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Meta-Analysis
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Meta Analysis: Factors Affecting Health Care Service on Outpatient's Satisfaction in Hospital

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ABSTRACT

Background: Patient satisfaction with health services is very important to measure the level of health services offered to patients and the implementation of health services in hospitals. Patient expectations about service quality are also related to service perceptions and when patients have a good impression, patients' clinical experiences and outcomes are more likely to have positive responses. The aim of this study is to analyze the influence of health service factors on the level of satisfaction of outpatients in hospitals based on the results of several previous studies using meta-analysis.
Subjects and Method: This research is a systematic review and meta-analysis based on data obtained through various databases including Google Scholar, PubMed, ResearchGate and Science Direct. This study used articles that were published from 2014 to 2022. The article search was carried out by considering the eligibility criteria defined using the PICO model. Population: outpatients. Intervention: comfortable waiting room, short waiting time, drug availability and payment status (free). Comparation: uncomfortable waiting room, long waiting time, no medicine available and payment status (Out of Pocket). Outcome: patient satisfaction. This article was collected within 1 month with the following keywords used: "Waiting Room" AND "Waiting Time" AND "Drug" AND "Payment Status" AND "Outpatient Health Services" OR "Satisfaction" AND "Cross Sectional Study". The articles included in this research are full text articles with a cross-sectional study design. This article was collected using a PRISMA flow diagram and analyzed using the Review Manager 5.3 application.
Results: Meta-analysis of 16 articles using a cross-sectional research design from the countries of Ethiopia and Fiji. Total sample 15,453. Patient satisfaction increases with a comfortable waiting room (aOR= 2.54; 95% CI= 2.01 to 3.21; p < 0.001), short waiting time (aOR= 2.97; 95% CI= 1.62 to 5.47; p < 0.001), good availability of medicines. complete (aOR= 2.01; 95% CI= 1.55 to 2.60; p <0.001), and payment status (free) (aOR= 1.99; 95% CI= 1.34 to 2.95; p <0.001).
Conclusion: Outpatient satisfaction in hospitals increases with the comfort of the waiting room, short waiting time, availability of medicines, and payment status (free).

Keywords: patient satisfaction, waiting room, waiting time, payment status

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BACKGROUND

Healthcare services have undergone a strong paradigm shift in recent years globally. At the clinical level, personalized care for individuals is usually provided based on medical history, examination, vital signs, and evidence. However, recently, the focus on traditional principles has been taken over by aspects of learning, metrics, and improving service quality (Chatterjee et al., 2021). The current component of competition is not limited to the products/services produced and the presentation of these products/services to customers. The issue of supply chain management is also an important component. The services offered in healthcare institutions focus directly on human life. Any disruption to the supply of materials and provision of services will lead to irreversible situations such as disability, reduced quality of life and even death. Therefore, the function of the healthcare supply chain is important. Supply chain refers to the right product process from the right source, in the right quantity, from supplier to consumer, this can improve service quality so that it can increase satisfaction with health services (Akbal et al., 2023).

Patient satisfaction assessment has been widely used throughout the world (Jayantkumar et al., 2019). Patient satisfaction is when medical services meet the patient's expectations during treatment. Patient satisfaction with the quality of health services they receive is very important, it reflects the quality of health facilities, so that solutions can be proposed to improve hospital quality. Providing health services that satisfy customers or patients is a key factor influencing the existence and development of health facilities (Duc Thanh et al., 2022).

Research states that age, gender, occupation, employment status, education, income, waiting time, accessibility and comfort have an impact on patient satisfaction with health services (Aljarallah et al., 2023; Alkaabi et al., 2019). Many studies have shown that the physical environment of a hospital can influence the health and comfort of residents (staff, patients and visitors). With increasing demand for health services, driven by an aging population and an increasing percentage of people suffering from chronic diseases, it is necessary to better understand the comfort and health-related physical environment in hospitals to increase patient satisfaction with health services (Eijkelenboom et al., 2019).

Based on these data, there needs to be research that is more comprehensive than the results of various previous studies. This study aims to analyze the effect of waiting room comfort, short waiting time, drug availability and payment status (free) on the level of satisfaction of outpatients in hospitals. Based on the results of several previous studies using meta-analysis research to measure the magnitude of the influence to obtain quantitative summary results.

SUBJECTS AND METHOD

1. Study Design

The articles in this meta-analysis were collected using PRISMA flow diagrams. This research is based on data obtained through various databases including Google Scholar, PubMed, ResearchGate and Science Direct. This article was collected within 1 month with the following keywords used: "Waiting Room" AND "Waiting Time" AND "Drug" AND "Payment Status" AND "Outpatient Health Services" OR "Satisfaction" AND "Cross Sectional Study".

