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Meta-Analysis
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# Meta-Analysis: Effects of Gender, Waiting Time, Visits, and Insurance on Outpatient Satisfaction with Health Services

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## ABSTRACT

**Background:** Patient satisfaction reflects the quality of healthcare services received. It arises from patients' evaluations of their experiences, influenced by factors such as service availability and interaction with health workers. This study examines the impact of gender, waiting time, visits, and insurance on outpatient satisfaction.
**Subjects and Method:** A systematic review and meta-analysis using PRISMA and PICO frameworks. Population: outpatients. Intervention: female, long waiting time, repeat visits, using insurance. Comparison: male, short waiting time, first-time visits, no insurance. Outcome: outpatient satisfaction. Data were sourced from Google Scholar, Biomedcentral, Taylor & Francis, and Plos (2014-2024) using keywords such as gender, "waiting time", visits, insurance, and aOR. Inclusion criteria: cross-sectional studies with multivariate analysis reporting aOR. Data were analyzed with RevMan 5.3.
**Results:** Twelve primary studies were used to analyze gender and patient satisfaction with health services. Women had satisfaction with health services 1.19 times compared to men (aOR= 1.19; 95% CI=1.11 to 1.28; p<0.001). Ten primary studies were used to analyze insurance and patient satisfaction with health services. Patients who have insurance are 1.23 times more satisfied with health services than those who do not have insurance (aOR= 1.23; 95% CI=1.09 to 1.40; p<0.001). Seven primary studies were used to analyze waiting times and patient satisfaction with health services. Patients who experienced short waiting times were 0.30 times more satisfied with health services compared to those with long waiting times (aOR=0.30; 95% CI=0.21 to 0.44; p<0.001). Seven primary studies were used to analyze visit frequency and patient satisfaction with health services. Patients who have visited are 2.96 times more satisfied with health services than patients who are visiting for the first time (aOR=2.96; 95% CI=2.60 to 3.37; p<0.001).
**Conclusion:** Female gender, short waiting times, repeat visits and insurance in increasing outpatient satisfaction with health services.

**Keywords:** gender, waiting time, visits, insurance, outpatient satisfaction

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## BACKGROUND

One of the health efforts in improving the level of health can be seen from the satisfaction received by patients. Patient satisfaction as an indicator of health service quality has developed as an outcome (Jayantkumar and Dasharathbhai, 2019). Patient satisfaction is the result of the service process felt by the patient and is the patient's evaluation of the experience or as an interaction, including the availability of health services provided by officers (health workers), so that patient satisfaction can be used to assess the quality of service received by the patient (Batbaatar et al., 2017). World Health Organization (WHO) data for 2021 shows data related to hospital patient satisfaction levels in various countries, consisting of more than 6 million patient inputs in health care in 25 countries. The highest level of patient satisfaction is in Sweden with a satisfaction index reaching 92.37%, Finland (91.92%), Norway (90.75%), USA (89.33%), Denmark (89.29%), while the lowest level of patient satisfaction is Kenya. (40.4) and India (34.4%) (WHO, 2021).

Gender factors can influence outpatient satisfaction in health care facilities. For example, a national survey in China found that female patients tend to have higher levels of satisfaction than male patients, even with the same hospital experience (Liang et al., 2021). Based on a study (Karoni et al., 2020) regarding gender, the results show that gender is a significant factor in patient satisfaction (aOR=1.99; 95% CI=1.25 to 3.18) indicating that female patients are 1.99 times more likely to be satisfied with services outpatient health.

Next is the insurance factor. Insurance is the activity of assessing evidence objectively as a basis for providing independent recommendations or conclusions regarding a process and system. Several studies show a positive influence between health insurance and patient satisfaction with health services (Inverso et al., 2016).

The three visit factors, Medical visits encompass a wide range of interactions between patients and healthcare providers, including outpatient appointments, emergency department visits, and interactions with various medical professionals. These visits play an important role in patient care and can have a significant impact on clinical outcomes and patient satisfaction.

