Cervical cancer is a gynecologic malignancy caused by the Human Papilloma Virus (HPV). This disease can be prevented by early detection. Pap smear and Visual Inspection of Acetic Acid (VIA) is one type of screening examination in early detection of cervical cancer which is effective for the early stages of disease detection, simple and cheap. The problem found is the high number of cervical cancer sufferers, but in contrast to the coverage rate for early detection, which is still very low, especially in developing countries such as Indonesia. Thus, the question arises what are the factors that influence the early detection of cervical cancer through the VIA/Pap smear method. The literature review is sourced from various research articles, study cases, and reputable website that published on 2008-2020. The searching method of the sources used keywords, inclusion and exclusions criteria. The final sources used 11 articles that already checked using critical appraisal tools. Based on the explanation from various sources, the factors that influence the early detection of cervical cancer using the VIA and Pap smear methods are very diverse, both at the global and national levels. The most dominant cause of the low level of detection is knowledge about cervical cancer and prevention through early detection. Where knowledge is strongly influenced by the level of education that women have.

Keywords: Cervical cancer, Pap smear, VIA, early detection, factor
INTRODUCTION

The public health problem facing the world today is an epidemiological transition, namely the shifting of health problems from infectious diseases caused by bacteria, viruses, fungi, and microorganisms to non-communicable diseases. The World Health Organization (WHO) states that cancer is one of the non-communicable diseases that is a health burden and the main cause of death worldwide (Pangbowo, 2019).

Cancer can attack almost every part of the human body, among the most likely to get cancer is the female reproductive system, one of which is the cervix. Cervical cancer is a gynecologic malignancy caused by the HPV which can cause women's health problems, especially in developing countries. According to American Cancer Society (2019), causes of cervical cancer other than the HPV virus, namely sexual history (<18 years, multi-partner sex, at-risk partners), smoking, weak immune system, chlamydia infection, long-term use of oral contraceptives, high gravida, young age at first pregnancy, status economics, low fruit and vegetable diet, use of Diethylstilbestrol (DES), family history of cervical cancer, and use of Intra Uterine Device (IUD) contraception. This cancer begins to be found at the age of 25-34 years and peaks at the age of 45-54 years (Jeong et al., 2012; Okunowo et al., 2018; Ashtarian et al., 2017).

WHO noted that cervical cancer is the 4th most common cancer that occurs in women. Based on data from the Globocan International Agency for Research on Cancer (IARC) in 2020, there were 604,127 people or (3.1%) new cases of cervical cancer. Southeast Asia ranks 7th with an ASR of 17.8 per 100,000). Overall, the death rate caused by cervical cancer reached 341,831 people or (3.3%) and 87.4% of them occurred in developing countries which contributed the largest portion of the global burden, while in developed countries cases of cervical cancer were very rare (WHO, 2020; Okunowo et al., 2018).

Indonesia is the country with the most cervical cancer cases in Southeast Asia with 36,000 cases and the 2nd largest cancer in Indonesia (19.12%) (Pangbowo, 2019). In 2020 there were 36,633 (17.2%) new cases of cervical cancer and 100 new cases were recorded every day. Meanwhile, the death rate is 21,003 people and as many as 57 women die every day due to cervical cancer (The Global Cancer Observatory, 2020).

WHO estimates that in 2030 there will be a 300% surge in cancer cases globally, and 70% of the spike will occur in developing countries including Indonesia. Thus, it can be estimated that there will be a spike in the number of cancer sufferers in developing countries by ± 500% in 2030, if no promotional or preventive measures are taken (Johan, 2017; WHO, 2020).
Cervical cancer is a preventable and curable disease when detected and treated at a pre-cancerous stage (Okunowo et al., 2018). Cervical cancer is asymptomatic in its early stages, so screening is very important at an early stage because the disease is easily detected in the pre-malignant phase (Ashtarian et al., 2017). Pap smear and VIA is one type of screening examination in the early detection of cervical cancer which is effective for the early stages of disease detection, simple and inexpensive. Pap Smear is a method of examining cells taken from the cervix and then examined under a microscope. Pap smear detects precancerous lesions before cells develop into cancer (Ackerson, Pohl and Low, 2008). While VIA is a method of early detection of cervical cancer by applying acetic acid (vinegar) into the cervix. If there is a cancer lesion, there will be a change in color to a slightly whitish color on the cervix (Shah, 2019). The VIA screening method can be carried out at lower health facilities by trained health personnel and the results can be known immediately (Febrianti and Wahidin., 2020; Ashtarian et al., 2017; Hailemariam et al., 2020).