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.
3) Conduct screening and carry out critical appraisal of primary studies.
4) Extract data and enter effect estimates from each primary study into the RevMan 5.3 application. The results of the article analysis are presented in the form of an overall aOR, describing the 95% confident interval (CI) using model effects and data heterogeneity (I2).
5) Interpret the results and draw conclusions.

3. Inclusion Criteria

The inclusion criteria for articles included in this research were full text articles with cross-sectional research methods. The selected articles are articles that present the final results of the adjusted odds ratio (aOR), articles that present multivariable data analysis. These articles discuss health care factors and outpatient satisfaction.

4. Exclusion Criteria

Exclusion criteria for articles included case-control, survey and cohort studies, articles published before 2013, articles that presented bivariate analysis and reporting final results only showing OR, percent and mean difference.

5. Operational Definition

The article search was carried out taking into account the eligibility criteria defined using the PICO model. Population: outpatients. Intervention: comfortable waiting room, short waiting time, drug availability and payment status (free). Comparison: uncomfortable waiting room, long waiting time, no medicine available and payment status (out of pocket). Outcome: outpatient satisfaction.

The waiting room is a room that looks clean, neat, odorless, has sufficient lighting and good air circulation which creates a feeling of comfort. The measuring tool is a questionnaire. The measurement scale is categorical.

Waiting time is the time it takes a patient from registering to being served by a health worker. The measuring tool is a questionnaire. The measurement scale is categorical.

Payment status is the amount of funds that must be provided to utilize various health efforts needed by individuals, families, groups and communities. The measuring tool is a questionnaire. The measurement scale is categorical.

Drug availability is the availability of a substance or drug that is fully available for biological purposes in health services. The measuring tool is a questionnaire. The measurement scale is categorical.

The level of patient satisfaction is the feeling of happiness or disappointment experienced by the patient after comparing the reality (results) with their expectations in outpatient health services. The measuring tool is a questionnaire. The measurement scale is categorical.

6. Study Instrument

This research was conducted using PRISMA flow diagrams and assessing the quality of research articles using Critical Appraisal for Cross Sectional from the Master of Health Sciences, Postgraduate School, Sebelas Maret University, Surakarta.

7. Data Analysis

The data analysis process in this study was carried out using the Review Manager 5.3 application to determine the magnitude of influence and heterogeneity between comfortable waiting rooms, short waiting times, drug availability and payment status (free) and the level of patient satisfaction. The results of processing data are presented in the form of forest plots and funnel plots.

RESULTS

The article search process is carried out by searching through databases in accordance

with the PRISMA flow diagram and can be seen in Figure 1. Figure 2 shows a general overview of the research areas used in this meta-analysis which are spread across 2 continents, namely the Australian and African continents. Based on an assessment in terms of research quality using a critical appraisal checklist for cross-sectional, the majority of research subjects, there were 16 articles at the end of the review process that met quantitative requirements. All articles used cross-sectional studies, meeting the requirements for assessing research quality. The following is a table of learning quality assessment results.