The four waiting time factors, the relationship between waiting time and outpatient satisfaction have been the subject of extensive research. Several studies show that waiting time is an important factor and greatly influences outpatient satisfaction (Fu et al., 2021). Research conducted by (Ruiz et al., 2019) states that waiting time has an influence on patient satisfaction (aOR= 0.98; 95 % CI= 0.97 to 0.99). This states that patients who experience short waiting times are 0.98 more satisfied than patients who experience long waiting times.

Based on these factors, it can be said that health services in an agency are determined by various factors, which of these factors need to be paid attention to and evaluated by patients and health workers in order to improve the quality of service from time to time.

## SUBJECTS AND METHOD

### 1. Study Design

This was a systematic review and meta-analysis study. Article searches were collected from Google Scholar, Biomedcentral, Taylor & Francis and PlOS. The keywords used were Gender AND Visit AND (Insurance OR Payment) AND “Waiting Time” AND “Outpatient Department” AND “cross-sectional” AND aOR. There were 20 primary studies that met the inclusion criteria for this study.

**2. Steps of Meta-Analysis**

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

1) Formulate research questions in PICO (Population, Intervention, Comparison, Results).
2) Search for articles from various databases including Google Scholar, Biomedcentral, Taylor & Francis and PLOS.
3) Conduct screening and critical appraisal of primary studies using the Critical Appraisal Checklist for cross-sectional studies
4) Extracting data and entering aOR from each primary study into the RevMan 5.3 application
5) Interpret the results of research analysis and draw conclusions

**3. Inclusion Criteria**

The full paper article used is one that uses a cross sectional design. The analysis used was multivariate with adjusted Odds Ratio (aOR). The research subject was the outpatient department. The research interventions were gender, visits, insurance, waiting time. The results of the research are patient satisfaction with health services.

**4. Exclusion Criteria**

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

**5. Operational Definition**

**Patient Satisfaction with Health Services** is a measure of the extent to which patients are satisfied with the health services they receive from their health care providers. Patient satisfaction is one of the important factors that determines the success of a health service facility.

**Gender** refers to the socially constructed characteristics of women, men, girls and boys. This includes norms, behavior and roles related to the existence of a woman, man, woman or man, as well as relationships with each other. As a social construct, gender varies from one society to another and can change over time.

**Visit** is medical visit, also known as a doctor's appointment or medical consultation, refers to a scheduled meeting between a patient and a healthcare provider for the purpose of addressing a health problem, seeking medical advice, receiving treatment, or undergoing preventative care.

**Insurance** is a contract (policy) in which the insurance company provides compensation to another party against losses due to certain possibilities or dangers. There are many types of insurance policies. Life, health, homeowners, and auto are some of the most common forms of insurance.

**Waiting Time** is the amount of time a patient spends in the waiting corridor area plays a very important role in determining patient satisfaction outcomes. With so many options available, few people will stick with a doctor who doesn't value their time. Wait times depend on many factors, such as how the doctor works, the types of patients he or she sees, the location of the practice, and the efficacy of the support staff.

**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**

The articles in this study were collected using PRISMA diagrams and analyzed using the Review Manager 5.3 application by calculating aOR and heterogeneity ($I_2$) to determine the combined research model and form the final results of the meta-analysis. The results of data analysis are presented in the form of forest plots and funnel plots.

## RESULTS

The search process for primary articles related to the influence of gender, insurance, waiting time and visits on outpatient

satisfaction. In this meta-analysis research, it was carried out on 4 online databases and the results obtained were 20 articles which can be seen in Figure 1 PRISMA diagram.