All women should start screening 3 years after first becoming sexually active. Pap smears are done every year. Women aged 30 years or older with normal Pap smear results three times, have the test again every 2-3 years, except for high-risk women who have to have the test every year. In addition, women who have had a total hysterectomy are not recommended to have a Pap smear test again. However, women who have had a hysterectomy without cervical removal still need to have a Pap smear or VIA test. Women aged 30-50 are recommended to perform VIA at 3-5 year intervals (Febrianti. and Wahidin., 2020; Zhao et al., 2021).

In Indonesia, the Pap smear has been known since the 1980s but has not been carried out massively so that the number of cervical cancer sufferers is still high (Febrianti. and Wahidin., 2020). Screening for cervical cancer detection in Indonesia is covered by the National Health Insurance and is available free of charge since 2015 (Zhao et al., 2021). But according to Sumarmi (2021), 81% of women have never had a Pap smear test, 28% have heard of cervical cancer, and 33% have not heard of the Pap smear test.

According to data from the Indonesian Health Profile in 2020, in the range of 2018-2020, the percentage of cervical cancer early detection examinations was 8.3% or 3,207,659 people in women aged 30-50 years with the results of early detection of cervical cancer using the VIA method until By 2020, 50,171 VIA were positive and 5,847 suspected cervical cancer (Indonesia, 2021).

The low coverage of early detection of cervical cancer such as Pap smears and VIA is in line with the 2018 WHO estimate that only 5% of women in developing countries including
Indonesia receive Pap smear services, while in developed countries, almost 70% of women carry out Pap smears (Febrianti and Wahidin., 2020). The research above shows that the number of cervical cancer sufferers is still very high, while the coverage rate for early detection examinations with the VIA/Pap smear method is still low, both globally and nationally.

Therefore, this study aims to explore and analyze some of the literature regarding the factors that influence the early detection of cervical cancer using the VIA/Pap smear method. This study is expected to provide useful information regarding the factors that influence the low early detection of cervical cancer, so that preventive measures can be taken to reduce the incidence of cervical cancer.

METHOD

This Literature review is sourced from various research articles and case reports in Indonesian and English published in 2008-2021. Sources are accessed through Pubmed, ScieneDirect, and reputable websites, such as WHO, GLOBOCAN, American Cancer Society, Ministry of Health RI, and Infodatin. The keywords used in the article search were “Cervical cancer”, “Pap smear”, “VIA”, “Women of childbearing age” and “Factors affecting early detection of cervical cancer”.

The selection of sources was based on predetermined inclusion criteria, namely the study population was married or widowed women. Sources show that the factors that influence early detection of cervical cancer are very diverse. In addition, the exclusion criteria were also determined by sources who explained that they had not been diagnosed with cervical cancer and had ever had positive IVA or Pap smear results.
RESULTS

The process of searching for sources that have been found through keywords and meet the inclusion and exclusion criteria will be continued with the critical appraisal stage. This stage is carried out to prove that the sources used are feasible and relevant. In the end, 11 articles were determined that would be used as sources for the literature review.

These sources use descriptive cross-sectional study research methods, systematic reviews, analytical cross-sectional studies, qualitative studies, and descriptive correlations with research processes carried out in different places, namely Indonesia, Nigeria, several countries in ASEAN, Africa, America, Omani Saudi Arabia, and Iran.

