteria state that the Cronbach's Alpha coefficient ≥ 0.6 means that the questionnaire items are declared to be reliable or consistent in measuring the measured variables. The summary of reliability test results is as the following table:

Table 5.3 Reliability Test Attitude Variables

Variable	Cronbach's Alpha	Information
Action	0.822	Reliable



Based on a summary of the results of testing the reliability of research instruments note that the attitude variable produces Cronbach's Alpha value > 0.6. Thus the questionnaire items on the attitude variable are stated to be reliable or consistent in measuring the variable, so that it can be used as a data collection tool in this study.

5.1.2.2 Testing Instrument Reliability Variable Actions

The reliability test of the action variable is intended to determine the reliability and consistency of the research instrument as a tool to measure the variables it measures. Reliability testing uses the Split-Half technique. The test criteria state if the Spilled-Half coefficient ≥ 0.6 means the questionnaire items are declared reliable or consistent in measuring the measured variables. The summary of reliability test results is as the following table:

Table 5.4 Reliability Variable Actions

Variable	Spill-Half Coefficient	Information
Action	0.822	Reliable

Based on a summary of the reliability test results of the research instruments it is known that the action variable produces a value of the Spilt-Half coefficient > 0.6. Thus the question / question item on the action variable is declared reliable or consistent in measuring the variable, so it can be used as a data collection tool in this study.



5.2 Characteristics of Respondents

5.2.1 Characteristics of Respondents by Age

The respondent's identity based on age can be seen through the following table and explanation:

Table 5.5 Characteristic Of Respondent By Age

Age	Frequency	Percentage
21 - 25 Years	5	5%
26 - 30 Years	21	21%
31 - 35 Years	37	37%
36 - 40 Years	23	23%
41 - 45 Years	9	9%
46 - 50 Years	3	3%
51 - 55 Years	2	2%
Total	100	100%

Based on the above table, it is known that of the 100 female employees in Universitas Brawijaya's medical faculty, who were involved in this study at most 37% of respondents had an age interval between 31-35 years. Furthermore, the second highest amount of 23% of respondents had an age interval between 36-40 years. Then the third most amounted to 21% of respondents had an age interval between 26-30 years. While at least 2% of respondents had an age

interval between 51 - 55 years. This shows that most of the female employees in Universitas Brawijaya's medical faculty, who were involved in this study, had an age interval between 31 - 35 years.

5.2.2 Characteristics of Respondents Based on Education

The identity of respondents based on education can be seen through the following table and explanation:

Table 5.6 Characteristics of Respondents Based on Education

Education	Frequency	Percentage
High School	6	6%
Diploma	11	11%
Bachelor Degree	58	58%
Master's Degree	22	22%
Doctoral Degree	3	3%
Total	100	100%

Based on the above table, it is known that of the 100 female employees in Universitas Brawijaya's medical faculty, 6% of respondents were involved in having a high school / vocational high school education. Furthermore, as many as 11% of respondents had Diploma final education. Then as many as 58% of respondents had final education Bachelor degree. As many as 22% of

respondents had Master's degree education. While as many as 3% of respondents had final education Doctoral degree. This shows that most of the female employees in Universitas Brawijaya's medical faculties, who were involved in this research, had bachelor's degree.

5.2.3 Characteristics of Respondents Based on Occupation

The identity of respondents based on occupation can be seen through the following table and explanation:

Table 5.7 Characteristics of Respondents Based on Occupation

Occupation	Frequency	Percentage
Private employees	46	46%
Lecturer	18	18%
Staff	13	13%
Admin	12	12%
Government employees	9	9%
Analyst	2	2%
Lab staff	1	1%
Total	100	100%

Based on the above table, it is known that out of 100 female employees in the Universitas Brawijaya medical faculty, the most involved in this study

amounted to 46% of respondents had jobs as private employees. Furthermore, the second most amounted to 18% of respondents had job as a lecturer / teacher. Then the third most amounted to 13% of respondents had jobs as employees / staff. While at least 1% of respondents have jobs as laboratory assistants. This shows that most of the female employees in Universitas Brawijaya's medical faculty involved in this study had jobs as private employees.

5.2.4 Characteristics of Respondents Based on Married Status

Respondent's identity based on married status can be seen through the following table and explanation:

Table 5.8 Characteristics of Respondents Based on Married Status

Marriage Status	Frequency	Percentage
Married	85	85%
Single	15	15%
Total	100	100%

Based on the above table, it is known that out of 100 female employees in Universitas Brawijaya's medical faculty, 85% of respondents were married.