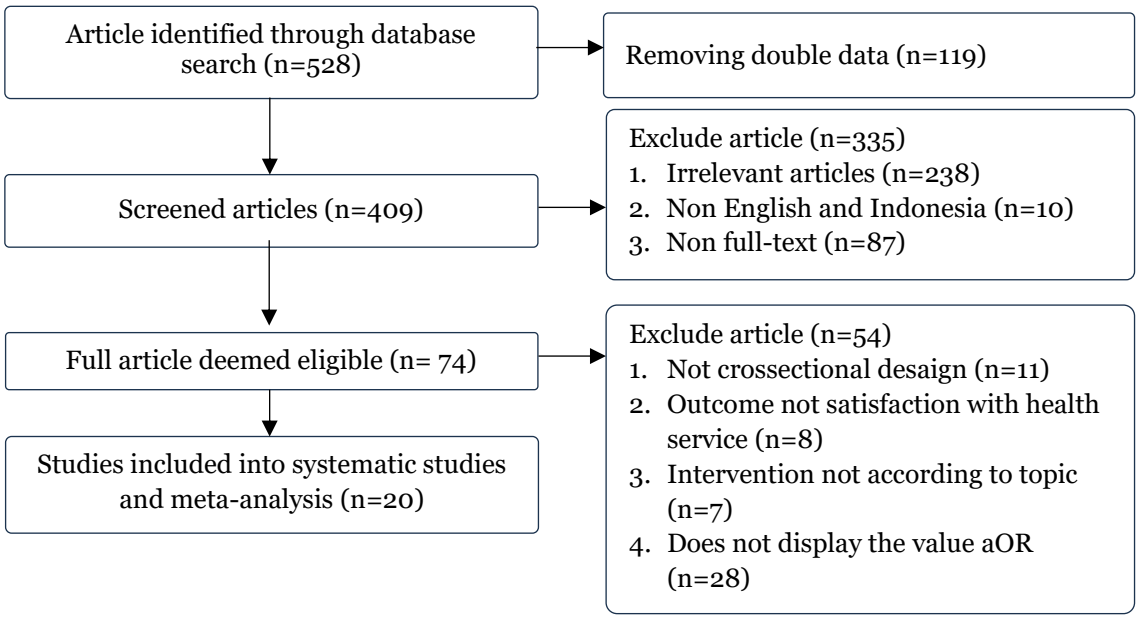


**Figure 1. PRISMA Flow diagram**


**Figure 2. Map of the study area on the influence of gender, visits, waiting time, insurance on patient satisfaction with health services**

Figure 2 shows a map of the distribution of research on the influence of gender, visits, waiting time, insurance on patient satisfaction with health services. Based on 20 research articles obtained from 4 continents, 1 study was obtained from the Americas, namely USA. 1 studies were obtained from the European continent, namely Portugal. 2 studies were obtained from the Asian continent, namely China and Vietnam. And 16

studies were obtained from the African continent, namely the country of Ethiopia and Rwanda.

**Table 1. Critical Appraisal for a cross-sectional study on the influence of gender, waiting time, visits, and insurance on outpatient satisfaction with health service**

| Primary Study | Criteria | | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1a | 1b | 1c | 1d | 2a | 2b | 3a | 3b | 4 | 5 | 6a | 6b | 7 | |
| Ayele *et al.* (2022) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 23 |
| Babore *et al.* (2023) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 25 |
| Berehe *et al.* (2018) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 22 |
| Chandra *et al.* (2021) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 23 |
| Eshetie *et al.* (2020) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 24 |
| Mesfin *et al.* (2019) | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 23 |
| Sagaro *et al.* (2015) | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 22 |
| Quyen *et al.* (2021) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 22 |
| Kidanemariam *et al.* (2023) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 26 |
| Ke *et al.* (2020) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 23 |
| Ukizentaburuwe *et al.* (2021) | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 23 |
| Geberu *et al.* (2019) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 24 |
| Guadie *et al.* (2022) | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 22 |
| Thanh *et al.* (2022) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 22 |
| Kebede *et al.* (2021) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 24 |
| Nohria *et al.* (2022) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 22 |
| Melesse *et al.* (2022) | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 23 |
| Goben *et al.* (2020) | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 23 |
| Hailie *et al.* (2021) | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 24 |
| Mezemir (2014) | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 2 | 1 | 23 |