Table 1. Research screening results

<table>
<thead>
<tr>
<th>Researcher/Year</th>
<th>Title</th>
<th>Method</th>
<th>Number of Samples</th>
<th>Dominant Factors Affecting Early Detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumarmi, Yu-Yun Hsu., Ya-Min Cheng., Shu-Hsin Lee (2021).</td>
<td>Factors Associated with The Intention to Undergo Pap Smear Testing In The Rural Areas of Indonesia : A Health Belief Model</td>
<td>Descriptive cross-sectional study</td>
<td>687</td>
<td>- Health beliefs (benefits, motivation to do pap smears)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- Demographics (income, education, awareness, previous screening experience, friend's history of cervical cancer)</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Title</td>
<td>Study Design</td>
<td>Sample Size</td>
<td>Key Findings</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>--------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Rini Febrianti, Mugi Wahidin (2020).</td>
<td>Factors Affecting Pap Smear Examination in Women of Childbearing Age at Midwifery Polyclinic H. Abdul Manap Regional General Hospital Jambi City</td>
<td>Analytical cross-sectional study</td>
<td>117</td>
<td>Knowledge - Attitude - Family support</td>
</tr>
<tr>
<td>Ernawaty Siagian (2015).</td>
<td>Factors Related to The Motivation of Employees Pap Smear Examination</td>
<td>Correlation descriptive</td>
<td>90</td>
<td>Extrinsic motivation is security/comfort - Intrinsic motivation is knowledge - Willingness and awareness - Interpersonal relations</td>
</tr>
</tbody>
</table>
**DISCUSSION**

Based on 11 journals that discuss the factors that influence the early detection of cervical cancer with the VIA and Pap Smear methods, it is concluded that there are very diverse factors including, health beliefs (perceived benefits, and motivation to do a Pap smear), demographic factors (age, income, education, awareness, previous screening experience, history of friends suffering from cervical cancer, marital status, occupation), health characteristics (parity, Pap smear awareness, previous screening, history of friends and family), social influence (culture, beliefs), and social networks), assessments and beliefs about Pap smears, the perception of not being vulnerable to cervical cancer because there is no family history of suffering and have never felt symptoms of cervical cancer such as vaginal discharge and bleeding outside the menstrual cycle, low knowledge, negative attitude towards Pap smear examination, social support (family especially mother and husband and...
friends), there is no recommendation/counseling from health workers, afraid if the results of the early detection test are positive for cervical cancer, are embarrassed to do the examination, the cervical cancer screening program is not evenly distributed in Indonesia, intrinsic factors (knowledge, willingness, awareness to do early detection), extrinsic factors (safety, comfort during examination), actions to perform Pap smears, and the lack of information media about cervical cancer prevention through early detection of VIA and Pap smears.

This statement is proven in research conducted by Sumarmi (2021) in rural areas of the island of Sulawesi, precisely in Takalar district, that in terms of demographic factors and health characteristics, 54% of women do not have jobs and income, so that as many as 554 women out of a total of 687 or 81% have never had a Pap test. Furthermore, from the health beliefs factor, 61% of women have a high motive for early detection. But only 19% have had a Pap smear. A woman has a high intention or motive to undergo early detection if they think cervical cancer is a serious disease and needs preventive measures. This is related to the knowledge that every woman has about early detection of cervical cancer (Okunowo et al., 2018).

In line with research conducted by Febrianti and Wahidin (2020) in Jambi city that women of childbearing age have a low level of knowledge of 83.7%. The low level of knowledge of the respondents could be due to the low level of education. Education affects the learning process, the higher a person's education, the wider the knowledge and the easier it is for that person to receive information both from other people and from the mass media. The more information that comes in, the more knowledge you get about health (Notoatmodjo, 2010). From the results of this study, it is explained that knowledge affects women in reliable age in carrying out Pap smear examinations to maintain overall gynecological health. Knowledge is not only obtained from formal education but also obtained from counseling, friends, brochures. The more knowledge about Pap smears, the more likely it is to perform early detection of cervical cancer (Febrianti. and Wahidin., 2020; Ackerson, Pohl and Low, 2008).

