

Application of Theory of Planned Behavior on Factors Associated with Pap Smear Uptake: A Meta-Analysis

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ABSTRACT

Background: Pap smear is a cervical cancer prevention method that has been proven to be effective in reducing the incidence of cervical cancer. Utilization of Pap smears is influenced by various factors. Family or partner support can also affect the use of Pap smears in women of reproductive age. This study aimed to estimate the effects of Theory of Planned Behavior (TPB) and family support on Pap Smear utilization.

Subjects and Method: This was a systematic review and meta-analysis based on data obtained through Google Scholar, PubMed, and Science Direct published in the last 10 years. Article search was performed using the PICO model. Population: women of reproductive age. Intervention: positive attitude, perception of strong behavioral control and positive family support. Comparison: negative attitude, perception of weak behavioral control and negative family support. Outcome: utilization of Pap smears. Article searches were carried out using the keywords “Papanicolau test” OR “Pap test” AND “attitude” AND “self-efficacy” OR “perceived behavior control” AND “family support” OR “spouse support” OR “husband support”. The article used is full text in English with a cross sectional design. Articles were collected using PRISMA flow diagrams and then analyzed using the Review Manager 5.4 application.

Results: 22 cross-sectional study from Nigeria, Ghana, South Africa, Uganda, Ethiopia, Malaysia, Hong Kong, Iran, and the US were selected for meta-analysis. The total sample size is 13,330. Recent meta-analysis found that positive attitude (aOR= 1.53; 95% CI= 1.35 to 1.72; p<0.001) and perceived strong behavioral control (aOR= 2.01; 95% CI= 1.56 to 2.59; p< 0.001) increased Pap smear utilization. Strong family support increased Pap smear utilization, but it was statistically non-significant (aOR= 2.53; 95% CI= 0.79 to 8.10; p< 0.001).

Conclusion: Positive attitudes, perceptions of strong behavioral control and positive family support can increase Pap smear utilization.

Keywords: theory of planned behavior, family support, Pap smear, reproductive age, women.

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BACKGROUND

Cervical cancer is the fourth disease in the world that can cause death in women (Puspitasari et al., 2022). In the world, 570,000 new cases of cervical cancer were recorded and resulted in 311,000 deaths (Zhang et al., 2021). In Indonesia, the incidence of cervical cancer was recorded at 20,928 cases and 9,498 deaths per 100,000 women (Sumarmi et al., 2021). Indonesia is the second country after China with the most cases of cervical cancer (Anggraeni et al., 2016).

The risk factor for cervical cancer is Human papillomavirus (HPV) infection (Gemeda et al., 2020). Women aged 30-49 years have a higher potential for pre-cancerous lesions, so screening can be an effective early prevention effort with simple interventions and relatively low prices (Belay et al., 2020).

Screening is an examination as an early prevention effort against a disease with a target population of asymptomatic people (Agustiansyah et al., 2021). These prevention efforts can reduce the death rate of cervical cancer by up to 79% (Momeni et al., 2020).

The Pap smear is a cytology test to detect abnormal changes in cervical epithelial cells which can find pre-cancerous or cancerous conditions with an accuracy rate of up to 90% (Wati et al., 2021). Cytological screening has proven effective for early detection of cancer (Momeni et al., 2020).

Many factors influence women's involvement in the use of cervical cancer screening including education, behavior, access to information and husband's support (Juwitasari et al., 2021). Various studies also state that there is a relationship between husband or partner support in the use of cervical cancer screening (Feriyawati et al., 2018).

Theory of Planned Behavior (TPB) as a theory of behavior change focuses on internal cognitive behavioral factors (Zhang et al., 2019). The central factor of the Theory of Planned Behavior (TPB) is the individual's intention to perform the behavior. The theory of planned behavior (TPB) has three concepts in the formation of intentions: attitudes towards behavior, subjective norms and perceptions of behavioral control (Anggraeni et al., 2016).

The purpose of this study was to analyze and estimate the magnitude of the influence of Theory of Planned Behavior (TPB) on the factors that influence the use of Pap smears in women of reproductive age by conducting a meta-analysis of primary studies conducted by previous authors.

SUBJECTS AND METHOD

1. Study Design

This was a meta-analysis using secondary data from published previous studies. The articles used are articles published in the last 10 years and the results of the research have been selected using the PRISMA diagram.

This research was taken from 3 databases, namely: Pubmed, Google Scholar and Science Direct. The keywords used were: "Pap smear" OR "Papanicolau test" AND "TPB" OR "attitude" OR "perceived behavioral control" OR "self efficacy" OR "partner support" OR "family support" OR "spouse support".

2. Step of Meta-Analysis

The meta-analysis was carried out in five steps as follows:

- 1) Formulate research questions in the PICO.
- 2) Search for primary study articles from various electronic and non-electronic databases.

- 3) Conduct screening and critical assessment of primary research articles.
- 4) Perform data extraction and synthesize effect estimates into RevMan 5.3.
- 5) Interpret and conclude the results

3. Inclusion Criteria

The inclusion criteria for this study were full text articles in English with a cross-sectional study design, the relationship size used was the aOR value.

4. Exclusion Criteria

The exclusion criteria for this study were articles other than in English, published before 2013 and the type of experimental research.

5. Operational Definition of Variables

Article search was carried out by considering the eligibility criteria determined using the PICO model. Population: women of reproductive age. Intervention: positive attitude, perception of strong behavioral control, positive family support. Comparison: negative attitude, perception of weak behavioral control, negative family support. Outcome: utilization of Pap smears.

