JHPM Journal of Health Policy and Management (2025), 10(01): 119-136
Master's Program in Public Health, Universitas Sebelas Maret

Meta-Analysis
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Meta-Analysis: The Impact of Product, Price, Place, and Promotion on Patient Satisfaction

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Received: April 12, 2024; Accepted: Juli 4, 2024; Available online: January 16, 2025

ABSTRACT

Background: A component of effective health care is measuring patient satisfaction. Satisfaction helps in the evaluation of health services from the patient's perspective. In order to compete globally, hospitals need to consider marketing strategies that emphasize understanding customer needs, wants and demands. One of the most common and widely applied marketing concepts in this context is the marketing mix, which includes four main elements, namely product, place, promotion and price. This research aims to estimate the magnitude of the influence of the marketing mix (4P) which includes product, price, place and promotion on patient satisfaction.
Subjects and Method: Meta-analysis studies with PICO research questions. Population = general patients. Intervention = high product quality, high promotion, long distance and high price. Comparison = low product quality, lack of promotion, close distance to facilities, and low price. Outcome= Patient satisfaction. Data obtained from Google Scholar, Pubmed, Scopus and ScienceDirect, with the keywords "Product for patient satisfaction" OR "Promotion for patient satisfaction" OR "Price for patient satisfaction" OR "Place for patient satisfaction" AND "Marketing patient satisfaction" OR "Marketing mix patient satisfaction" AND aOR. The effect size used was the Adjusted Odds Ratio (aOR) from multivariate analysis. Data analysis using the Review Manager 5.3 application.
Results: This meta-analysis was carried out on 20 primary studies with a cross-sectional design, originating from Turkey, Israel, Saudi Arabia, Ethiopia and Ghana. The sample size was 14,388 people. The meta-analysis results show that patient satisfaction increases with high product quality and is statistically significant (aOR= 2.23; CI 95%= 1.54 to 3.23; p<0.001) and good promotion, although not statistically significant (aOR= 1.42; CI 95 %= 0.75 to 2.71; p= 0.280). Patient satisfaction decreases with distance to a health facility (aOR= 0.55; 95% CI= 0.35 to 0.86; p= 0.009) and high price (aOR= 0.56; 95% CI= 0.38 to 0.81; p= 0.002).
Conclusion: Patient satisfaction increases with high product quality and good promotions. Patient satisfaction decreases with distance to the facility and high prices.

Keywords: marketing mix 4p, product, place, promotion, price, patient satisfaction

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Cite this as:
Hafida SLA, Hastuti R, Murti B,Handayani AF (2025). Meta Analysis: The Impact of Product, Price, Place, and Promotion on Patient Satisfaction. Health Policy Manage. 10(01): 119-136. https://doi.org/10.26911/thejhpm.20-25.10.01.10.

BACKGROUND

Primary health care enables the health system to support a person's health needs ranging from health promotion to disease prevention, treatment, rehabilitation, palliative care and more. This strategy also ensures that health services are delivered in a way that is centered on people's needs and respects their priorities (World Health Organization, 2024b). Hospitals are also an important part of health system development. Currently, external pressures, weaknesses in the health system, and deficiencies in the hospital sector have given rise to new concepts regarding the role of hospitals. Various parts of the world. In this view, hospitals are considered to have a crucial role in supporting other health care providers, as well as in reaching communities and providing home-based services. In addition, their presence is very important in ensuring the proper functioning of referral networks (World Health Organization, 2024a).

Changing basic representations of a market environment full of competition, it is not surprising that approaches in the analysis, interpretation and modeling processes are also changing. Although it remains an important element in analyzing most market research data, in the context of marketing strategy, it must be recognized that the analytical focus is often limited, sometimes only to the price dimension, which is considered to be closely related to the equivalent quality dimension (Baker and Hart, 2016). One component of effective health services is measuring patient satisfaction. Satisfaction helps in the evaluation of health services from the patient's perspective. Patient satisfaction also facilitates the identification of problem areas and generating ideas to solve these problems (Teresa and Bekele, 2016). In order to compete globally, hospitals need to consider marketing strategies that emphasize understanding customer needs, wants and demands. One of the most common and widely applied marketing concepts in this context is the marketing mix, which includes four main elements, namely product, price, place and promotion (Sudari et al., 2019).

Marketing has a very significant role in helping healthcare professionals create, communicate and deliver value to their target markets. Marketers are more oriented towards building long-term relationships. In this context, creating a high level of patient satisfaction so that they become loyal and returning customers (Purcarea, 2019). A concept that is widely used and widely developed is the marketing mix which has 4Ps, namely product, price, place and promotion (Sudari et al., 2019). A well-known standard for evaluating the effectiveness of health services provided in hospitals is patient satisfaction. Patient satisfaction is considered an important benchmark used to assess healthcare delivery (Manzoor et al., 2019).

According to Sudari, variables in the marketing mix (4P) have a positive effect on patient satisfaction (Sudari et al., 2019). Then, in research conducted by (Octivanny and Berlianto, 2022), the marketing mix can increase patient satisfaction so that patients are interested in making return visits to the health service. From this context, the importance of patient loyalty to health institutions increases in line with developments such as improving service quality, increasing patient satisfaction, and increasing focus on customer service in the health sector. Based on this description, it is concluded that medical institution managers need to focus on all service elements that have an impact on patient satisfaction (Uysal and Yorulmaz, 2020). This study aims to analyze previous primary research in assessing the influence of the marketing mix (4P) which includes

product, price, place and promotion on patient satisfaction.