Low knowledge is also found in research Okunowo (2018) in Nigeria, which is 40%, so that the coverage of Pap smear examination in that country is also very low, which is less than a quarter of respondents or 22.9%). In another study conducted in several ASEAN countries, the lack of knowledge about cervical cancer screening in the community was also caused by cultural norms, stigma related to the disease that prevented women from speaking up and seeking treatment, especially if they did not show symptoms (Zhao et al., 2021). However, the cultural norms and stigma as intended are not explained in detail in the study, considering that
this systematic review was conducted in several ASEAN countries, namely Cambodia, Laos, Myanmar, Vietnam, Philippines, Thailand, Indonesia, Malaysia, Singapore, and Brunei Darussalam. Of course, there are significant cultural differences between these countries.

In addition to the low level of education and literacy rates, several regions in Indonesia, where women in reliable age have never received information about the importance of Pap smear examination for married women. Therefore, screening recommendations by service providers are very helpful in increasing women's awareness and knowledge about cervical cancer prevention (Febrianti. and Wahidin., 2020; Okunowo et al., 2018). This is also explained in the research Ashtarian (2017) that the most important facilitator is recommendations from health care providers, friends and family.

On research Ackerson, Pohl and Low (2008) which used a qualitative study on 7 African-American women with low income, explained that the factors that influence early detection are the social influence of families who have a history of cervical cancer, previous health care experience that there is fear, discomfort and pain that is felt so that they are reluctant to do a Pap smear. In this qualitative study, it is explained in detail about the inclusion criteria and the way of recruiting informants, but the exclusion criteria are not explained at all so that there may be bias or confounding in this study. In line with research Enggayati and Idaningsih (2017). The problems in cervical cancer screening efforts are the unwillingness of women to be examined because of shame and fear of having their reproductive organs checked by health workers, doubts about the importance of the examination, fear of the reality of the results of the examination that will be faced, fear of feeling pain during the examination, reluctance to be examined by a doctor, male doctor or midwife and lack of family encouragement, especially husband (Enggayati and Idaningsih, 2017).

Meanwhile, the challenges facing ASEAN in the prevention and control of cervical cancer include inequality in the availability of screening services and coverage. In Indonesia, it is estimated that 80% of provinces do not have affordable cervical cancer screening programs from the government. The average screening participation in 2019 was reported to be below 10%, limited follow-up and care capacity and lack of funding for screening programs were the biggest challenges facing countries in ASEAN. This is contrary to research Sumarmi (2021) that the Pap smear test has been fully covered by the Indonesian Health Insurance (JKN) (Zhao et al., 2021).

Different from research Siagian (2015), factors related to motivation for Pap smear examination are divided into two, namely intrinsic factors such as knowledge, willingness and awareness. While extrinsic factors are security, comfort, and interpersonal relationships. If a
person has a high will and awareness of the importance of health, that person will automatically carry out a health examination, especially a Pap smear examination. However, this study did not explain the kinds of interpersonal relationships that affect the motivation for early detection.

On research Alwahaibi (2018) raised sociodemographic factors such as age, education level, and income as factors that influence the implementation of early detection in Omani Saudi Arabia. High income is associated with high knowledge, this is related to cervical cancer knowledge. Other factors described in the study Enggayati and Idaningsih (2017), that early detection of cervical cancer by a woman can be carried out properly if there is social support from the family, where family members are ready to provide help and assistance if needed. This family support can be in the form of internal or nuclear family social support, such as husband or extended family, namely in-laws, parents, husband's siblings, and siblings. The head of the household, namely the husband, can participate in the reproductive health of the wife. The form of this role can be in the form of providing support for reproductive health. Family support contributes to raising awareness in Pap smear examinations.