Attitude is an individual's positive or negative evaluation of the use of Pap smears.

Perceived behavioral control is the presence or absence of the necessary resources and opportunities, perceived ease or difficulty in using Pap smears.

Family or partner support is emotional support, information support and instrumental support from family, husband or partner in utilizing Pap smears.

Utilization of the Pap smear is a cytopathological examination to detect abnormal changes in cervical epithelial cells.

6. Instruments

This review will be analyzed systematically using a meta-analysis guide, namely Prefer-

red Reporting Items for Systematic Reviews and Meta Analysis (PRISMA) and using a critical assessment checklist Critical Appraisal Checklist for Cross-sectional Study (JBI, 2017).

7. Data analysis

The data in this study were analyzed using the Review Manager application (RevMan 5.4). Forest plots and funnel plots are used to determine the effect size and heterogeneity of the data. Data processing was carried out based on variations between studies, namely the random effect model.

RESULTS

The process of searching for articles through online databases which include Pubmed, Google Scholar and Science Direct. The process of screening articles according to the research criteria can be seen in the PRISMA flowchart (Figure 1). The initial search process obtained 1,778 then after going through a screening process, 22 articles were obtained which were considered as primary articles and were included in this meta-analysis.

Figure 2 shows that in the primary study in this study there were 22 journals which discussed the factors that influenced the use of Pap smears which were spread across 3 continents.

Table 1 shows the results of the quality assessment of primary studies using the JBI Critical Appraisal Checklist for Analytical cross-sectional Studies (JBI, 2017). Based on the results obtained from evaluating the quality of the articles, the total score of the 20 selected primary articles was 16 and the total score of the 2 selected articles was 15. This indicates that the quality of all primary articles used in this study is feasible for meta-analysis.

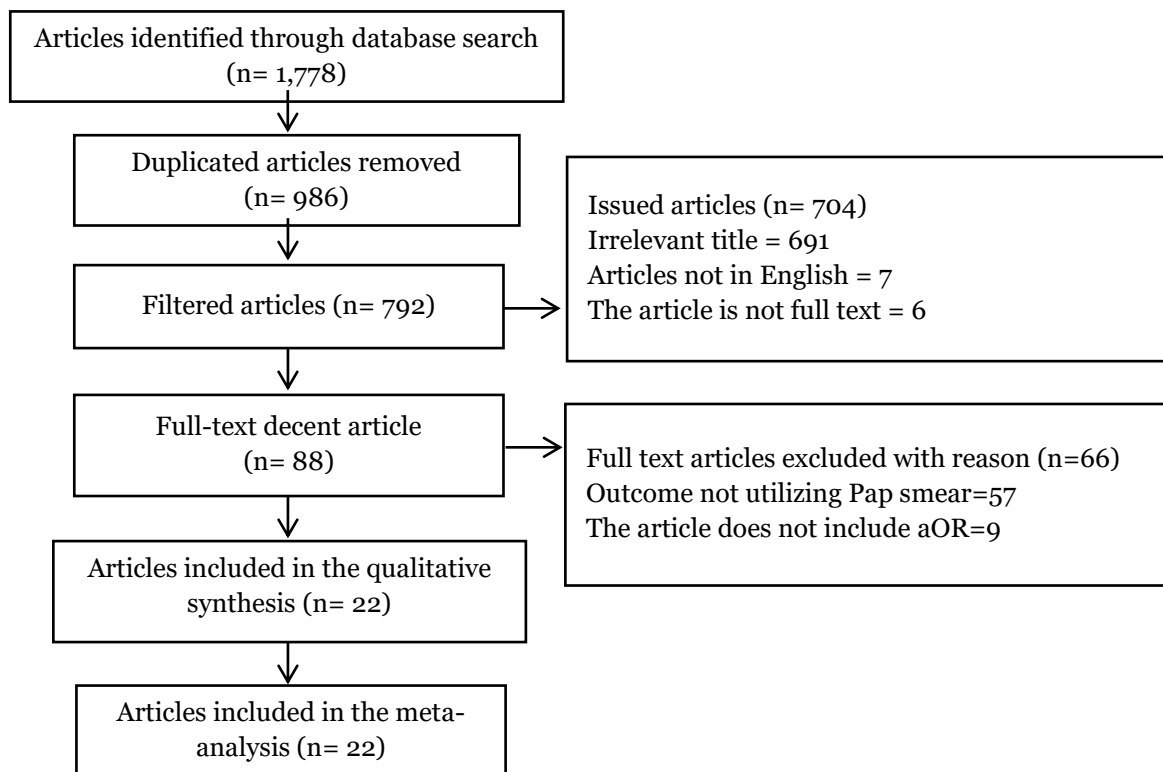


Figure 1. Results of prisma flow diagrams for the application of Theory of Planned Behavior regarding the factors that influence the use of pap smears