SUBJECTS AND METHOD

1. Study Design

This research used a systematic review method and meta-analysis was carried out using PRISMA guidelines and the PICO model. Population = general patients. Intervention = high product quality, high promotion, long distance and high price. Comparison = low product quality, lack of promotion, close distance to facilities, and low price. Outcome= Patient satisfaction. Articles collected through information sources such as Google Scholar, Pubmed, Scopus, and ScienceDirect. Key words used include "Product for patient satisfaction" OR "Promotion for patient satisfaction" OR "Price for patient satisfaction" OR "Place for patient satisfaction" AND "Marketing patient satisfaction" OR "Marketing mix patient satisfaction" AND aOR. A total of 20 articles met the inclusion criteria for meta-analysis, and were further assessed using RevMan 5.3.

2. Steps of Meta-Analysis

Meta-analysis was carried out through the following 5 steps:

1) Formulate research questions using the PICO model.
2) Search for primary study articles from electronic databases such as Google Scholar, PubMed, and Science Direct.
3) Conduct screening and critical assessment of primary studies.
4) Extract data and enter impact estimates from each primary study into RevMan 5.3. The results of the article analysis are presented in the form of aOR, with 95% confidence intervals (CI) using model effects and data heterogeneity (I2).
5) Interpret the results and draw conclusions

3. Inclusion Criteria

The inclusion criteria in this research were full paper articles using a cross sectional design. The analysis used was multivariate with Adjusted Odds Ratio (aOR). The research subjects were general patients. The research intervention is in the form of a 4p marketing mix which includes product, price, place and promotion. The result of the research is patient satisfaction.

4. Exclusion Criteria

The exclusion criteria in this study were articles that were not in English and articles published before 2014.

5. Operational Definition

Patient Satisfaction with Health Products are anything that is presented with the aim of attracting attention, obtained through purchase, use and consumption to fulfill desires or needs.

Price is the price given to consumers is a very important strategic step, because the role of price is very significant in determining whether consumers will choose to buy a product or not.

Place is a strategy carried out so that service providers market and distribute products in locations that are easily accessible to potential consumers.

Promotion is a strategy for conveying information about products or services to consumers. This strategy is carried out so that the product can be known to consumers.

Patient satisfaction is defined as when the patient feels satisfied and satisfied with the services provided by a health service provider or medical institution.

6. Instrument

Assessing the quality of the main article in this research uses a cross-sectional critical appraisal checklist which has been published by Sebelas Maret University (UNS, 2023).

7. Data Analysis

Data were collected using PRISMA diagrams and analyzed using the Review Manager 5.3 application with effect size and heterogeneity

(I2) calculations to identify combined research models and formulate final meta-analysis results. The results of data analysis are presented through visual representation in the form of forest plots and funnel plots.

RESULTS

The process of searching for articles to be synthesized as well as the process of reviewing and selecting articles using the PRISMA flow diagram is presented in Figure 1. The initial search process resulted in 7,790 articles. After eliminating duplicate articles, 3,025 articles were produced. After the process of eliminating duplicate articles, the next step was to check the relevance of the title and research design used, resulting in 228 articles. After checking the articles according to the inclusion criteria and exclusion criteria, 20 articles were obtained which were included in the meta-analysis.

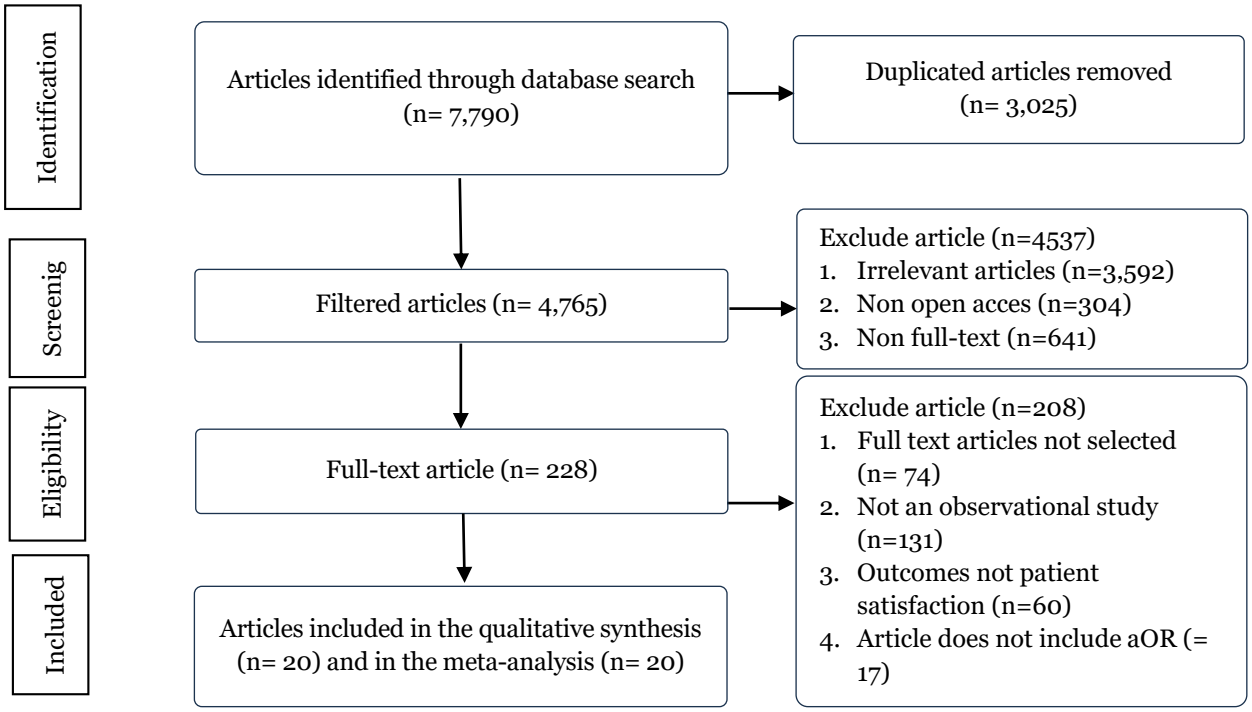

Figure 1. PRISMA Flow diagram regarding the influence of the 4P marketing mix on patient satisfaction

Figure 2. Map of the study area regarding the influence of the 4P marketing mix on patient satisfaction

Figure 2 shows a research area map regarding research on the influence of the 4p marketing mix on patient satisfaction. There are 20 research articles originating from the African continent and the Asian continent.