While as many as 15% of respondents were single. This shows that most of the female employees in Universitas Brawijaya's medical faculty involved in this study were married.

5.3 Descriptive Analysis

5.3.1 Descriptive Analysis of the Level of Knowledge about Early Detection of Cervical Cancer

Descriptive analysis of the level of knowledge about early detection of cancer can be known as the following table:

Table 5.9 Level of knowledge

Level of Knowledge	Frequency	Percentage
Low (0-16)	0	0%
Moderate (17-32)	36	36%
High (33-46)	64	64%
Total	100	100%

Based on the above table, it is known that out of 100 female employees in Universitas Brawijaya's medical faculty involved in this study, 36% of respondents had sufficient level of knowledge about early detection of cervical cancer, and 64% of respondents had high level of knowledge about early detection of cancer cervix. This shows that most female employees in Universitas Brawijaya's medical faculty involved in this study had high level of knowledge about early detection of cervical cancer.

5.3.2 Descriptive Analysis of Attitudes Toward Early Detection of Cervical Cancer

Descriptive analysis of attitudes towards early detection of cancer can be seen as the following table:

Table 5.10 Level of Attitudes

Attitudes	Frequency	Percentage
Low (0-5)	1	1%
Moderate (6-10)	16	16%
Good (11-15)	78	78%
Very good (16-20)	5	5%
Total	100	100%

Based on the above table, it is known that out of 100 female employees in Universitas Brawijaya's medical faculty involved in this study, 1% of respondents had less attitude towards early detection of cervical cancer, then 16% of respondents had sufficient attitude towards early detection of cervical cancer. Next 78% of respondents had good attitude towards early detection of cervical cancer, while 5% of respondents had very good attitude towards early detection of cervical cancer. This shows that most of the female employees in Universitas Brawijaya's medical faculty involved in this study had good attitude towards early detection of cervical cancer.

5.3.3 Descriptive Analysis of Participation Rates of the Pap Smear Test

Descriptive analysis of the Pap smear participation rate can be seen as the following table:

Table 5.11 Participation Rates of the Pap smear Test

Participation Test	Frequency	Percentage
Present	47	47%
Absent	53	53%
Total	100	100%

Based on the above table, it is known that of the 100 female employees in Universitas Brawijaya's medical faculty involved in this study as many as 47% of respondents told they had never taken Pap smear test, and 53% of respondents told they had never taken Pap smear test. This shows that most of the female employees in Universitas Brawijaya's medical faculty involved in this study never had Pap smear test.

5.4 Cross Tabulation of Respondents' Identities with Pap Smear Test Participation Rates

5.4.1 Cross Tabulation of Age Variables with Participation Rates of the Pap Smear Test

Cross tabulation of age variables with Pap smear test participation rates can be identified as the following table:



Table 5.12 Age Variables with Participation Rates of the Pap smear Test

Age	Level of Participation test				Total	
	Do not Have		Have		N	%
	n	%	N	%		
21 - 25 Years	3	3.00%	2	2.00%	5	5.00%
26 - 30 Years	17	17.00%	4	4.00%	21	21.00%
31 - 35 Years	20	20.00%	17	17.00%	37	37.00%
36 - 40 Years	10	10.00%	13	13.00%	23	23.00%
41 - 45 Years	3	3.00%	6	6.00%	9	9.00%
46 - 50 Years	0	0.00%	3	3.00%	3	3.00%
51 - 55 Years	0	0.00%	2	2.00%	2	2.00%

The calculation results show that out of 100 female employees in Universitas Brawijaya's medical faculties participated in this study, at most 17% of respondents who were in the age interval between 31-35 years said that they had taken the Pap smear test, then the second most was 13% respondents who were at the age interval between 36 - 40 years said they had ever taken a Pap



smear test, the third most at 6% of respondents who were at an age interval between 41 - 45 years said they had taken a Pap smear test.

While at most 20% of respondents who were at the age interval between 31-35 years said they had never taken Pap smear test because the reasons included there were no chance, fear of the Pap smear, and not married. Then the second most amounting to 17% of respondents who were at the age interval between 26-30 years said they had never taken Pap smear test with the reasons of which were not married and there is no time. Next is the third highest of 10% of respondents who were in the age interval between 36-40 years said they had never taken Pap smear test with the reasons for which there was no time and no chance.