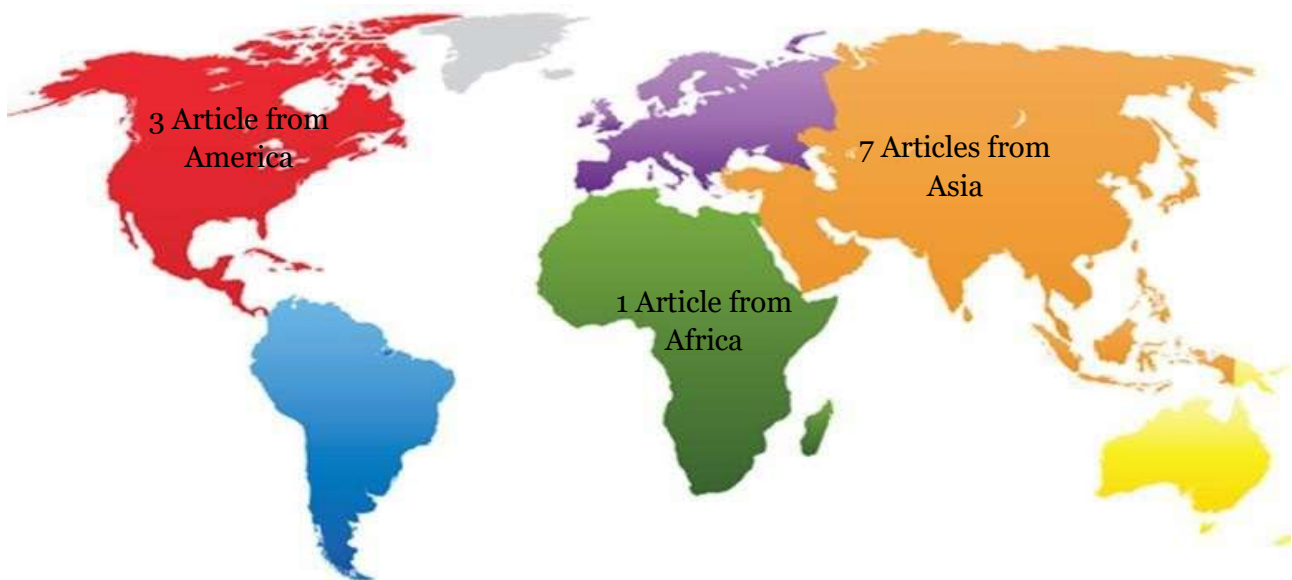


Figure 2. Research distribution map for the application of Theory of Planned Behavior regarding the factors that influence the use of pap smears

Table 1. Quality Assessment of Articles with a Cross-Sectional Study using CEBM.

Primary Study	Criteria							Total
	1	2	3	4	5	6	7	
Gebreegziabher et al. (2016)	2	2	2	2	2	2	2	14
Assefa et al. (2019)	2	2	2	2	2	2	2	14
Aynalem et al. (2020)	2	2	2	2	2	2	2	14
Razi et al. (2017)	2	1	2	2	2	2	2	14
Enyan et al. (2022)	2	2	2	2	2	2	2	14
Idowu et al. (2016)	2	2	2	2	2	2	2	14
Getahun et al. (2020)	2	2	2	2	2	2	2	14
Mousavi et al. (2018)	2	2	2	2	2	2	2	14
Ogunwale et al. (2016)	2	2	2	2	2	2	2	14
Romli et al. (2019)	2	2	2	2	2	2	2	14
Cudjoe et al. (2021)	2	1	2	2	2	2	2	14
Ghalavandi et al. (2021)	2	2	2	2	2	2	2	14
Ogilvie et al. (2016)	2	2	2	2	2	2	2	14
Bekele et al. (2021)	2	2	2	2	2	2	2	14
Wang et al. (2015)	2	2	2	2	2	2	2	14
Majdfar et al (2016)	2	2	2	2	2	2	2	14
Mabotja et al (2021)	2	2	2	2	2	2	2	14
Solomon et al (2019)	2	1	2	2	2	2	2	14
Gemeda et al (2020)	2	2	2	2	2	2	2	14
Isabirye (2022)	2	2	2	2	2	2	2	14
Gizaw et al. (2022)	2	2	2	2	2	2	2	14
Chin et al. (2022)	2	2	2	2	2	2	2	14

Description of the question criteria:

1. Is the population in the primary study the same as the population in the PICO meta-analysis??
2. method for selecting research subjects:
 - Descriptive cross-sectional study (prevalence): Is the sample randomly selected?
 - Analytical cross-sectional study: Are samples randomly or purposively selected?
3. Methods for measuring comparisons (intervention) and outcome variables:
 - Are both exposure/intervention and outcome variables measured with the same instruments in all primary studies?
 - If variables are measured on a categorical scale, are the cut-offs or categories used the same across primary studies?
4. Bias of the design:
 - How much is the response rate?
 - Is non-response related to outcomes?
5. Methods to control confounding:
 - Is there any confusion in the results / conclusions of the primary study?
 - Have primary study researchers used appropriate methods to control the effects of confusion?
6. Method of statistical analysis:
 - In the cross-sectional study, is multivariate analysis performed?
 - Multivariate analysis includes multiple linear regression analysis, multiple logistic regression analysis, Cox regression analysis.
7. Is there a conflict of interest with the research sponsor?

Description of scoring:

- 0= No
- 1= Hesitate
- 2= Yes

Table 2 describes the articles used from Ethiopia, Malaysia, Ghana, Nigeria, Iran, the United States and Hong Kong. The research subjects were women of reproductive age, positive attitude intervention with a comparison of negative attitudes with pap smear utilization outcomes.

Table 3. shows that of the 15 articles showing aOR values related to positive attitudes towards the use of Pap smears, the highest aOR values were in the study of Getahun et al. (2020) (aOR = 6.16; 95% CI = 4,048 to 9,387) and the lowest aOR value was in the study by Cudjoe et al. (2021) (aOR= 0.17; 95%CI= 0.04 to 0.71).

Table 2. Description of the primary study of the attitude intervention included in the primary study meta-analysis.