**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 or 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?

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. Table PICO summary of cross-sectional source articles on the influence of gender on outpatient satisfaction with sample size (n=2,002,794)**

| Author | Country | Sample | P | I | C | O |
|---|---|---|---|---|---|---|
| Berehe et al. (2018) | Ethiopia | 420 | Outpatients | Female | Male | Satisfaction with Health Services |
| Chandra et al. (2019) | Portugal | 410 | Outpatients | Female | Male | Satisfaction with Health Services |
| Geberu et al. (2019) | Ethiopia | 496 | ROPD Outpatients (General Outpatients) | Female | Male | Satisfaction with Health Services |
| Goben et al. (2020) | Ethiopia | 589 | Outpatients | Female | Male | Satisfaction with Health Services |
| Guadie et al. (2022) | Ethiopia | 424 | Outpatients in Physiotherapy | Female | Male | Satisfaction with Health Services |
| Ke et al. (2020) | China | 1,990,000 | Outpatients | Female | Male | Satisfaction with Health Services |
| Kidanemariam et al. (2023) | Ethiopia | 275 | Outpatients | Female | Male | Satisfaction with Health Services |
| Nohria et al. (2022) | USA | 4,731 | Outpatients | Female | Male | Satisfaction with Health Services |
| Quyen et al. (2021) | Vietnam | 4,327 | Outpatients | Female | Male | Satisfaction with Health Services |
| Sagaro et al. (2015) | Ethiopia | 421 | Outpatients | Female | Male | Satisfaction with Health Services |
| Thanh et al. (2022) | Vietnam | 301 | Outpatients | Female | Male | Satisfaction with Health Services |
| Ukizentaburuwe et al. (2021) | Rwanda | 400 | Outpatients | Female | Male | Satisfaction with Health Services |

**Table 3. Adjusted odds ratio (aOR) data and 95% confidence interval (95%CI) of the effect of gender on outpatient satisfaction with sample size (n=2,002,794)**

| Author (Year) | aOR | CI 95% | |
|---|---|---|---|
| | | Lower Limit | Upper Limit |
| Berehe et al. (2018) | 0.83 | 0.86 | 1.36 |
| Chandra et al. (2019) | 2.19 | 1.29 | 3.72 |
| Geberu et al. (2019) | 7.78 | 2.89 | 20.95 |
| Goben et al. (2020) | 0.43 | 0.29 | 0.64 |
| Guadie et al. (2022) | 1.21 | 0.62 | 2.36 |
| Ke et al. (2020) | 1.01 | 0.81 | 1.26 |
| Kidanemariam et al. (2023) | 0.17 | 0.06 | 0.48 |
| Nohria et al. (2022) | 1.44 | 1.30 | 1.60 |
| Quyen et al. (2021) | 1.08 | 0.92 | 1.27 |
| Sagaro et al. (2015) | 1.08 | 0.86 | 1.36 |
| Thanh et al. (2022) | 0.90 | 0.50 | 1.62 |
| Ukizentaburuwe et al. (2021) | 0.52 | 0.29 | 0.93 |