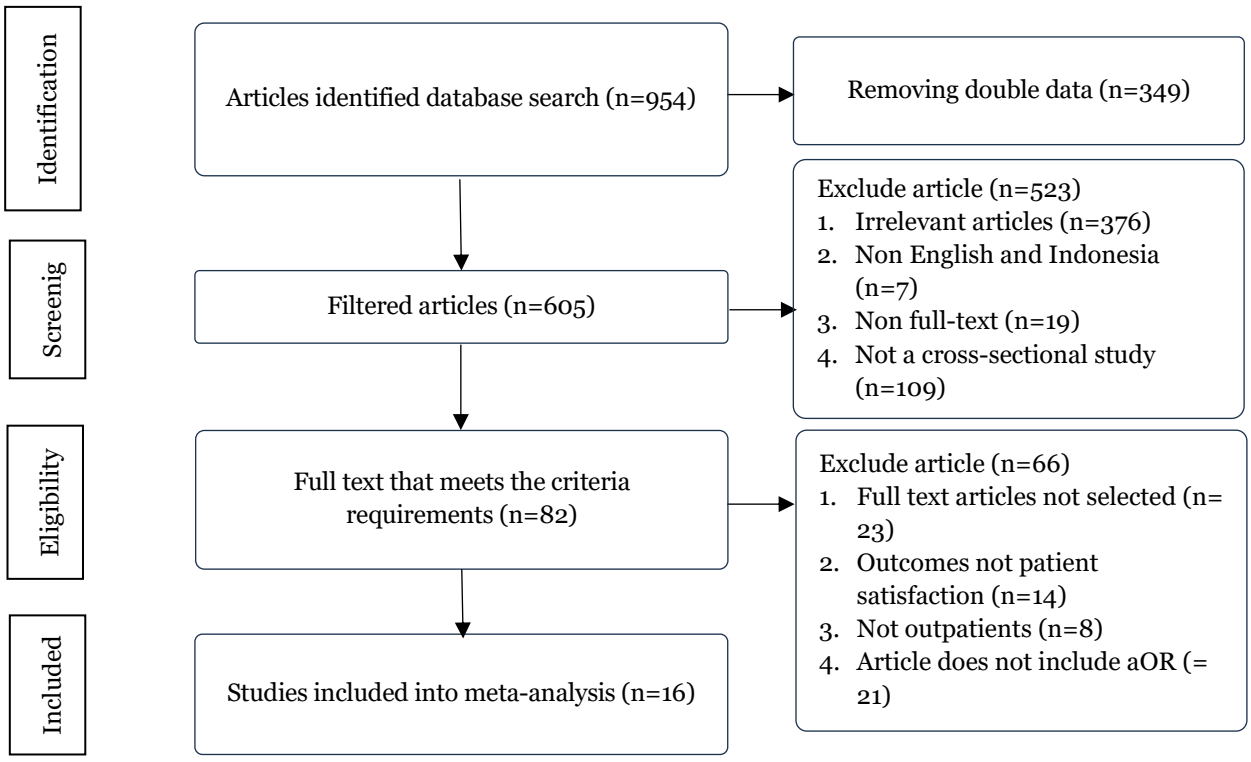

Figure 1. PRISMA Flow diagram

Figure 2. Research area of cross-sectional study of the influence of health service factors on the level of satisfaction of outpatients in hospitals

Table 1. Critical appraisal of cross-sectional studies of the influence of health service factors on the level of satisfaction of outpatients in hospitals

Primary Study	Criteria													Total
	1a	1b	1c	1d	2a	2b	3a	3b	4	5	6a	6b	7	
Kebede et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Mezemir et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Sagaro et al. (2015)	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
Berehe et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Chandra et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Bekele (2016)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Hailie et al. (2021)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Asefa et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Semegn et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Mesfin et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Molla et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Eshetie et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Geberu et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Goben et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Yalew et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	26

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?.

Rating guide:

1. Total number of questions = 13 questions. Answer "Yes" to each question gives a score of "2". The answer "Undecided" gives a score of "1". The answer "No" gives a score of "0".
2. Maximum total score= 13 questions x 2= 26.
3. Minimum total score = 13 questions x 0 = 0. So the range of total scores for a primary study is between 0 and 26. If the total score of a primary study is ≥22, then the study can be included in the meta-analysis. If the total score of a primary study was <22, then the study was excluded from the meta-analysis

Table 2. Description of primary studies on the influence of waiting room comfort on the level of satisfaction of outpatients in hospitals

Author	Country	Sample	P	I	C	O
Asefa et al. (2014)	Cross-sectional	Ethiopia	475	Outpatients	The waiting room is very comfortable	Uncomfortable waiting room
Semegn et al. (2019)	Cross-sectional	Ethiopia	250	Outpatients	Clean waiting room	Uncomfortable waiting room
Sagaro et al. (2015)	Cross-sectional	Ethiopia	421	Outpatients	Comfortable waiting room	Clean waiting room
Mesfin et al. (2019)	Cross-sectional	Ethiopia	270	Outpatients	Comfortable waiting room	Unclean waiting room
Bekele (2016)	Cross-sectional	Ethiopia	379	Outpatients	The waiting room is very comfortable	Uncomfortable waiting room
Molla et al. (2022)	Cross-sectional	Ethiopia	422	Outpatients	Clean waiting room	Uncomfortable waiting room
Kebede et al. (2021)	Cross-sectional	Ethiopia	422	Outpatients	Comfortable waiting room	Uncomfortable waiting room

Table 3. Adjusted Odd Ratio (aOR) of the effect of waiting room comfort on the level of satisfaction of outpatients in hospitals

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Mezemir et al. (2014)	0.28	0.01	6.17
Semegn et al. (2019)	5.56	1.78	16.67
Sagaro et al. (2015)	2.53	1.44	4.47
Mesfin et al. (2019)	2.33	1.34	4.78
Bekele (2016)	2.51	1.32	4.11
Molla et al. (2022)	3.22	2.04	7.69
Kebede et al. (2021)	1.87	1.13	4.18