This is supported by research conducted Gustiana (2014), that the influence of a social support described in the main effect hypothesis model shows that social support can improve the physical and psychological health of individuals with or without stress, in other words someone who receives social support with or without pressure or stress will tend to be healthier. On research Zhao (2021) which was conducted in several countries in ASEAN, explained suggestions for improving and promoting cervical cancer screening, including promoting HPV detection tests with vaginal self-sampling, adopting optimal strategies in cervical cancer screening and management, incorporating cellular technology for health (mhealth) that contributes on improving the management of women who are screened and increasing public awareness to overcome health system barriers to cervical cancer screening through the WHO program in 2016 namely the Mobile Health (mCerviclCancer) intervention where this digital platform has proven its effectiveness in several countries. Another suggestion described in this study is to improve health education and reduce stigma. Public health education contributes to increasing knowledge and awareness of cervical cancer as well as increasing women's trust, acceptance, participation, and compliance. This study also explains based on research with systematic reviews and meta-analysis that theory-based educational interventions tailored to local communities can significantly improve screening. Cervical cancer is often stigmatized with infectious diseases and the fear of transmission. The next suggestion is to include public health workers in screening services and integrate cervical
cancer screening programs into the existing health system such as family planning services that have been carried out by Laos (Zhao et al., 2021).

It is concluded from the discussion above, that the factors that influence the early detection of cervical cancer using the VIA and Pap smear methods are very diverse, both at the global and national levels. The most dominant factor that causes the low level of early detection is knowledge about cervical cancer and knowledge about prevention through early detection screening. Where this knowledge is influenced by the level of education that women have. However, further research studies still need to be done, especially in rural areas, considering the low level of education is dominated by women who live in rural areas. The existence of further research is expected to provide an overview of the factors causing the low rate of early detection, so that from these factors solutions can be found and preventive efforts can be made.

CONCLUSION

Cervical cancer is asymptomatic in its early stages, so screening with the VIA or Pap smear method is very important because this disease is easily detected in the pre-malignant phase. The high incidence of cervical cancer is not proportional to the percentage of early detection of cervical cancer. The factors that affect the early detection of cervical cancer with the VIA and Pap Smear methods are very diverse, including health beliefs, low knowledge due to low education, recommendations from health service providers who are the most important facilitators, knowledge about cervical cancer, social influences such as family history of cervical cancer, previous treatment experience of fear, discomfort, shame and pain during the examination. Intrinsic factors are knowledge, willingness and awareness, extrinsic factors are security, comfort, and interpersonal relationships. And also, sociodemographic factors such as age and education level as well as social support from family and friends.

Suggestions to improve and promote cervical cancer screening include promoting HPV detection tests by taking vaginal self-sampling, adopting optimal strategies in cervical cancer screening and management, through a digital platform. It is recommended for family members to motivate and increase efforts that lead to a family support approach to support women of childbearing age in early detection of cervical cancer and for health workers it is necessary to make efforts to increase socialization and ways of delivering information that are effective and sustainable which can later increase knowledge and the attitude of the community so that they are willing to carry out early detection of cervical cancer both with
VIA and Pap smears. Another goal that is the incidence and mortality from cervical cancer can decrease.

**ABBREVIATIONS**

HPV, Human Papilloma Virus; VIA, Visual Inspection of Acetic Acid; WHO, World Health Organization; DES, Diethylstilbestrol; IUD, Intra Uterine Device; IARC, International Agency for Research on Cancer; ASEAN, Association of Southeast Asian Nations.

**COMPETING INTEREST**

The authors report no conflict of interest.

**AUTHORS’ CONTRIBUTION**

The first author performed collector of the research data and the corresponding author was the corrected the result of this research.

**ACKNOWLEDGMENT**

We would to thank all those who have supported the realization of this literature review.

**REFERENCES**


Gustiana, D. et al. (2014) ‘Faktor-Faktor Yang Berhubungan Dengan Perilaku Pencegahan