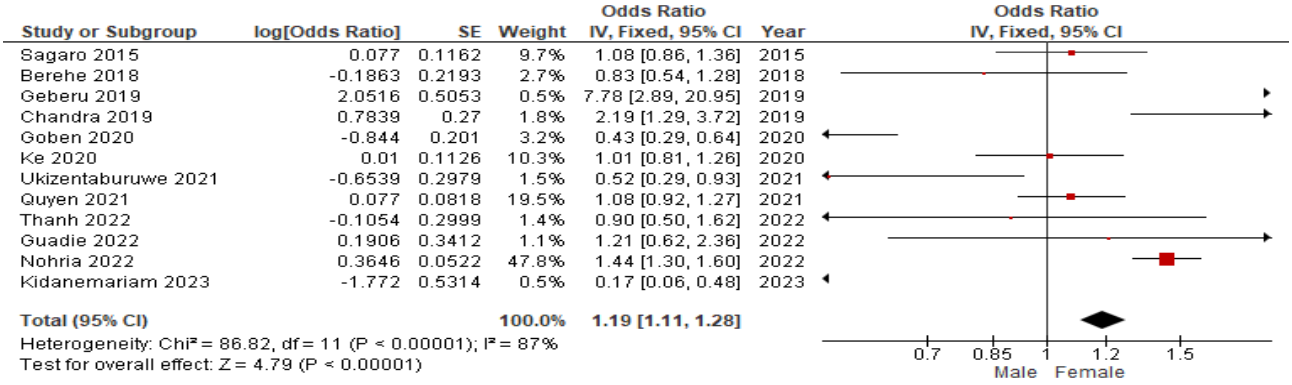


**Figure 3. Forest plot of the influence of gender on patient satisfaction with health services**

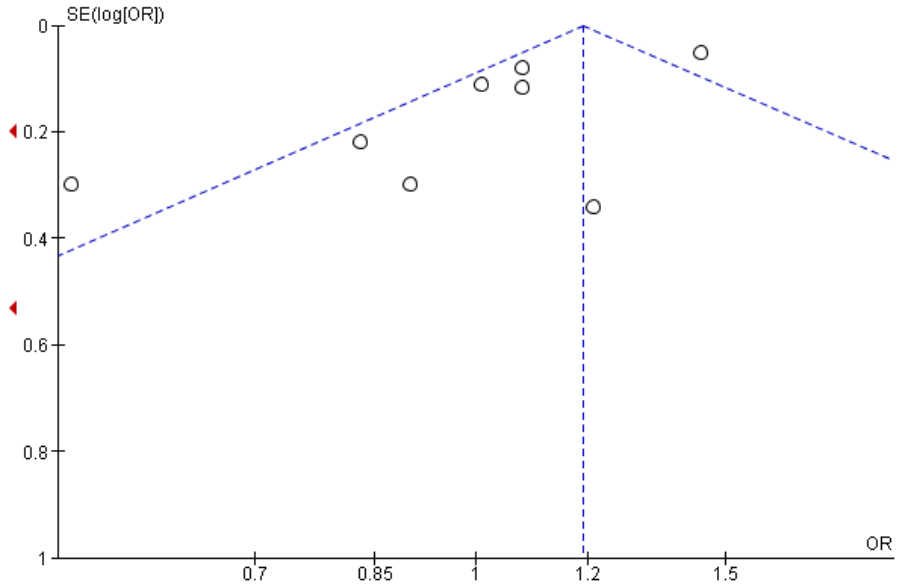


**Figure 4. Funnel plot of the influence of gender on patient satisfaction with health services**

**The Influence of Gender on Patient Satisfaction with Health Services**

Table 3 presents the adjusted odds ratio (aOR) and 95% confidence interval (95%CI) of the effect of gender on outpatient satisfaction from each primary study that was meta-analyzed. The sample size of this meta-analysis (n) = 2,002,794 outpatients.

Figure 3 presents a forest plot regarding the influence of gender on patient satisfaction with health services. The forest plot shows that there is an influence of gender on patient satisfaction, and this influence is statistically significant. Patients with female gender were 1.19 more satisfied with health services than male gender (aOR= 1.19; 95% CI=1.11 to 1.28; p<0.001).