Table 1. Critical Appraisal of a cross-sectional study on the influence of the 4p marketing mix on patient satisfaction.

Primary Study	Criteria													Total
	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	
Adissu et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Al-shayban et al. (2020)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Anaba et al. (2020)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Animut et al. (2020)	2	2	2	2	2	2	2	2	2	1	2	2	1	24
Berehe et al. (2020)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Derebe et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Eyasu et al. (2016)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Goben et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Hayek et al. (2021)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Kebede et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Melesse et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Onyeajam et al. (2018)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Sagaro et al. (2015)	2	2	2	2	2	2	2	2	2	1	2	2	1	24
Semegn et al. (2019)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Semegn et al. (2021)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Tawiye et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Teresa et al. (2022)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Teshome et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Tume et al. (2015)	2	2	2	2	2	2	2	2	2	1	2	2	2	25
Zikusooka et al. (2022)	2	2	2	2	2	2	2	2	2	1	2	2	2	25

Description of the answer score:

0= No; 1= Hesitant; 2= Yes

Question criteria descriptions:

1. **Fromulation of research questions in the acronym PICO**

a. Is the population in the primary study the same as the population in the PICO meta-analysis?

b. Is the operational definition of intervention, namely the exposed status in the primary study the same as the definition intended in the meta-analysis?

c. Is the comparison, namely the unexposed status used by the primary study, the same as the definition intended in the meta-analysis?

d. Are the outcome variables examined in the primary study the same as the definition intended in the meta-analysis?

2. **Methods for selecting research subjects**

a. In analytical cross-sectional studies, does the researcher select samples from the population randomly (random sampling)?

b. As an alternative, if in a cross-sectional analytical study the sample is not selected randomly, does the researcher select the sample based on outcome status or based on intervention status?

3. **Methods for measuring exposure (intervention) and outcome**

a. Are the exposure and outcome variables measured with the same instruments (measuring tools) in all primary studies?

b. If the variable is measured on a categorical scale, are the cutoffs or categories used the same across primary studies?

4. Design-related bias

If the sample was not chosen randomly, has the researcher made efforts to prevent bias in selecting research subjects? For example, in selecting subjects based on outcome status it is not affected by exposure status (intervention), or in selecting subjects based on exposure status (intervention) it is not affected by outcome status?

5. Methods for controlling confusion

Have primary study investigators made efforts to control the influence of confounding (for example, conducting multivariate analysis to control for the influence of a number of confounding factors)?

6. Statistical analysis methods

a. Did the researcher analyze the data in this primary study using a multivariate analysis model (for example, multiple linear regression analysis, multiple logistic regression analysis)?

b. Does the primary study report effect sizes or relationships resulting from multivariate analysis (eg, adjusted OR, adjusted regression coefficient)?

7. Conflict of interest

Is there no possibility of a conflict of interest with the research sponsor, which could cause bias in concluding the research results?

Table 2. PICO of cross-sectional articles on the influence of product quality on patient satisfaction

Author	Country	Sample	P	I	C	O
Al-shayban et al. (2020)	Saudi Arabia	531	Patient	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction
Anaba et al. (2020)	Indonesia	386	Adolescent Patients	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction
Animut et al. (2020)	Indonesia	271	Patient	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction
Hayek et al. (2021)	Israeli	1,432	Patients	High quality product, near place	low quality product,	Patient satisfaction
Sagaro et al. (2015)	Ethiopia	415	Patients	Low price, high promotion, high quality product	High price, low promotion, low quality product	Patient satisfaction
Semegn et al. (2019)	Ethiopia	250	Patients	Near place, high quality product	Distant place, low quality product	Patient satisfaction
Teresa et al. (2022)	Ethiopia	379	Patients	High quality product	Low quality product	Patient satisfaction
Zikusooka et al. (2022)	Turkey	4,548	Patients	High quality product	Low quality product	Patient satisfaction

Table 2 explains that there are 8 articles with cross-sectional studies regarding the influence of product quality on patient satisfaction. Research was conducted in various countries, including Indonesia, Saudi Arabia, Turkey, Ethiopia and Israel.

Table 3. aOR and 95% CI data regarding the influence of product quality on patient satisfaction

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Al-shayban et al. (2020)	2.56	0.71	2.53
Anaba et al. (2020)	1.34	0.71	2.53
Animut et al. (2020)	6.04	2.80	13.03
Hayek et al. (2021)	1.10	0.73	1.66
Sagaro et al. (2015)	1.80	1.06	3.06
Semegn et al. (2019)	3.12	1.69	5.76
Teresa et al. (2022)	8.10	2.30	28.53
Zikusooka et al. (2022)	1.70	1.24	2.33

Table 3 explains that there are 7 articles with cross-sectional studies regarding the influence of product quality on patient satisfaction with the highest aOR in the study by Teresa et al. (2022), namely 8.10 and the lowest aOR in the study by Hayek et al. (2021) namely 1.10.