5.4.2 Cross Tabulation of Educational Variables with Participation Rates of the Pap Smear Test

Cross tabulation of educational variables with Pap smear test participation rates can be identified as the following table:



Table 5.13 Educational Variables with Participation Rates of the Pap

smear Test

Education	Level of Participation test				Total	
	Do not have		Have		N	%
	N	%	N	%		
High school	4	4.00%	2	2.00%	6	6.00%
Diploma	7	7.00%	4	4.00%	11	11.00%
Bachelor degree	27	27.00%	31	31.00%	58	58.00%
Master's degree	14	14.00%	8	8.00%	22	22.00%
Doctoral degree	1	1.00%	2	2.00%	3	3.00%

The calculation results shows that out of 100 female employees in Universitas Brawijaya's medical faculties participated in this study, 2% of respondents who had high school / vocational education told that they had taken Pap smear test, then 4% of respondents who had Diploma education told that they had taken Pap smears test, 31% of respondents who had Bachelor degree education told that they had taken a Pap smear test, the next was 8% of respondents who had Master's degree education told that they had taken Pap smear test, while 2% of respondents who had Doctoral degree education told they had taken Pap smear test.

While 4% of respondents who had high school / vocational education stated that they had never taken Pap smear test on the grounds that they were not

married and do not need to have Pap smear test. Then by 7% of respondents who had Diploma education told that they had never taken Pap smear test with reasons that includes fear, no chance, and trauma with negative stories. As many as 27% of respondents who had an Bachelor degree education told they had never taken Pap smear test because they had no time, had no chance, were not married, and were afraid. Next, 14% of respondents who had Master's degree stated that they had never taken Pap smear test because they had no time, had no chance, were not married, and were afraid. Whereas 1% of respondents who had Doctoral degree stated that they had never taken Pap smear test because they had not had time to do the Pap smear test.

5.4.3 Cross Tabulation of Occupational Variables with Participation Rates of the Pap Smear Test

The cross tabulation of work variables with the Pap smear test participation rate can be identified as the following table:

Table 5.14 Occupational Variables with Participation Rates of the Pap

smear Test

Occupational	Level of participation test				Total	
	Do not have		Have		N	%
	N	%	N	%		
Private employees	21	21.00%	23	23.00%	44	44.00%
Lecturer	12	12.00%	6	6.00%	18	18.00%
Staff	7	7.00%	6	6.00%	13	13.00%
Admin	7	7.00%	6	6.00%	13	13.00%
Government Employees	3	3.00%	6	6.00%	9	9.00%
Analyst	2	2.00%	0	0.00%	2	2.00%
Lab staff	1	1.00%	0	0.00%	1	1.00%

The calculation results showed that out of 100 female employees in Universitas Brawijaya's medical faculty participated in this study, at most 23% of respondents who had private employee jobs claim to had taken the Pap smear test, then the second most at 6% of respondents each has job as a lecturer / teacher, staff, admin, and government employees told they had taken the Pap smear test.

While at most 21% of respondents who had job as private employees stated that they had never taken Pap smear test on the grounds that they were not

married, did not need to take Pap smear test, had no time, had no chance, and were afraid. Then the second most amounting to 12% of respondents who had jobs as lecturers / instructors told they had never taken Pap smear test with the reasons that includes fear, no chance, no time, and not married. Next, 7% of respondents, each of whom had job as an employee / staff and admin, stated that they had never taken Pap smear test on the grounds that there was no time, no chance, not married, and afraid, and trauma with negative stories.

5.4.4 Cross Tabulation of Marriage Status Variables with Participation Rates of the Pap smear Test

Cross tabulation of marital status variables with Pap smear test participation rates can be found as the following table:

Table 5.15 Marriage Status Variables with Participation Rates of the Pap smear Test

Marriage status	Level of participation test				Total	
	Do not have		Have		N	%
	N	%	N	%		
Married	40	40.00%	45	45.00%	85	85.00%
Single	13	13.00%	12	12.00%	15	15.00%

The calculation results show that out of 100 female employees in Universitas Brawijaya's medical faculties participated in this study, 45% of married



respondents told that they had taken the Pap smear test, then 12% of single respondents said they had ever taken Pap smear test. While 40% of respondents who were married stated that they had never taken Pap smear test on the grounds that there were no time, no chance, and fear for the Pap smear test. Then 13% of single respondents stated that they had never taken Pap smear test because they were not married.