**Table 4. 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 |
|---|---|---|---|---|---|---|
| Mezemir et al. (2014) | Ethiopia | 414 | Outpatients | Pay | No Pay | Satisfaction with Health Services |
| Sagaro et al. (2015) | Ethiopia | 421 | Outpatients | Pay | Free | Satisfaction with Health Services |
| Goben et al. (2020) | Ethiopia | 589 | Outpatients | Pay | No Pay | Satisfaction with Health Services |
| Kebede et al. (2021) | Ethiopia | 246 | Outpatients | No Insurance | Pay/Cash | Satisfaction with Health Services |
| Quyen et al. (2021) | Vietnam | 4,327 | Outpatients | Pay | No Pay | Satisfaction with Health Services |
| Thanh et al. (2022) | Vietnam | 301 | Outpatients | Insurance | No Insurance | Satisfaction with Health Services |
| Nohria et al. (2022) | USA | 4,731 | Outpatients | Insurance | No Insurance | Satisfaction with Health Services |
| Melesse et al. (2022) | Ethiopia | 419 | Outpatients | Pay | No Pay | Satisfaction with Health Services |
| Babore et al. (2023) | Ethiopia | 393 | Outpatients | Pay | No Pay | Satisfaction with Health Services |
| Kidanemariam et al. (2023) | Ethiopia | 275 | Outpatients | Pay | No Pay | Satisfaction with Health Services |

**Table 5. Data on adjusted odds ratio (aOR) and 95% confidence interval (95% CI) on the effect of insurance on outpatient satisfaction with sample size (n=12,116)**

| Author (Year) | aOR | CI 95% | |
|---|---|---|---|
| | | Lower Limit | Upper Limit |
| Mezemir et al. (2014) | 2.51 | 1.51 | 4.17 |
| Sagaro et al. (2015) | 0.48 | 0.23 | 1.00 |
| Goben et al. (2020) | 1.57 | 1.11 | 2.22 |
| Kebede et al. (2021) | 0.28 | 0.11 | 0.71 |
| Quyen et al. (2021) | 1.25 | 0.90 | 1.74 |
| Thanh et al. (2022) | 3.50 | 1.90 | 6.45 |
| Nohria et al. (2022) | 0.97 | 0.80 | 1.18 |
| Melesse et al. (2022) | 1.68 | 1.08 | 2.61 |
| Babore et al. (2023) | 4.87 | 1.48 | 16.03 |
| Kidenamariam et al. (2023) | 0.59 | 0.11 | 3.16 |