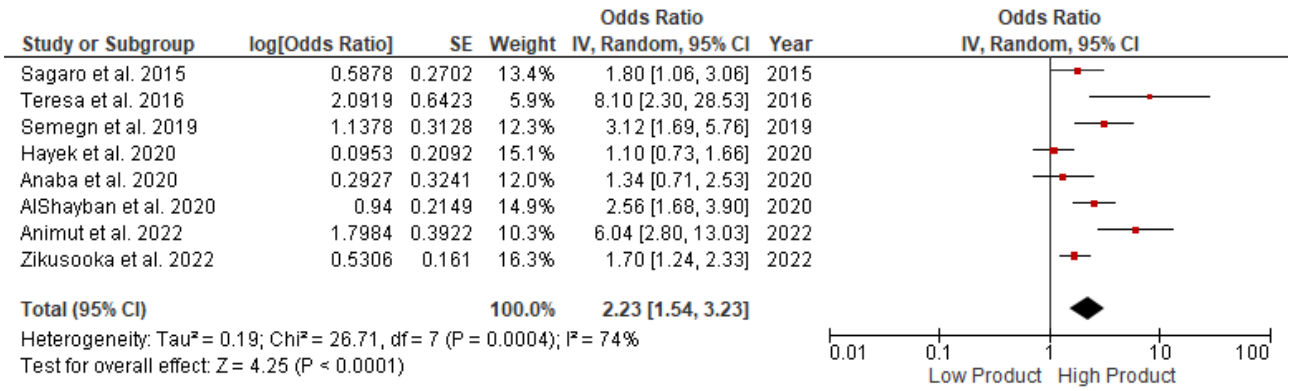

Figure 3. Forest plot regarding the effect of product quality on patient satisfaction

Figure 3 shows the forest plot results regarding the influence of product quality on patient satisfaction. High quality products are 2.23 times more likely to satisfy patients than low quality products, and this effect is statistically significant (OR= 2.23; 95% CI = 1.54 to 3.23; p<0.001).

The forest plot also shows a heterogeneous distribution of effect estimates between studies (I^2= 74%). Thus, the calculation of the average effect estimate was carried out using a random effect model approach.

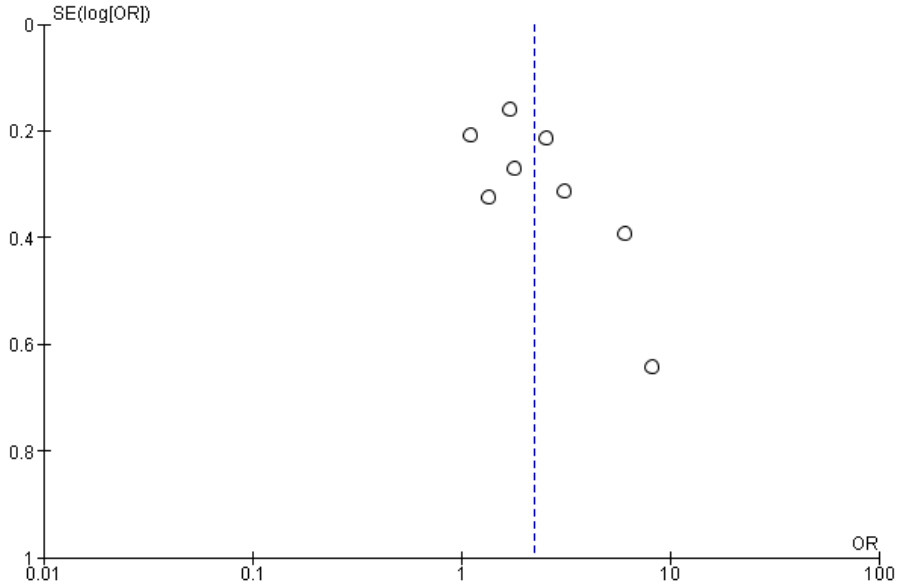

Figure 4. Funnel plot regarding the influence of product quality on patient satisfaction

Figure 4 shows a funnel plot of the influence of product quality on patient satisfaction. The funnel plot shows that the distribution of estimated effects is more to the right than to the left of the vertical line of average estimates. Thus, the funnel plot indicates publication bias. Because the location of the distribution of estimated effects is more on the right side, which is the same as the location of the star shape (diamod) of the average estimated effect in the forest plot image, the publication bias tends to overestimate the actual effect.

Table 4. PICO table of cross-sectional articles on the influence of promotions on patient satisfaction

Author	Country	Sample	P	I	C	O
Sagaro et al. (2015)	Ethiopia	415	Patients	Low price, high promotion, high quality product	High price, low promotion, low quality product	Patient satisfaction
Al-shayban et al. (2020)	Saudi Arabia	531	Patient	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction
Anaba et al. (2020)	Indonesia	386	Adolescent Patients	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction
Semegn et al. (2021)	Ethiopia	398	Patients	High promotion	Low promotion	Patient satisfaction
Kebede et al. (2021)	Ethiopia	414	Outpatient	Low price, high promotion	High price, low promotion	Patient satisfaction
Animut et al. (2020)	Indonesia	271	Patient	High quality product, high promotion	Low quality product, low promotion	Patient satisfaction

Table 4 explains that there are 6 articles with cross-sectional studies on the influence of promotional influences on patient satisfaction. The research was conducted in three countries, namely Indonesia, Saudi Arabia and Ethiopia.