5.5 Relationship Analysis of Knowledge Levels of Early Detection of Cervical Cancer with Participation Rate of Pap smear Test

The value of P-Value which is below 0.05 is considered significant whereas if the value of P-Value above 0.05 is considered as insignificant. The relationship of the level of knowledge about early detection of cervical cancer with the level of participation in Pap smear tests can be known as the following table:

Table 5.16 Knowledge Levels of Early Detection of Cervical Cancer with Participation Rate of Pap smear Test

Level Of Knowledge	Level of participation test				Total	P-Value
	Do not have		Have			
	n	%	N	%		
Low (0-16)	0	0.00%	0	0.00%	0	0.00%
Moderate (17-32)	20	20.00%	16	16.00%	36	36.00%
High (33-46)	33	33.00%	31	31.00%	64	64.00%

0.701



The calculation results showed that out of 100 female employees in Universitas Brawijaya's medical faculties participated in this study, as many as 20% of respondents who had sufficient level of knowledge about early detection of cervical cancer told they had never taken Pap smear test, while 16% of respondents who had sufficient level of knowledge about early detection of cervical cancer states that taken Pap smear test. Then as many as 33% of respondents who had high level of knowledge about early detection of cervical cancer told they had never taken Pap smear test, while as many as 31% of respondents who had high level of knowledge about early detection of cervical cancer told they had taken Pap smear test.

Testing the relationship between the level of knowledge about early detection of cervical cancer with the level of participation in Pap smear tests performed using Chi Square. Based on the table note that the probability value of 0.7016. These results indicate the probability > level of significance (alpha ($\alpha = 5\%$)). Thus it can be stated that there is no significant relationship between the level of knowledge about early detection of cervical cancer with the level of participation in Pap smear tests.

5.6 Analysis of the Relationship of Attitudes Toward Early Detection of Cervical Cancer with the Participation Rate of the Pap smear Test

The value of P-Value which is below 0.05 is considered significant whereas if the value of P-Value above 0.05 is considered as insignificant. The relationship of attitude towards early detection of cervical cancer with the level of participation in

Pap smear tests can be known as the following table:

Table 5.17 Attitudes toward Early Detection of Cervical Cancer with the Participation Rate of the Pap smear Test

Attitudes	Level of participation test				Total	P-Value
	Do not have		Have			
	N	%	N	%	n	
Low (0-5)	0	0.00%	1	1.00%	1	1.00%
Moderate (6-10)	5	5.00%	11	11.00%	16	16.00%
Good (11-15)	46	46.00%	32	32.00%	78	78.00%
Very good (16-20)	2	2.00%	3	3.00%	5	5.00%

The calculation results showed that out of 100 female employees in Universitas Brawijaya's medical faculties participated in this study, none of the respondents had low attitude towards early detection of cervical cancer, claimed they had never taken Pap smear test, while as many as 1% of respondents who had lack of attitude towards early detection of cervical cancer stated they had taken Pap smear test. Then as many as 5% of respondents who had an adequate attitude towards early detection of cervical cancer told they had never taken Pap smear test, while as many as 11% of respondents who had sufficient attitude towards early detection of cervical cancer told they had taken Pap smear test. Next as many as 46% of respondents who had good attitude towards early detection of cervical cancer told they had never taken Pap smear test, while as many as 32% of respondents who had good attitude towards early detection of cervical cancer told



they had taken Pap smear test. Whereas 2% of respondents who had very good attitude towards early detection of cervical cancer told they had never taken Pap smear test, while as many as 3% of respondents who had very good attitude towards early detection of cervical cancer told they had taken Pap smear test.

Testing the relationship between attitudes toward early detection of cervical cancer with the level of participation in Pap smear tests performed using Chi Square. Based on the table note that the probability value of 0.131. These results indicate the probability > level of significance (alpha ($\alpha = 5\%$)). Thus it can be stated that there is no significant relationship between attitudes toward early detection of cervical cancer with the level of participation in Pap smear tests.