Author (years)	Country	Sample	P	I	C	O
Gebreegziabher et al. (2016)	Ethiopia	225	Nurse	positive attitude	Negative attitude	Use of Pap smears
Assefa et al. (2019)	Ethiopia	342	HIV positive women undergoing treatment in health facilities	positive attitude	Negative attitude	Use of Pap smears
Aynalem et al. (2020)	Ethiopia	822	Women 30-49 years in Debremarkos City	positive attitude	Negative attitude	Use of Pap smears
Razi et al. (2017)	Malaysia	257	Female staff at the university in the city of Nilai	positive attitude	Negative attitude	Use of Pap smears
Enyan et al. (2022)	Ghana	431	Muslim women aged 18-66 years in Cape Coast Metropolis	positive attitude	Negative attitude	Use of Pap smears
Idowu et al. (2016)	Nigeria	338	21-year-old female in Ilorin	positive attitude	Negative attitude	Use of Pap smears
Getahun et al. (2020)	Ethiopia	821	Women aged 30-49 years who live in the City of Debre Berhan	positive attitude	Negative attitude	Use of Pap smears
Mousavi et al. (2018)	Iran	334	Woman seeking treatment at a clinic in northwestern Tehran	positive attitude	Negative attitude	Use of Pap smears
Ogucwale et al. (2016)	AS	1007	Women aged 18-64 years who are treated at 2 Harris health clinics (HHS)	positive attitude	Negative attitude	Use of Pap smears

Author (years)	Country	Sample	P	I	C	O
Romli et al. (2019)	Malaysia	210	Women who are married or have been married aged 20-65 years and have not been diagnosed with cervical cancer	positive attitude	Negative attitude	Use of Pap smears
Cudjoe et al. (2021)	AS	167	African immigrant women aged 21-65 years	positive attitude	Negative attitude	Use of Pap smears
Ghalavandi et al. (2021)	Iran	400	Women aged 18-49 in Andimeshk City, Khuzestan Province	positive attitude	Negative attitude	Use of Pap smears
Ogilvie et al. (2016)	AS	981	Women 25-69 years who are included in HPV FOCAL	positive attitude	Negative attitude	Use of Pap smears
Bekele et al. (2021)	Ethiopia	427	Women aged 30-49 years	positive attitude	Negative attitude	Use of Pap smears
Wang et al. (2015)	Hong Kong	1996	Hongkong Chinese women who have children aged 12-17 years	positive attitude	Negative attitude	Use of Pap smears

Table 3. aOR and 95% CI data of the influence attitude towards use of Pap smears.

(Author, year)	aOR	95% CI	
		Lower Limit	Upper Limit
Gebreegziabher et al. (2016)	3.42	1.08	10.85
Assefa et al. (2019)	3.7	1.80	7.5
Aynalem et al. (2020)	3.22	2.52	4.12
Razi et al. (2017)	4.89	2.21	10.78
Enyan et al. (2022)	1.28	0.98	1.67
Idowu et al. (2016)	0.37	0.005	0.27
Getahun et al. (2020)	6.16	4.04	9.38
Mousavi et al. (2018)	1.35	1.04	1.75
Ogunwale et al. (2016)	2.93	0.92	8.57
Romli et al. (2019)	1.06	1.03	1.09
Cudjoe et al. (2021)	0.17	0.04	0.71
Ghalavandi et al. (2021)	1.02	0.90	1.14
Ogilvie et al. (2016)	1.26	1.23	1.30
Bekele et al. (2021)	2.31	1.01	5.29
Wang et al. (2015)	1.21	1.13	1.30

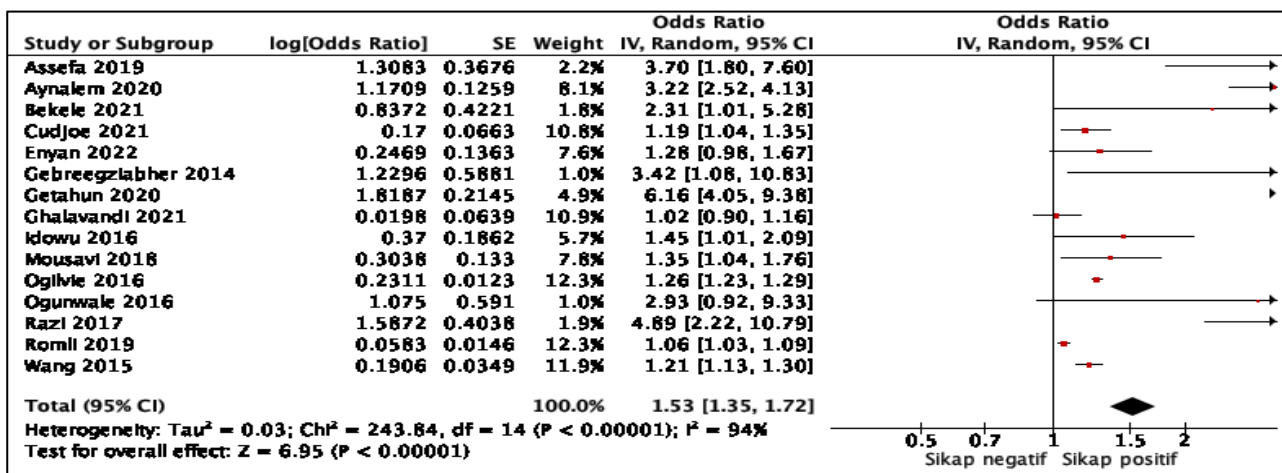


Figure 3. Forest plot the relationship between positive attitudes towards the possibility of using Pap smears

Figure 3 showed the forest plot the relationship between positive attitudes towards the possibility of using Pap smears, there is an influence of attitudes on the possibility of using Pap smears. Women of reproductive age with a positive attitude are more likely to avail Pap smear services (aOR=

1.53; 95% CI= 1.35 to 1.72, $p < 0.001$). Figure 3 also shows $I^2=94\%$, meaning that the effect estimates of all primary studies conducted in this meta-analysis show high heterogeneity. Thus calculating the average estimated effect of all primary studies using the random effect model approach.