Table 5. Odds Ratio (OR) regarding the effect of promotion on patient satisfaction

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Sagaro et al. (2015)	0.48	0.23	1.00
Al-shayban et al. (2020)	1.24	1.00	1.54
Anaba et al. (2020)	4.99	1.90	13.11
Semegn et al. (2021)	3.22	1.72	6.03
Kebede et al. (2021)	0.41	0.20	0.84
Animut et al. (2020)	2.50	1.18	5.30

Table 5 explains that there are 6 articles with cross-sectional studies on the effect of promotion on patient satisfaction with the highest aOR in the research by Anaba et al. (2020), namely 4.99 and the lowest aOR in the study by Sagaro et al. (2015) namely 0.48.

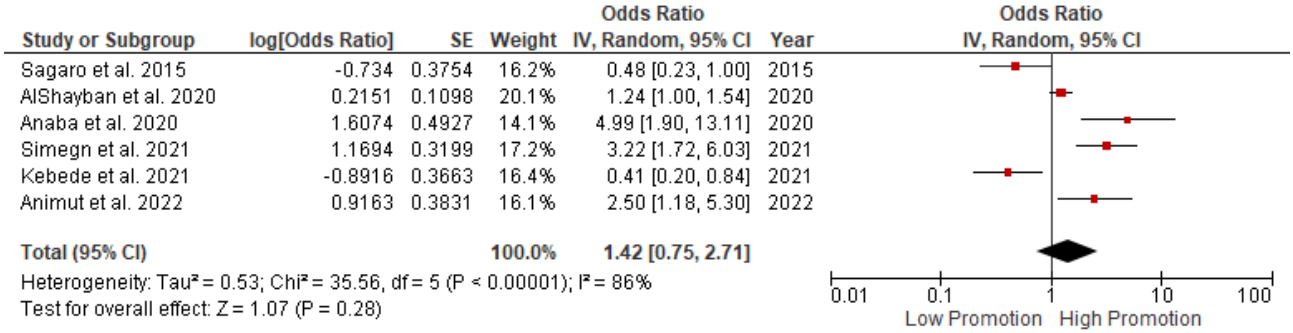

Figure 5. Forest plot of the effect of promotion on patient satisfaction

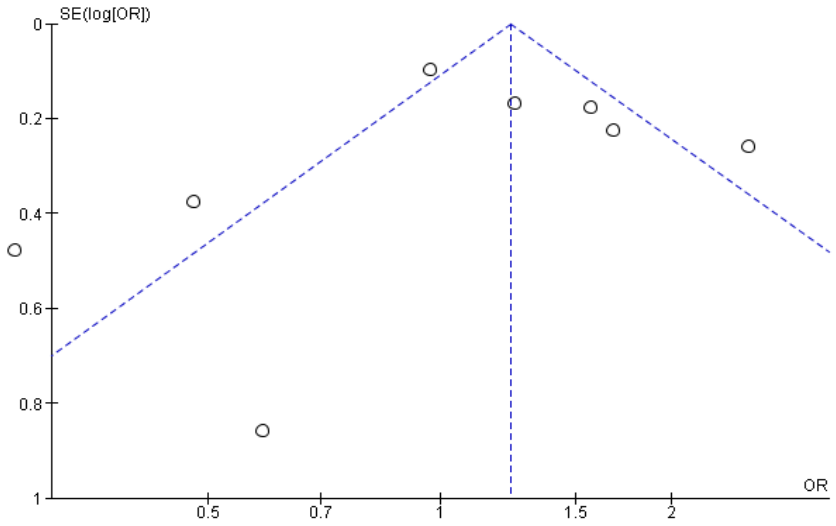

Figure 6. Funnel plot of the influence of insurance on patient satisfaction with health services

The Effect of Insurance on Patient Satisfaction with Health Services

Table 4 presents the adjusted odds ratio (aOR) and 95% confidence interval (95%CI) of the effect of gender on outpatient satisfaction from each primary study in which the meta-analysis was conducted. The sample size of this meta-analysis (n) = 12,116 outpatients.

Figure 5 presents a forest plot regarding the effect of insurance on patient satisfaction with health services. The forest plot shows that there is an influence of insurance on patient satisfaction, and this influence is statistically significant. Patients who used insurance were 1.23 more satisfied with health services than patients who did not use insurance (aOR= 1.23; 95% CI=1.09 to 1.40; p=0.001).

The forest plot also shows high heterogeneity in effect estimates between studies (I2= 82%). Thus, calculating the average estimated effect uses a random effect model approach. Figure 6 presents the effect of insurance on patient satisfaction with health services. The funnel plot shows that the distribution of impact estimates from meta-analyses of primary studies is more or less symmetrical to the right and left of the vertical mean estimate line. Thus, the funnel plot does not show any publication bias.

Table 6. PICO table of cross-sectional articles on the effect of insurance on outpatient satisfaction with sample size (n=12,116)

Author	Country	Sample	P	I	C	O
Chandra et al. (2019)	Portugal	410	Outpatients	Waiting Time >1 Hour	Waiting Time <1 Hour	Satisfaction with Health Services
Eshetie et al. (2020)	Ethiopia	413	Outpatients	Waiting Time >2 Hours	Waiting Time <1 Hour	Satisfaction with Health Services
Geberu et al. (2019)	Ethiopia	496	PWOD Outpatients (Private Outpatients)	Waiting Time >181 Minutes	Waiting Time <30 Minutes	Satisfaction with Health Services
Geberu et al. (2019)	Ethiopia	496	ROPD Outpatients (General Outpatients)	Waiting Time >181 Minutes	Waiting Time <30 Minutes	Satisfaction with Health Services
Hailie et al. (2021)	Ethiopia	420	Outpatients	Waiting Time >60 Minutes	Waiting Time <30 Minutes	Satisfaction with Health Services
Mesfin et al. (2019)	Ethiopia	266	Outpatients	Waiting Time >60 Minutes	Waiting Time <30 Minutes	Satisfaction with Health Services
Sagaro et al. (2015)	Ethiopia	421	Outpatients	Long Waiting Times	Short Wait Times	Satisfaction with Health Services