5.7 Descriptive Analysis of Action Variables

5.7.1 Descriptive Analysis of the Place of Pap smear Tests

Descriptive analysis of where to conduct the Pap smear test is informed through the following table and explanation:

Table 5.18 Place of Pap smear Tests

Place test taken	Frequency	Percentage
Hospital	28	60%
Primary healthcare	7	15%
Clinic	12	26%
Total	47	100%

Based on the above table, it is known that of the 47 female employees in Universitas Brawijaya's medical faculty who have had Pap smears, 60% of respondents have had Pap smears in hospitals, then 15% of respondents have Pap smear tests at the primary healthcare, while as many as 26 % of respondents had Pap smear test at the doctor's clinic. This shows that most of the female employees in Universitas Brawijaya's medical faculty who have done Pap smear tests, do the tests at the hospital.

5.7.2 Descriptive Analysis of people whom accompany respondent for Pap smear Tests

Descriptive analysis of friends to do a Pap smear test informed through the following tables and explanations:



Table 5.19 People whom accompany respondent for Pap smear Tests

Place test taken	Frequency	Percentage
Husband	13	28%
Mother	2	4%
Friend	32	68%
Total	47	100%

Based on the table above, it is known that of 47 female employees in Universitas Brawijaya's medical faculties who had Pap smears, 28% of respondents took Pap smears accompanied by their husbands, then 4% of respondents took Pap smears accompanied by mothers (biological / in-laws), while as many as 68% of respondents took Pap smear test accompanied by a friend. This shows that most of the female employees in Universitas Brawijaya's medical faculty who have done Pap smear tests, they did the tests accompanied by friends.

5.7.3 Descriptive Analysis of the Previous Time for Conducting the Pap smear Test

Descriptive analysis of the last time conducting a Pap smear test was informed through the following table and explanation:



5.20 Previous Time for Conducting the Pap smear Test

Previous Time For Last Time Test taken	Frequency	Percentage
1 Month	3	6%
6 Months	8	17%
1 Year	36	77%
Total	47	100%

Based on the above table, it is known that of the 47 female employees in Universitas Brawijaya's medical faculty who have taken Pap smears, as many as 6% of respondents stated that the last time they did Pap smear test was one month ago, then 17% of respondents told that the last time they did Pap smear test six months ago, while 77% of respondents stated that the last time they did Pap smear test was one year ago. This shows that most of the female employees in Universitas Brawijaya's medical faculty who had done Pap smears, stated that the last time they did Pap smears was one year ago.

5.7.4 Descriptive Analysis of the Reasons for Doing a Pap smear Test

Descriptive analysis of the reasons for conducting a Pap smear test is informed through the following table and explanation:



Table 5.21 Reasons for Doing a Pap smear Test

Reasons for Doing the Test	Frequency	Percentage
Husband support	4	9%
Have symptoms	3	6%
Cervical cancer prevention action	40	85%
Total	47	100%

Based on the above table, it is known that of the 47 female employees in Universitas Brawijaya's medical faculties who have taken Pap smear test, 9% of respondents stated that the reason they had Pap smear test was due to their husband's encouragement, then 6% of respondents stated that the reason they did Pap smear test is due to a perceived complaint, while as many as 85% of respondents stated that the reason they did Pap smear test was as a preventative measure for cervical cancer. This shows that most of the female employees in Universitas Brawijaya's medical faculty who had done Pap smear tests, stated that the reason they did Pap smear tests was as a preventative measure for cervical cancer.

5.7.5 Descriptive Analysis of Transportation to Pap smear Test Location

Descriptive analysis of transportation to Pap smear test location is informed through the following table and explanation:



Table 5.22 Transportation to Pap smear Test Location

Transportation to Pap smear test Location	Frequency	Percentage
Motor vehicle	42	89%
Public Vehicle	4	9%
Walking	1	2%
Total	47	100%

Based on the above table, it is known that of the 47 female employees in Universitas Brawijaya's medical faculty who had done Pap smear test, 89% of respondents used motorized vehicles to reach the location of health services to do Pap smear test, then 9% of respondents used public transportation to reach health service location to do Pap smear test, while as many as 2% of respondents walked to reach health service location to do Pap smear test. This shows that most of the female employees in Universitas Brawijaya's medical faculties who have done Pap smear tests stated that they used motorized vehicles to reach the health service location to do Pap smear tests.