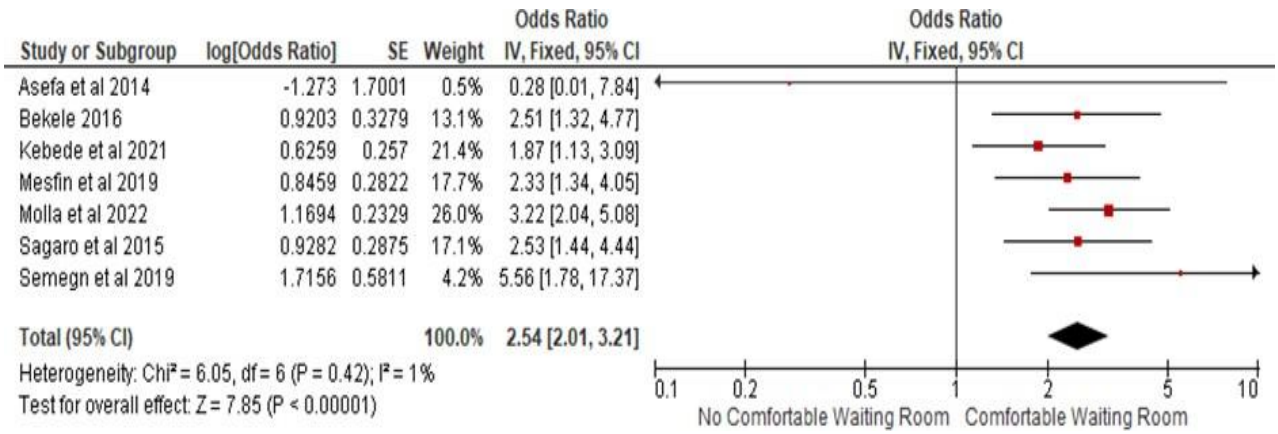

Figure 3. Forest plot of the effect of waiting room comfort on the level of satisfaction of outpatients in hospitals

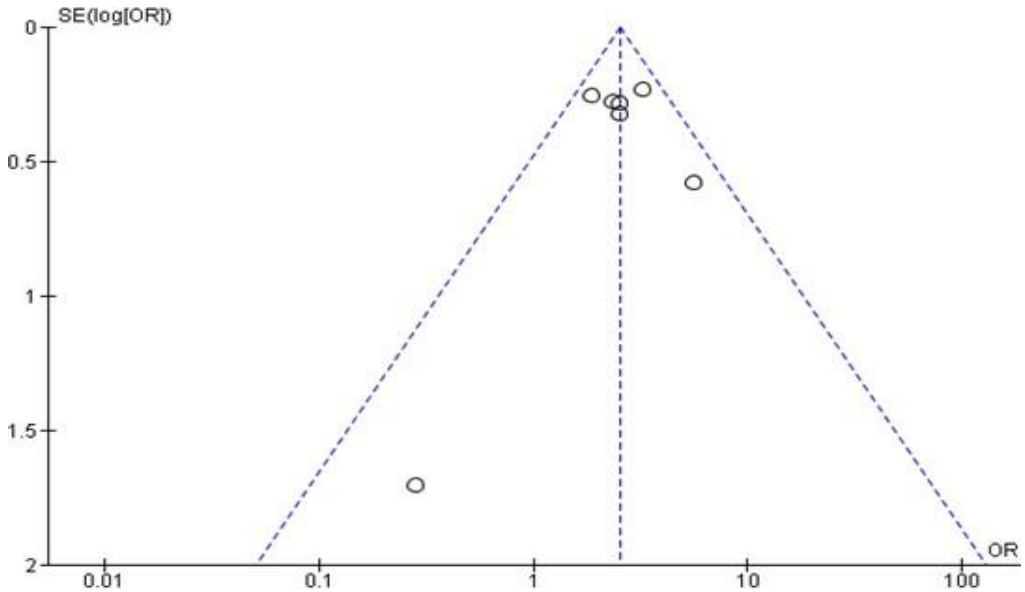

Figure 4. Funnel plot of the influence of waiting room comfort on the level of satisfaction of outpatients in hospitals

The Influence of Waiting Room Comfort on the Level of Satisfaction of Outpatients in Hospitals

Figure 3 show that a comfortable waiting room increases outpatient satisfaction by 2.54 times compared to an uncomfortable waiting room, and this result is statistically significant (aOR= 2.54; 95% CI= 2.01 to 3.21; p <0.001). The forest plot also shows low heterogeneity of effect estimates between primary studies I2 = 1%; p= 0.420, which means that the effect estimate between primary studies in this meta-analysis does not vary. Thus, the calculation of the average estimated effect is carried out using a fixed effect model approach.