Table 7. Data on adjusted odds ratio (aOR) and 95% confidence interval (95% CI) on the effect of waiting time on outpatient satisfaction with sample size (n=2,922)

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Chandra et al. (2019)	0.33	0.16	0.66
Eshetie et al. (2020)	0.02	0.00	0.08
Geberu et al. (2019)	0.39	0.07	2.04
Geberu et al. (2019)	0.43	0.08	2.31
Hailie et al. (2021)	0.32	0.12	0.85
Mesfin et al. H2019)	0.27	0.11	0.66
Sagaro et al. (2015)	0.48	0.23	1.00

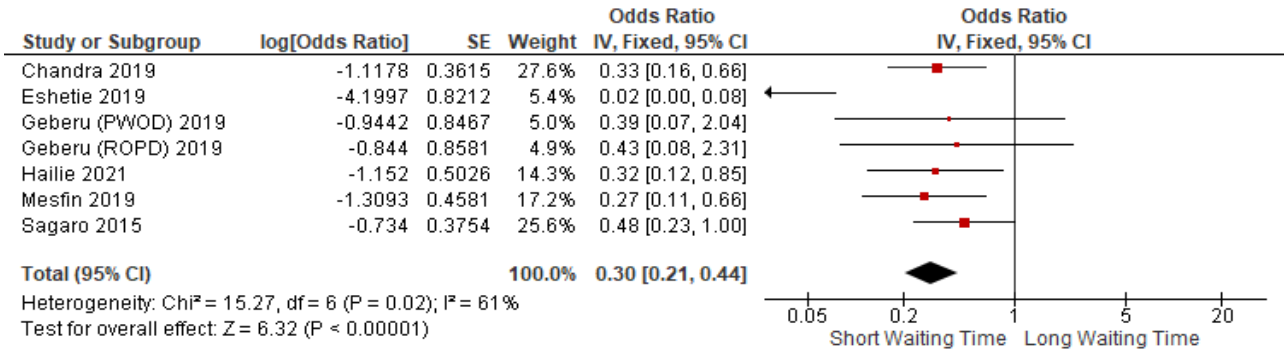

Figure 7. Forest plot of the effect of waiting time on patient satisfaction with health services

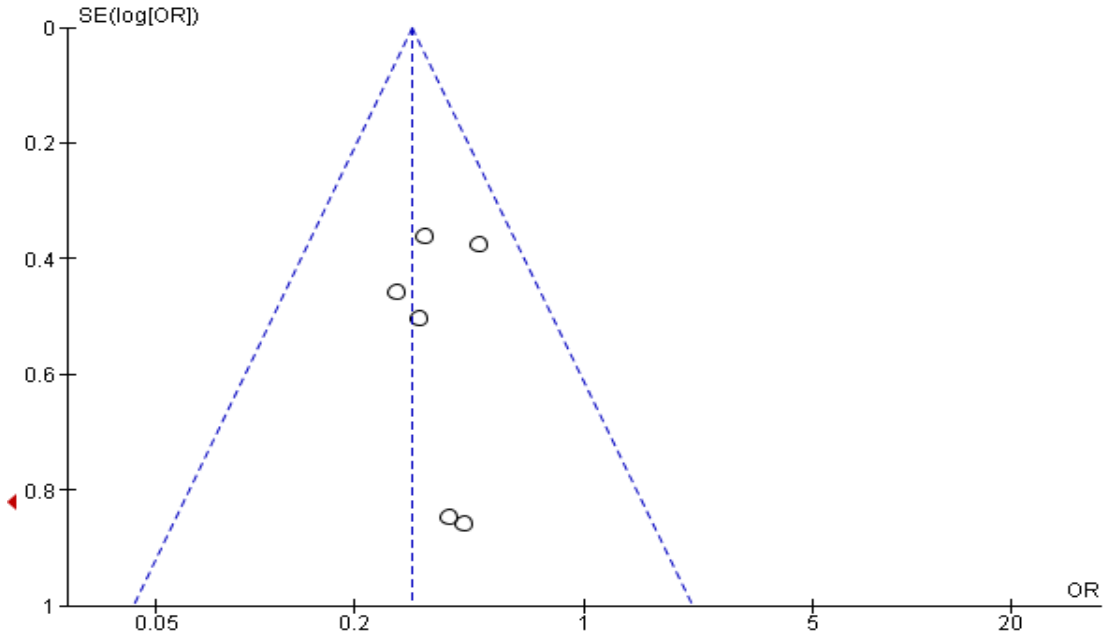

Figure 8. Funnel plot of the effect of waiting time on patient satisfaction with health services

The Effect of Waiting Time on Patient Satisfaction with Health Services

Table 6 presents the adjusted odds ratio (aOR) and 95% confidence interval (95%CI) of the effect of waiting time on outpatient satisfaction from each primary study in which the meta-analysis was conducted. The sample size of this meta-analysis (n) = 2,922 outpatients.

Figure 7 presents a forest plot illustrating the effect of waiting time on patient satisfaction with health services. The plot indicates that waiting time significantly influences patient satisfaction. Specifically, patients who experienced shorter waiting times reported 0.30 times greater satisfaction with health services compared to those who faced longer waiting times (aOR= 0.30; 95% CI= 0.21 to 0.44; p<0.001). This finding highlights the importance of minimizing waiting times to enhance patient satisfaction.