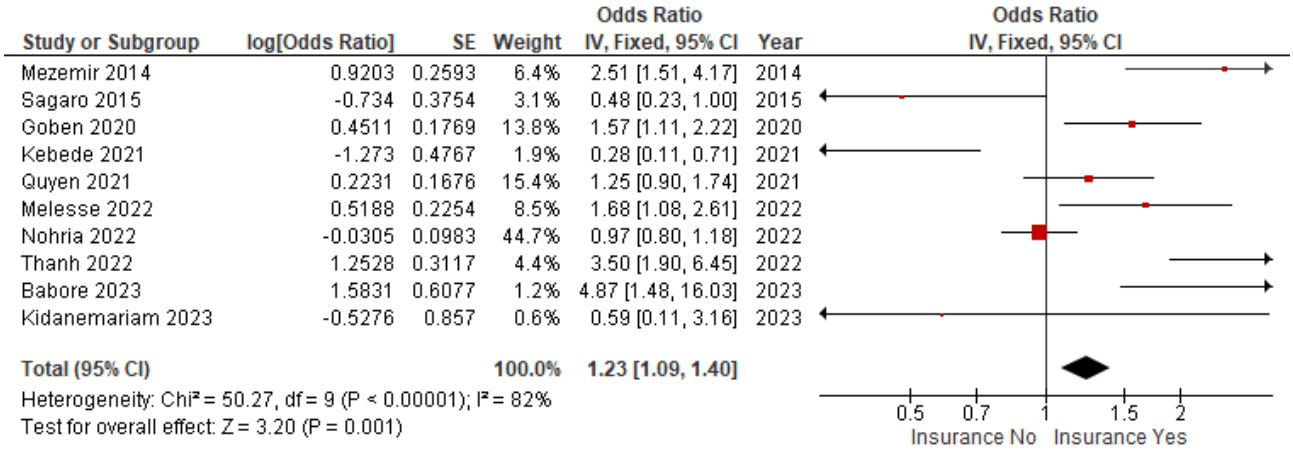


**Figure 5. Forest plot of the effect of insurance on patient satisfaction with health services**

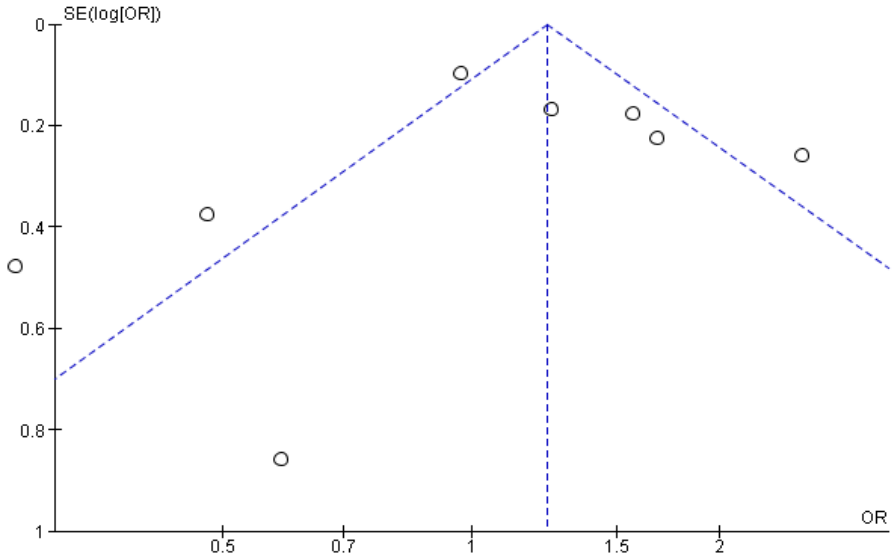


**Figure 6. Funnel plot of the influence of insurance on patient satisfaction with health services**

**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 ($I^2$= 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 |

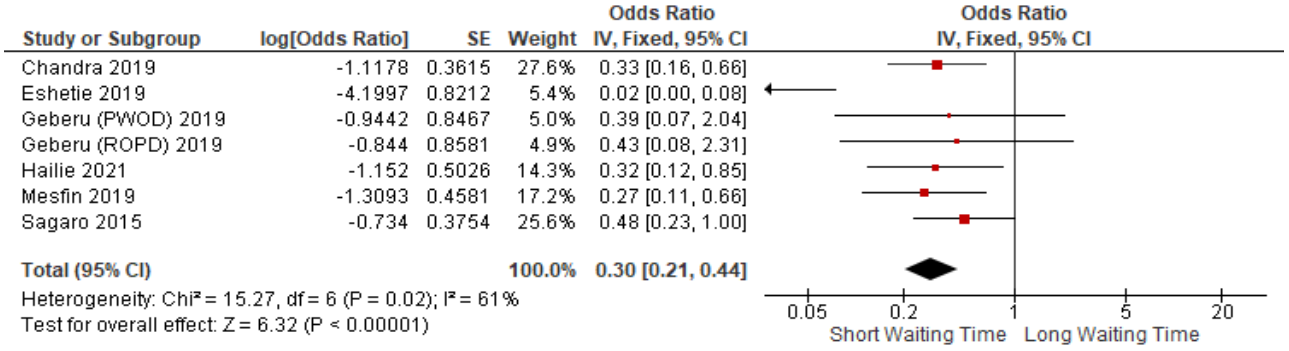


**Figure 7. Forest plot of the effect of waiting time on patient satisfaction with health services**

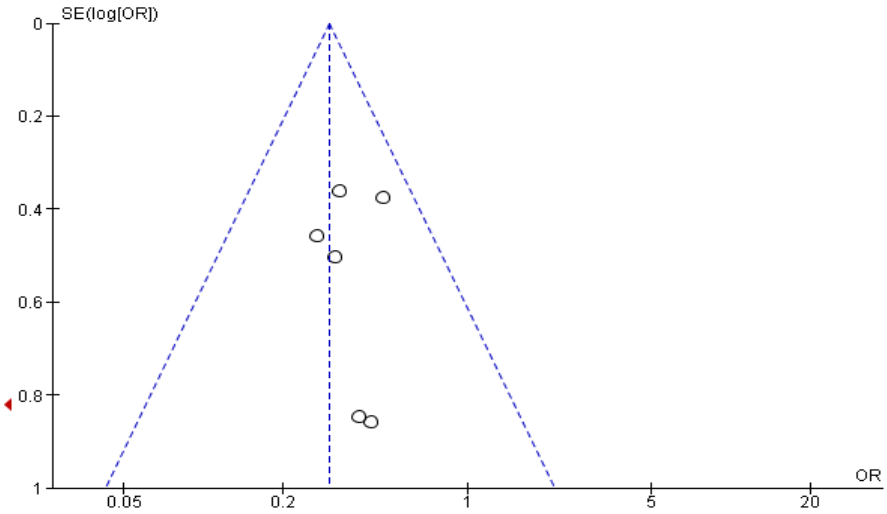