5.7.6 Descriptive Analysis Carrying Out Continuous Pap smear Tests

Descriptive analysis conducts continuous Pap smear test checks through the following tables and explanations:



Table 5.23 Carrying out Continuous Pap smear Tests

Continuous Test Method	Frequency	Percentage
Yes	31	31%
No	69	69%
Total	100	100%

Based on the table above, it is known that of the 100 female employees in Universitas Brawijaya's medical faculties participated in this study, 31% of respondents stated that they would carry out an examination using the Pap smear test method continuously, then 69% of respondents told that they would not check with the Pap smear test method on an ongoing basis. This showed that most of the female employees in Universitas Brawijaya's medical faculties participated in this study stated that they would not carry out continuous Pap smear tests.

5.7.7 Descriptive Analysis of Husband's Support for Conducting a Pap smear Test

Descriptive analysis of the husband's support for the Pap smear test is informed through the following table and explanation:



Table 5.24 Husband's Support for Conducting a Pap smear Test

Husband support	Frequency	Percentage
Yes	67	78%
No	19	22%
Total	86	100%

Based on the above table, it is known that from 86 female employees in Universitas Brawijaya's medical faculty who were already married, as many as 78% of respondents stated that they got their husband's support to do Pap smear test, then as many as 22% of respondents told that they did not get their husband's support to do Pap smear test. This shows that most of the female employees in Universitas Brawijaya's medical faculty who were already married, stated that they got the support of their husbands to do Pap smear test.

5.7.8 Descriptive Analysis Informing Others about the Pap smear Test

Descriptive analysis informs others about the Pap smear test informed through the following tables and explanations:



Table 5.25 Informing Others about the Pap smear Test

Sharing Information About Cervical Cancer		Frequency	Percentage
Early Detection			
Yes		67	67%
No		33	33%
Total		100	100%

Based on the above table, it is known that of the 100 female employees in Universitas Brawijaya's medical faculty participated in this study, as many as 67% of respondents stated that they would share information about the Pap smear test as an early detection of uterine cancer to friends, relatives, or others, then 33% of respondents stated that they would not share information about the Pap smear test as an early detection of uterine cancer to friends, relatives, or others. This shows that most female employees in Universitas Brawijaya's medical faculties participating in this study stated that they would share information about the Pap smear test as an early detection of uterine cancer to friends, relatives, or others.

CHAPTER 6

DISCUSSION

This study aims to determine the relationship of the level of knowledge and attitudes towards early detection of cervical cancer with the level of Pap smear test participation in female employees of the Faculty of Medicine in Universitas Brawijaya with respondents of 100 employees.

The most common cancers in the community include cervical cancer. Human papillomavirus (HPV) infection is a major factor in cervical cancer. This is the third most common malignancy in women worldwide, and still stands as the leading cause of cancer-related deaths in women in developing countries.

6.1 Identity of Respondents

From this research, it is shown that the majority of female employees in Universitas Brawijaya's medical faculty the highest level of education was Bachelor degree. Most respondents were married. In general women before age 32 were considered most fertile as after age 32 women's fertility starts to decrease and when they reach age 37 the fertility declines more significantly, finally when women reached the age 37 the fertility is dramatically fall. In research conducted the respondent age mostly got were between ages 31-35 years old thus their fertility level decreases by age (Hum 2010).

6.2 Knowledge level results and early detection and participation of Pap

smear tests

6.2.1 Knowledge on Pap smear screening

Majority of the respondents knew and had heard about Pap smear test. As much as 64% of the respondents got high level of knowledge score, even though they were high in knowledge about Pap smear, some of them still have limited knowledge on the procedures regarding the test. Based on the research which conducted by (Oon 2011) stated that many respondents have high knowledge and the knowledge about Pap smear was adequate in of the respondents (Thippeveeranna, 2013).

6.2.2 Attitude towards Pap smear screening

Regardless of their groups, respondents often did not feel the necessity to do the Pap smear test due to absence in symptoms. The respondents also mentioned that they would conduct the Pap smear test if they had reproductive problems. For the groups that never once done the Pap smear test, they mentioned that do not want to do the Pap smear test due to embarrassment and fear of the test procedure. Most of the female employees in Universitas Brawijaya's medical faculty involved in this study have a good attitude towards early detection of cervical cancer. Based on the research conducted by (Oon 2011) stated that many respondents does not feel the necessity to do Pap smear test due to absent in symptoms. From the literature (Thippeveeranna, 2013) inadequate attitude, when the woman presented reasons for the examination other than the prevention of Cervical Cancer.