The forest plot also shows high heterogeneity in effect estimates between studies (I^2= 61%). Thus, calculating the average estimated effect uses a random effect model approach. Figure 8 presents the effect of waiting time on patient satisfaction with health services. The funnel plot shows that

the distribution of impact estimates from meta-analyses of primary studies is more or less symmetrical to the right and left of the vertical mean estimate line. Thus, the funnel plot does not show any publication bias.

Table 8. PICO table of cross-sectional articles on the effect of visits on outpatient satisfaction with sample size (n=11,071)

Author	Country	Sample	P	I	C	O
Chandra et al. (2019)	Portugal	410	Outpatients	>3 visits	First Visit	Satisfaction with Health Services
Kebede et al. (2021)	Ethiopia	246	Outpatients	>1 visit	First Visit	Satisfaction with Health Services
Quyen et al. (2021)	Vietnam	4,327	Outpatients	Visits Every Month	First Visit	Satisfaction with Health Services
Ayele et al. (2022)	Ethiopia	540	Outpatients	Repeat Visits	First Visit	Satisfaction with Health Services
Guadie et al. (2022)	Ethiopia	424	Outpatients in Physiotherapy	Several visits	First Visit	Satisfaction with Health Services
Nohria et al. (2022)	USA	4,731	Outpatients	>6 visits per year	<1 visit	Satisfaction with Health Services
Babore et al. (2023)	Ethiopia	393	Outpatients	>8 visits	1-3 visits	Satisfaction with Health Services

Table 9. Data on adjusted odds ratio (aOR) and 95% confidence interval (95% CI) on the effect of visits on outpatient satisfaction with sample size (n=11,071)

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Chandra et al. (2019)	1.93	1.03	3.26
Kebede et al. (2021)	0.46	0.20	1.06
Quyen et al. (2021)	1.57	1.18	2.09
Ayele et al. (2022)	0.70	0.35	1.40
Guadie et al. (2022)	1.43	0.96	2.13
Nohria et al. (2022)	5.16	4.35	6.12
Babore et al. (2023)	4.23	0.65	27.53

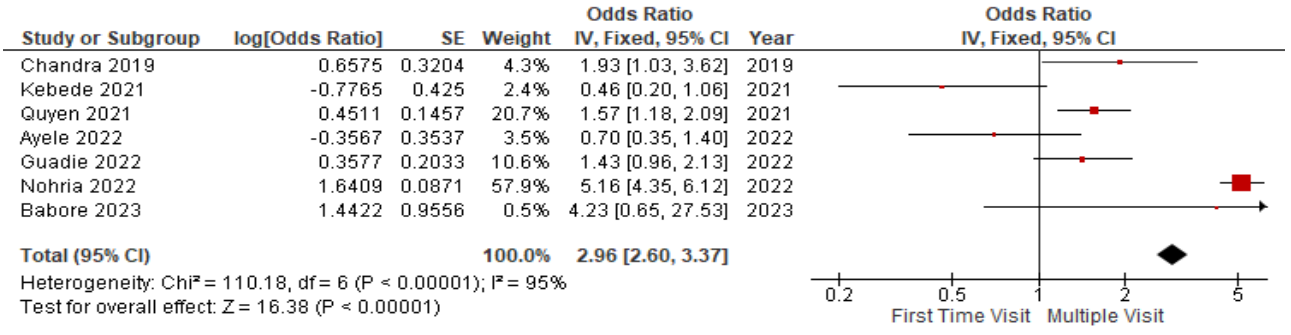

Figure 9. Forest plot of the influence of visits on patient satisfaction with health services

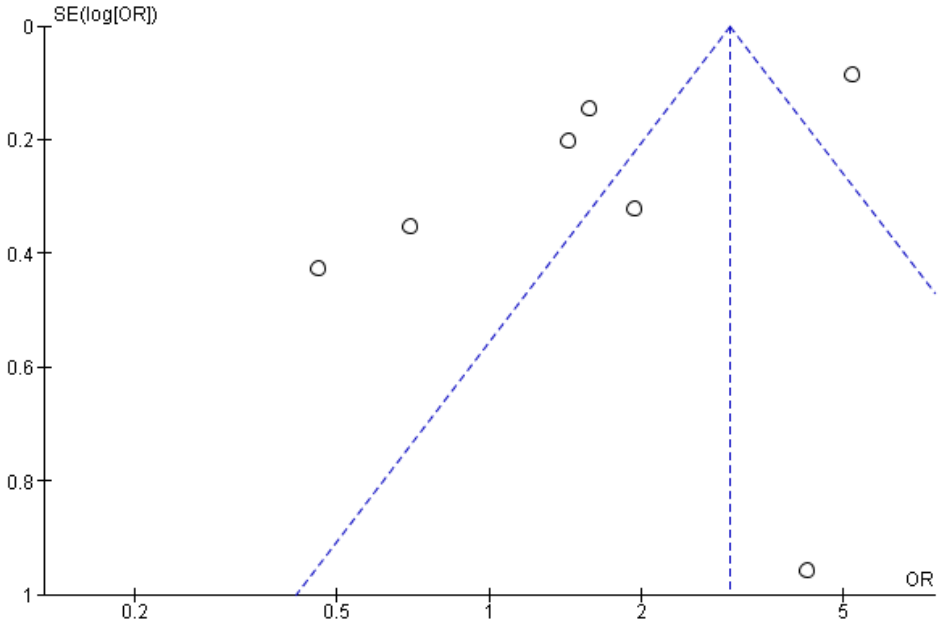

Figure 10. the influence of visits on patient satisfaction with health services

The Effect of Visits on Patient Satisfaction with Health Services

Table 8 presents the adjusted odds ratio (aOR) and 95% confidence interval (95%CI) of the effect of visits on outpatient satisfaction from each primary study in which the meta-analysis was conducted. The sample size of this meta-analysis (n)= 11,071 outpatients.