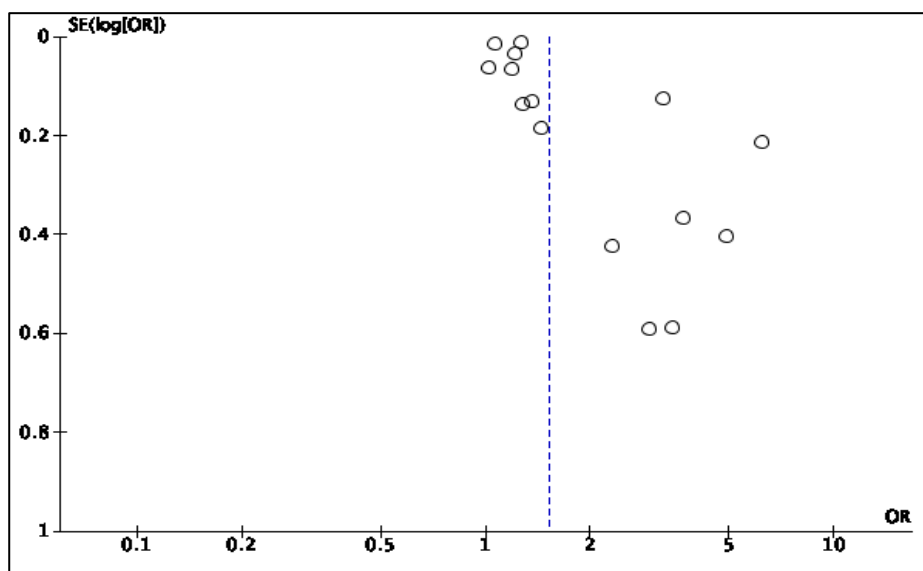


Figure 4. Funnel plot the relationship between positive attitudes towards the possibility of using Pap smears

The funnel plot in figure 4 showed the distribution of effect estimates that are more located on the left than on the right. The average vertical line, indicating publication bias. Because the distribution of effects on

the left in the funnel plot differs from the location of the diamond shape in the forest plot which is to the right of the vertical line ($H_0 = 0$), this publication bias tends to undermine the true effect.

Table 4. Description of the primary study intervention of perception control of behavior included in the primary study meta-analysis

Author (years)	Country	Sample	P	I	C	O
Enyan et al. (2022)	Ghana	431	Muslim women aged 18-66 years in Cape Coast Metropolis, Southern Ghana	Perception of strong behavioral control	Perceived behavioral control is weak	Use of Pap smears
Majdfar et al. (2016)	Iran	442	Married woman	Strong self-efficacy	Weak self-efficacy	Use of Pap smears
Mabotja et al. (2021)	South Africa	280	Women aged 30 years and over	Strong self-efficacy	Weak self-efficacy	Use of Pap smears
Solomon et al. (2019)	Ethiopia	475	Women visiting health facilities for ARV services	Strong self-efficacy	Weak self-efficacy	Use of Pap smears
Ogilvie et al. (2016)	AS	981	Women 25-69 years who are included in HPV FOCAL	Perception of strong behavioral control	Perceived behavioral control is weak	Use of Pap smears
Ghalavandi et al. (2021)	Iran	400	Women aged 18-49 in Andimeshk City, Khuzestan Province	Strong self-efficacy	Weak self-efficacy	Use of Pap smears
Cudjoe et al. (2021)	The USA	167	African immigrant women aged 21-65 years	Strong self-efficacy	Weak self-efficacy	Use of Pap smears
Ogunwale et al. (2016)	The USA	1007	Women aged 18-64 attending 2 Harris health clinics (HHS)	Perception of strong behavioral control	Perceived behavioral control is weak	Use of Pap smears
Getahun et al. (2020)	Ethiopia	821	Women aged 30-49 years living in Debre Berhan City, Amhara Section, Ethiopia	Perception of strong behavioral control	Perceived behavioral control is weak	Use of Pap smears
Gemeda et al. (2020)	Ethiopia	838	Women aged 25 years and over in Sidama	Strong self-efficacy	Weak self-efficacy	Use of Pap smears

Table 5. aOR and 95% CI data the intervention of perception control of behavior.

(Author, year)	aOR	95% CI	
		Lower Limit	Upper Limit
Enyan et al. (2022)	1.07	0.85	1.36
Majdfar et al. (2016)	9.2	5.1	16.6
Mabotja et al. (2021)	2.1	1.3	3.3
Solomon et al. (2019)	1.24	1.12	1.36
Ogilvie et al. (2016)	1.06	1.02	1.10
Ghalavandi et al. (2021)	1.41	1.28	1.56
Cudjoe et al. (2021)	9.38	2.10	41.93
Ogunwale et al. (2016)	1.27	0.53	3.00
Getahun et al. (2020)	7.10	4.67	10.80
Gemeda et al. (2020)	4.4	1.5	12.8

From table 4 it is known that the articles used came from Ghana, Iran, South Africa, the US and Ethiopia. Table 5 shows that of the 10 articles showing aOR values related to perceptions of behavioral control, the

highest aOR values were in the study by Cudjoe et al. (2021) (aOR= 9.38; 95% CI= 2.10 to 41.93) and the lowest aOR value in the study of Ogilvie et al. (2016) (aOR= 1.06; 95%CI= 1.02 to 1.10).