6.2.3 Participation of Pap smear test

Most of the female employees who were in the Universitas Brawijaya's medical faculty involved in this study had never had Pap smear test. There were also those who perceived themselves as being healthy and therefore did not need Pap smear at this moment. Based on the research conducted by (Oon, 2011) stated that many respondents did not take Pap smear test. Beliefs about Pap smears appear to be related to actual participation in cancer screening (Esquer 2003). Many believed that Pap smear is performed only on women who are symptomatic (Wong lw 2009).

6.2.4 Place test conducted

Majority of the respondents conducted the Pap smear test at the nearest hospital around them. This made them easier to have regular check-up and also easy access to healthcare service.

6.2.5 Accompany

As much as 68% of the respondents choose their friends to accompany them to take the Pap smear test as they were more comfortable around their friends compared to other people which were close to them.

6.2.6 The previous time test taken and continuity taking the test.

Based on the data collected, majority respondents took 1 year before from the time the data is being collected. Most of the respondents mentioned that lack of time was one of the barriers to women's access to Pap smear screening services. Various situations were associated with the lack of time such as being busy with their tasks either as housewives and working women as well as long there was also a long waiting time especially at government's clinics. Majority of the respondent did not continue taking the Pap smear test frequently.

6.2.7 Support

Generally there was very little involvement of family members for cervical cancer screening but there was also some support from the respondent's husband to do the test. There was lack of family and spousal support for women who wanted to do Pap smears. Some respondents never discussed Pap smear with their respective spouses and vice versa. But they felt that if they were to discuss with their spouses, they would definitely gain their support. As a step of prevention of cervical cancer, majority acted on their own to take care of their health.

6.2.8 Accessibility

Majority of the respondents noted that they brought their own vehicle to the location where they conducted the test and accessibility was never a problem for Pap smear test.

6.2.9 Information spreading

Respondents stated that they would share information about the Pap smear test as an early detection of cervical cancer to friends, relatives, or others when they are spending time around them.

6.2.10 Relationship between attitudes toward early detection of cervical cancer with the level of participation in Pap smear tests

Testing the relationship between attitudes toward early detection of cervical cancer with the level of participation in Pap smear tests performed using Chi Square. Based on the table note that the probability value of 0.131, the value of P-Value which is below 0.05 is considered significant whereas if the value of P-Value above 0.05 is considered as insignificant. These results indicate the probability level of significance (alpha ($\alpha = 5\%$)). Thus it can be stated that there is no significant relationship between attitudes toward early detection of cervical cancer with the level of participation in Pap smear tests. The limited knowledge and nonchalant attitude as well as ignorance about cervical cancers and Pap smear screening are the two most significant factors affecting women from being screened. Among other reasons for low participation in Pap smear test included women not perceiving themselves as being susceptible to cervical cancer because they had no symptoms of illness and this is further strengthened because of inadequate information and knowledge about the importance of Pap smear screening. Regarding women's attitude towards Pap smear screening, embarrassment and fear are seen to be as a main barrier to undergo Pap smear test. Fear can be associated with many elements such as fear of pain, fear of

getting negative results, procedure. The concept of embarrassment can be associated with strong cultural factors since majority of women mentioned being shy if they have to expose their private parts and Pap smear test is a very intimate procedure. Furthermore, there was also gender issue involved in that they would be further embarrassed if the Pap smears were performed by male doctors. In conclusion, the low uptake of Pap smear screening is associated with various factors some of which were noted in previous studies (Oon, 2011) Although knowledge of Pap smear as a screening procedure for cervical cancer is high, practice is still low (Thippeveeranna, 2013).

6.3 Research Limitations

One of the limitations faced in this study is the different views of each respondent on the questions in the questionnaire and the explanations that had been given. Where it can lead to interpretation in answering different questionnaires so as to produce different conclusions in the process of analysis and discussion of this study.

Chapter 7

CONCLUSIONS AND SUGGESTION

7.1 Conclusion

Based on the results and discussion, it can be concluded that:

1. The respondents have high level of knowledge of respondents and a good attitude towards early detection of cervical cancer.
2. Majority of the respondents had never participated for a Pap smear test.
3. There is no significant relationship was found between the level of knowledge and attitudes toward early detection of cervical cancer and the level of participation in Pap smear tests.

7.2 Suggestion

Based on the results and discussion, suggestions can be taken that:

1. Need to educate about cervical cancer in the community with more.
2. Need more attention to personal health.

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