**Figure 8. Funnel plot of the effect of waiting time on patient satisfaction with health services**

### 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 |

| Author | Country | Sample | P | I | C | O |
|---|---|---|---|---|---|---|
| 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 |

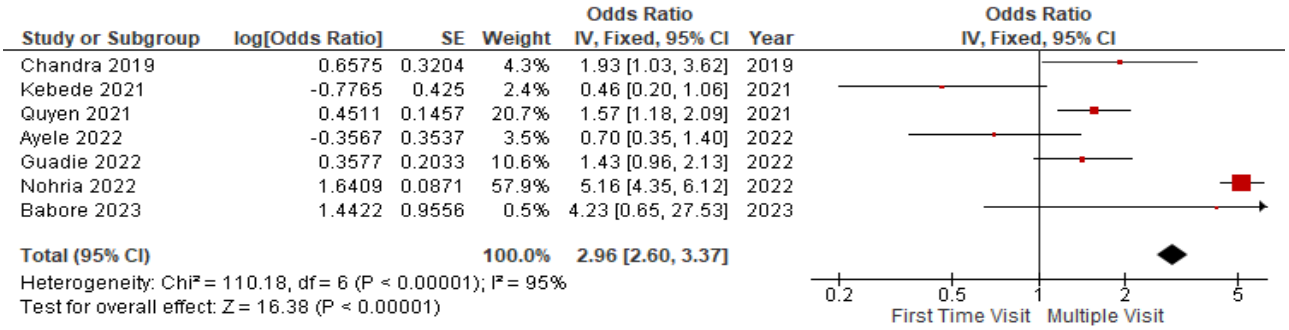


**Figure 9. Forest plot of the influence of visits on patient satisfaction with health services**

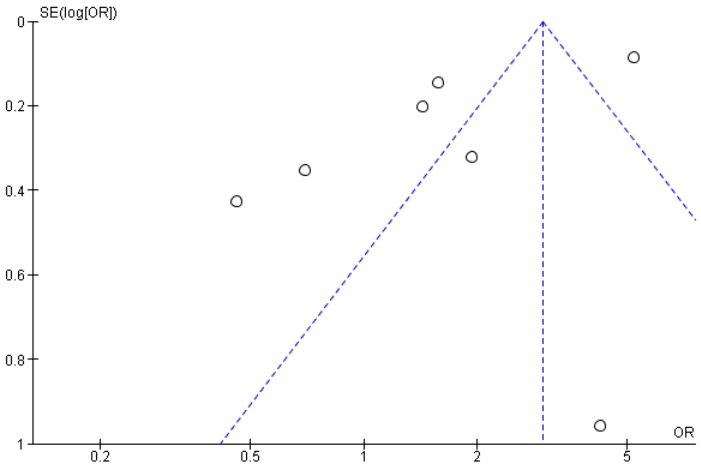


**Figure 10. the influence of visits on patient satisfaction with health services**

**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 effectiveness 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.

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