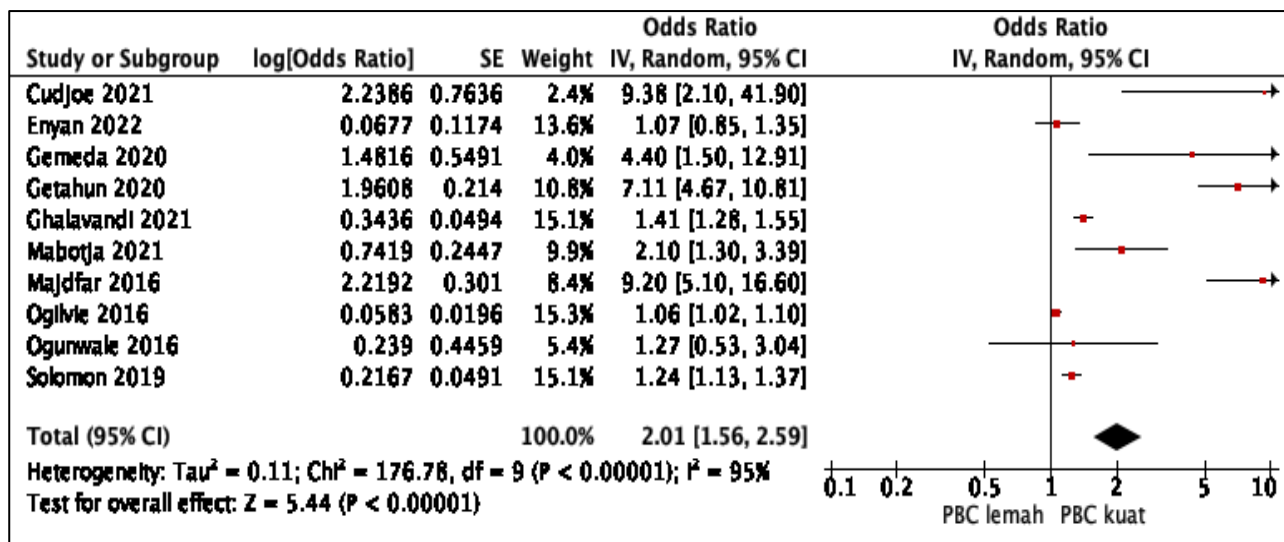


Figure 5. Forest of the relationship between perceived strong behavioral control and the possibility of using Pap smears.

The forest plot in figure 5 showed that women of reproductive age with strong perceptions of behavioral control are more likely to use Pap smears (aOR= 2.01; 95% CI= 1.56 to 2.59, $p < 0.001$). Figure 5 also shows $I^2 = 95\%$, meaning that the effect estimates of all primary studies conducted in this meta-analysis show high hetero-

geneity. Thus the calculation of the average estimated effect of all primary studies uses a random effect model approach.

The funnel plot in Figure 6 shows an equal distribution of effect estimates between the right and left. The average vertical line, indicating no publication bias.

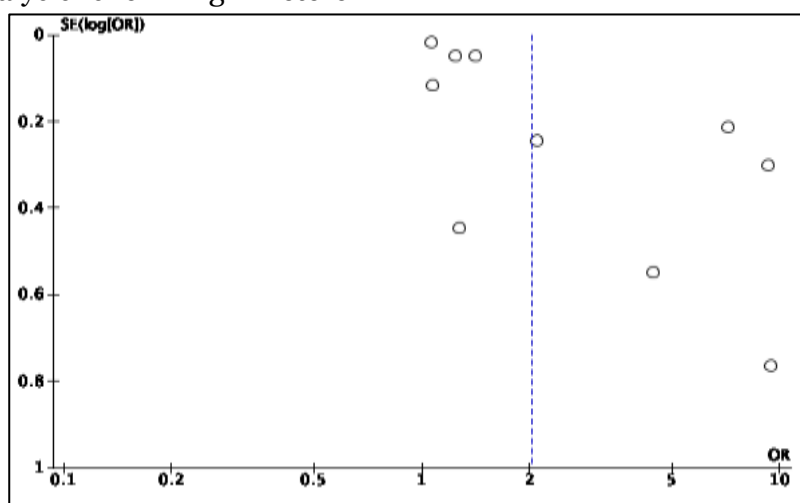


Figure 6. Funnel plot of the relationship between perceived strong behavioral control and the possibility of using Pap smears.

Table 6. Description of the primary study of family support interventions included in the primary study meta-analysis

Author (years)	Country	Sample	P	I	C	O
Isabirye (2022)	Uganda	656	Married women aged 25-49 years	Partner's positive emotional support	Partner's negative emotional support	Use of Pap smears
Gizaw et al. (2022)	Ethiopia	422	Women aged 15-45 years	Husband's positive support	Husband's negative support	Use of Pap smears
Chin et al. (2022)	Malaysia	452	Married female patients aged 18-65 years	Family positive support	Negative family support	Use of Pap smears
Ogunwale et al. (2016)	The USA	1007	Women aged 18-64 attending 2 Harris health clinics (HHS) female staff	Partner's positive support	Partner's negative support	Use of Pap smears
Razi et al. (2017)	Malaysia	257	HIV positive women undergoing treatment	Husband's positive support	Husband's negative support	Use of Pap smears
Assefa et al. (2019)	Ethiopia	342		Partner's positive support	Partner's negative support	Use of Pap smears

Table 7. aOR and 95% CI data the effect of family support on the use of Pap smears.