Figure 9 presents a forest plot regarding the influence of visits on patient satisfaction with health services. The forest plot shows that there are visits on patient satisfaction, and this effect is statistically significant. Patients who had previously visited were 2.96 more satisfied with health services than patients who had visited for the first time (aOR= 2.96; CI95%= 2.60 to 3.37; p <0.001).

The forest plot also shows high heterogeneity in effect estimates between studies (I^2= 95%). Thus, calculating the average estimated effect uses a random effect model approach. Figure 10 presents the effect of waiting time on patient satisfaction with health services. The funnel plot shows that the distribution of impact estimates from meta-analyses of studies tends to lie more to the right than to the left of the vertical mean estimate line. Thus, the funnel plot shows the existence of publication bias.

DISCUSSION

1. The Influence of Gender on Patient Satisfaction with Health Services

Our gender is what we have as women or men. According to. Other people and communities have different views and standards: some argue that our gender is determined by our position or gender classification in society, there are also those who argue that our gender is determined by whether we have certain biological characteristics, such as the chromosomes we have. If our gender is determined by our social gender position or whether we have certain biological characteristics, then our gender identity will not determine gender (Cosker-Rowland, 2023). The results of this meta-analysis of 12 primary studies revealed that women were 1.19 more satisfied with health services than men (aOR= 1.19; 95% CI=1.11 to 1.28; p<0.001).

This research is in line with (Yimer et al., 2016) which shows that women are 0.61 more satisfied with health services than men (aOR= 0.61; 95% CI= 0.39 to 0.94). Based on a study (Desta et al., 2018) states that women are 1.11 more satisfied with health services than men (aOR= 1.11; 95% CI= 0.70 to 1.77).

2. The Effect of Insurance on Patient Satisfaction with Health Services

Insurance plays an important role in shaping patient experiences and their satisfaction with healthcare services. Having or not having insurance can have a significant impact on access, quality, and perception of health services (Dalinjong, 2017). Through analysis of meta-result data from 12 primary studies, it was found that individuals with insurance had a significantly higher level of satisfaction with health services compared to those without insurance (aOR= 1.23; 95% CI=1.09 to 1.40; p=0.001).

These results indicate that the existence of insurance has a positive impact on patient satisfaction. Thus, to increase patient satisfaction and provide equitable health services, it is necessary to pay attention to aspects such as insurance availability, ease of access, quality of care, and associated costs. Patients with insurance may be better able to pay for or obtain health services on a regular basis, which may improve their perception of the health system as a whole.

3. The Effect of Waiting Time on Patient Satisfaction with Health Services

Waiting time refers to the time a patient waits from registration to receiving treatment from a doctor at a clinic or hospital. Waiting time is an indicator of service quality from six quality dimensions, including the effective-ness and efficiency of outpatient services. Waiting time plays an important role in whether or not patients are satisfied with hospital services, especially outpatients. Patients consider that waiting times that are too long can create obstacles in accessing health services at the hospital. Keeping patients waiting unnecessarily can cause unpleasant feelings for both the patient and the doctor. Waiting time is an aspect that patients will use to assess health workers (Pringgayuda et al., 2022). The results of this meta-analysis of 12 primary studies revealed that short waiting times were 0.30 more satisfied with health services than long waiting times (aOR= 0.30; 95% CI=0.21 to 0.44; p<0.001).

This research is in line with (Tume et al., 2015) which shows that waiting times <2 hours are 0.45 times more satisfied with health services than waiting times >2 hours (aOR= 0.45; 95% CI= 0.22 to 0.92). Based on a study (Desta et al., 2018) it is stated that long waiting times are 0.01 more dissatisfied with health services than short waiting times (aOR= 0.01; 95% CI=0.002 to 0.07).

4. The Effect of Visits on Patient Satisfaction with Health Services

Medical visits are a variety of health services, including outpatient visits, emergency department visits, and preventative care appointments. These visits are important for monitoring and managing various health conditions (Sleath et al., 2015). The results of this meta-analysis of 7 primary studies revealed that patients who had made several visits were 2.96 more satisfied with health services than patients who were visiting for the first time (aOR= 2.96; 95% CI=2.60 to 3.37; p<0.001).

This research is in line with (Shewasinad and Sayih, 2018) which shows that patients who have already visited are more satisfied than patients who are visiting for the first time (aOR= 1.00; 95% CI= 0.47 to 1.64). Based on a study by Hasen and (Hasen and Negeso, 2021) it is stated that patients who have already visited are more satisfied than patients who are visiting for the first time (aOR= 1.00; 95% CI= 0.24 to 0.86).

AUTHOR CONTRIBUTION

Regita Azzahra Prasetyowati, Natalia Prisca Ibrahim, and Septa Santiya Arini are researchers who chose the topic, searched for and collected articles, analyzed the data and wrote the manuscript. Bhisma Murti and Siti Mar'atul Munawaroh helped analyze data and review research documents.

CONFLICT OF INTEREST

There was no conflict of interest in the study.

FUNDING AND SPONSORSHIP

This study is self-funded.

ACKNOWLEDGEMENT

The researcher would like to thank all parties who took part in preparing this article.

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