(Author, year)	aOR	95% CI	
		Lower Limit	Upper Limit
Isabirye (2022)	30.06	13.44	67.20
Gizaw et al. (2022)	0.68	0.42	1.1
Chin et al. (2022)	3.620	2.081	6.298
Ogunwale et al. (2016)	0.29	0.11	0.68
Razi et al. (2017)	2.513	1.142	5.529
Assefa et al. (2019)	4.7	2.3	9.4

From table 6. it is known that the articles used came from Uganda, Ethiopia, Malaysia and the US. The research subjects were women of reproductive age, positive family support intervention with a comparison of negative family support with pap smear utilization outcomes.

Table 7 showed that of the 6 articles showing aOR values related to positive family support, the highest aOR values were in the Isabirye study (2022) (aOR= 30.06; 95% CI= 13.44 to 67.20) and the lowest aOR values were in the Ogunwale et al. study (aOR= 0.29; 95%CI= 0.11 to 0.68).

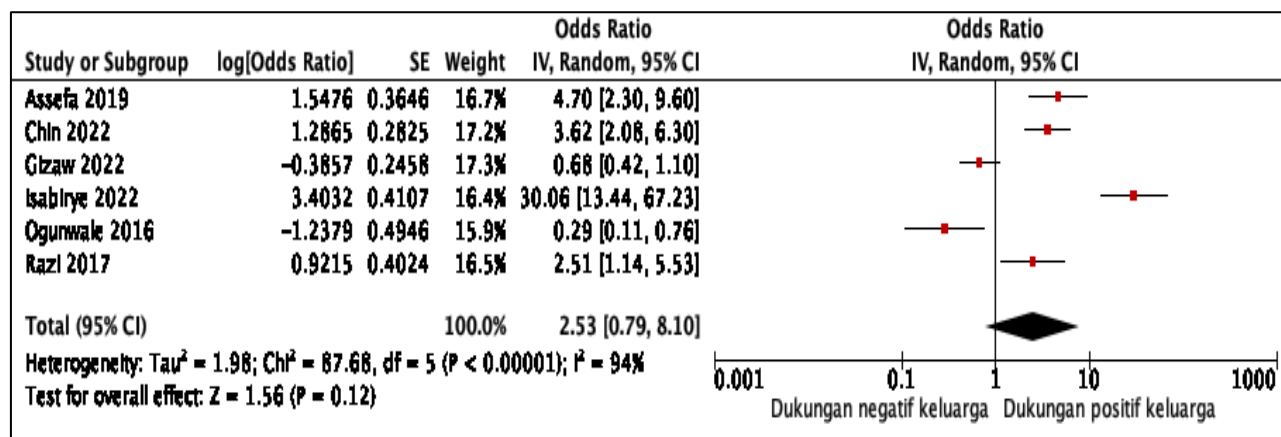


Figure 7. Forest plot of the the relationship between positive family support and the possibility of using Pap smears.

The forest plot in figure 7 shows that there is an effect of family support on the likelihood of using Pap smears but this effect is not statistically significant. Women of reproductive age with positive family support are more likely to avail Pap smear services (aOR= 2.53; 95% CI= 0.79 to 8.10, p<

0.001). Figure 7 also shows $I^2=94\%$, meaning that the effect estimates of all primary studies conducted in this meta-analysis show high heterogeneity. Thus, the calculation of the average estimated effect of all primary studies uses a random effect model approach.

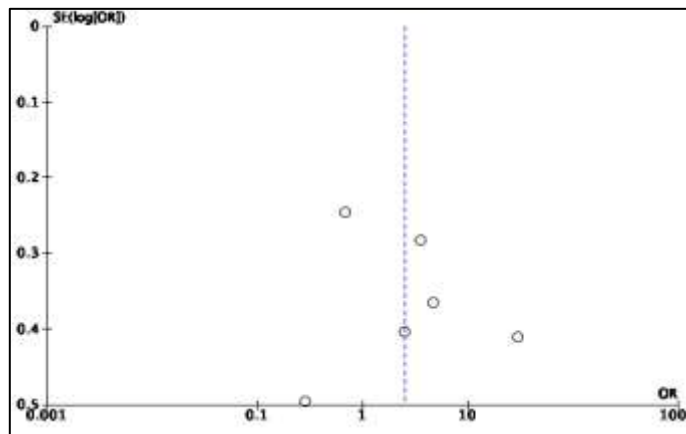


Figure 8. Funnel plot of the the relationship between positive family support and the possibility of using Pap smears.

The funnel plot in Figure 8 shows that the distribution of effect estimates is located on the right rather than the left. The average vertical line, indicating publication bias. Due to the distribution of effects on the right in the funnel plot, which is the same as the location of the diamond shape in the forest plot which is also to the right of the

vertical line ($H_0 = 0$), the publication bias tends to overstate the actual effect).

DISCUSSION

1. The effect of positive attitudes on pap-smear utilization

The primary research included in this meta-analysis totaled 15 articles originating from various countries, namely from Ethi-

opia, Malaysia, Ghana, Nigeria, Iran, the US and Hong Kong. The total sample size is 8,758 research subjects. This meta-analysis concludes that there is a positive effect of attitudes towards the use of Pap Smears and this effect is statistically significant. Women who have a positive attitude are 1.53 times more likely to take advantage of Pap smears than women who have a negative attitude (aOR= 1.53; 95% CI= 1.35 to 1.72; $p < 0.001$). Forest plots show very heterogeneous variation in effect estimates ($I^2 = 94\%$; $p < 0.001$). Thus the calculation of the average effect estimate is carried out using the random effect model approach. The funnel plot shows that there is a publication bias (underestimate).

The meta-analysis in this study controlled for confounding factors because it used the adjusted odds ratio (aOR) effect size in selected primary studies. Research by Aynalem et al. (2020) stated that women's attitudes towards cervical cancer screening have a significant influence on the utilization of cervical cancer screening. Women with a positive attitude towards the use of Pap smears will be followed by an understanding regarding cervical cancer and its relationship with the use of cervical cancer screening (Assefa et al., 2019).

Research Gebreegziabher et al. (2016) showed that women's negative attitudes can prevent them from taking advantage of Pap smears. This negative attitude can be caused by a lack of confidence in health services. The effect of attitude on the intention to screen for cervical cancer is also influenced by shame and fear of the screening procedure (Getahun et al., 2020). The role of health workers to foster self-confidence is needed. In addition, negative attitudes towards cervical cancer screening are also influenced by individual beliefs that they do not have active sexual intercourse and do not have symptoms of cer-

vical cancer so they do not feel the need to utilize Pap smear services (Ogunwale et al., 2016).

Mousavi et al. research (2018) stated that women's negative attitude towards Pap smears was caused by difficult access to services and the absence of permission from their husbands. Husbands' knowledge must be increased regarding the importance of Pap smears for their wives or partners as a preventive measure in order to maintain health.

2. Perceived The Influence of Perceptions of Strong Behavior Control on Pap Smear Utilization

The primary research included in this meta-analysis totaled 10 articles originating from various countries, namely from Ghana, Iran, South Africa, the US and Ethiopia. The total sample size is 5,842 research subjects. This meta-analysis concludes that there is a strong perceived influence of behavioral control on the use of Pap Smears and this effect is statistically significant. Women who have a strong perceived behavioral control have the possibility to take Pap smears 2.01 times compared to women who have a weak perceived behavioral control (aOR= 2.01; 95% CI= 1.56 to 2.59; $p < 0.001$). Thus, the calculation of the average effect estimate is carried out using the random effect model approach. The funnel plot shows no publication bias.

The meta-analysis in this study controlled for confounding factors because it used the adjusted odds ratio (aOR) effect size in selected primary studies. Self-efficacy is a mediator of the relationship between husband's support and utilization of cervical cancer screening. If women have confidence in their abilities, then these women may have more adequate results to maintain their health, including efforts to

prevent cervical cancer (Juwitasari et al., 2021).

Research Higgins et al. (2016) stated that self-efficacy for Pap smears in young women can be increased through communication between young women and their families, especially mothers. The study also explains that young women who are not sexually active can increase self-efficacy against Pap smears if there is good communication with their doctors and parents.

Research Juwitasari et al. (2021) revealed that self-efficacy can be influenced by husband's support. This is because self-efficacy increases self-efficacy, gives women a more accurate sense of personal risk and helps overcome barriers to screening.

Women with weak self-efficacy usually find it difficult to access health facilities or there is no facility to obtain health services. Women have a higher intention to take cervical cancer prevention measures if they have significant perceived behavioral control. Factors influencing behavior control include access to family doctors, time and affordability of Pap smear facilities (Chirayil et al., 2014).

3. The Effect of Positive Family Support on Pap Smear Utilization

The primary research included in this meta-analysis totaled 6 articles originating from various countries namely from Uganda, Ethiopia, Malaysia and the US. The total sample size is 3,136 research subjects. Women of childbearing age who have positive family or partner support are 2.53 times more likely to take advantage of Pap smears than women with negative family or partner support (aOR= 2.53; 95% CI= 0.79 to 8.10; $p < 0.001$). Forest plots show very heterogeneous variation in effect estimates ($I^2=94%$; $p < 0.001$). Thus, the calculation of the average effect estimate is carried out using the random effect model approach.

The funnel plot shows that there is a publication bias (overestimate).

The meta-analysis in this study controlled for confounding factors because it used the adjusted odds ratio (aOR) effect size in selected primary studies. Research Getahun et al. (2020) stated that family members and friends have an important role in women's decision-making in utilizing health services as a source of information and input. In addition, husband's support and encouragement will influence women's decision making to take advantage of Pap smears (Chin et al., 2022). Husband's support can be shown through emotional support, instrumental support, informative support, assessment or appreciation (Wakhidah et al., 2017).

Other research states that women need partner information support before deciding to do a Pap smear. Women with financial support from a partner report higher Pap smear utilization than without financial support from a partner (Isabirye, 2022). The support of family members, especially from the husband's side, encourages women to pay more attention to their health, which indicates the important role of the partner in their partner's health behavior (Razi et al., 2017). Husband's support can influence screening behavior through social norms and religious beliefs Juwitasari et al. (2021). WHO recommends education for men to increase their willingness to encourage and support their partners in cervical cancer screening (Dsouza et al., 2022).

AUTHOR CONTRIBUTION

Elvira Purnamasari as a researcher who selects topics, searches for and collects research data. Argyo Demartoto and Uki Retno Budihastuti analyzed the data and reviewed research documents.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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