Figure 4 shows that the distribution of effect estimates is evenly distributed between the left and right of the vertical line of average effect estimates. Thus, this funnel plot image shows the absence of publication bias.

Table 4. Description of primary studies on the effect of short waiting times on the level of satisfaction of outpatients in hospitals

Author	Country	Sample	P	I	C	O
Hailie et al. (2021)	Cross-sectional	Ethiopia	785	Outpatients	Waiting time <30 minutes	Waiting time >31 minutes
Mezemir et al. (2019)	Cross-sectional	Ethiopia	270	Outpatients	Waiting time <1 hour	Waiting time >1 hour
Sagaro et al. (2015)	Cross-sectional	Ethiopia	421	Outpatients	Waiting time <30 minutes	Waiting time >31 minutes
Mesfin et al. (2019)	Cross-sectional	Ethiopia	270	Outpatients	Waiting time <30 minutes	Waiting time >31 minutes
Geberu et al. (2019)	Cross-sectional	Ethiopia	992	Outpatients	Waiting time <30 minutes	Waiting time >31 minutes
Eshetie et al. (2020)	Cross-sectional	Ethiopia	413	Outpatients	Waiting time <2 hours	Waiting time >2 hours
Chandra et al. (2019)	Cross-sectional	Fiji	410	Outpatients	Waiting time <1 hour	Waiting time >1 hour

Table 5. Adjusted Odd Ratio (aOR) of the effect of short waiting times on the level of satisfaction of outpatients in hospitals

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Hailie et al. (2021)	4.95	2.38	10.28
Mezemir et al. (2019)	6.71	3.48	12.98
Sagaro et al. (2015)	3.16	1.37	7.25
Mesfin et al. (2019)	3.65	1.58	8.46
Geberu et al. (2019)	2.57	0.49	13.40
Eshetie et al. (2020)	0.266	0.07	0.94
Chandra et al. (2019)	3.305	1.68	6.17
Hailie et al. (2021)	4.95	2.38	10.28
Mezemir et al. (2019)	6.71	3.48	12.98
Sagaro et al. (2015)	3.16	1.37	7.25

The Effect of Short Waiting Times on the Level of Satisfaction of Outpatients in Hospitals

The forest plot results in Figure 5 show that a short waiting time increases outpatient satisfaction by 2.97 times compared to a long waiting time, and this result is statistically significant (aOR= 2.97; 95% CI= 1.62 to 5.47; p <0.001). The forest plot also shows high heterogeneity of effect estimates between primary studies I2 = 71%; p= 0.002, which means that the effect estimates between primary studies in this meta-analysis vary. Thus, the calculation of the average estimated effect is carried out using a random effect model approach.

The funnel plot in Figure 6 shows the uneven distribution of estimated effects. The distribution of effect estimates shows that the distribution of effect estimates tends to lie more to the left of the vertical line of average effect estimates than to the right. Thus, this funnel plot image shows the existence of publication bias. Because the distribution of the estimated effect is located to the left of the average vertical line, which is opposite to the location of the average estimated effect (diamond) which is located to the right, publication bias tends to reduce the true effect (underestimate).

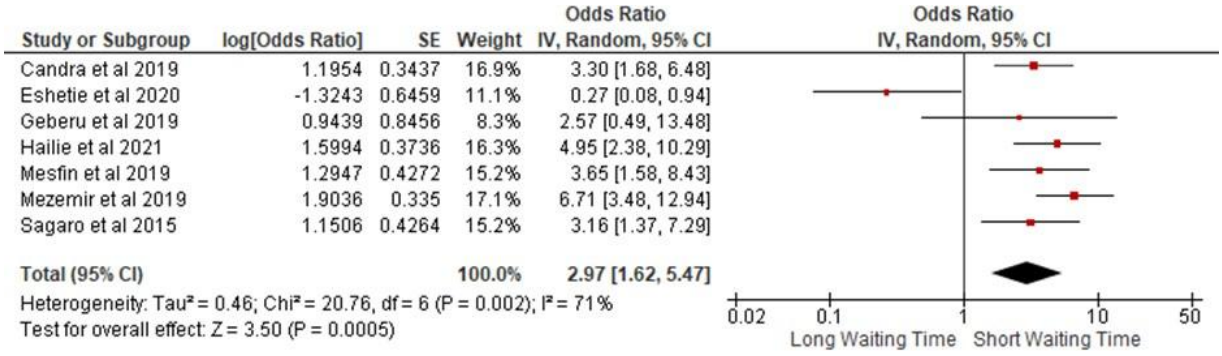

Figure 5. Forest plot of the effect of short waiting time on the level of satisfaction of outpatients in hospitals

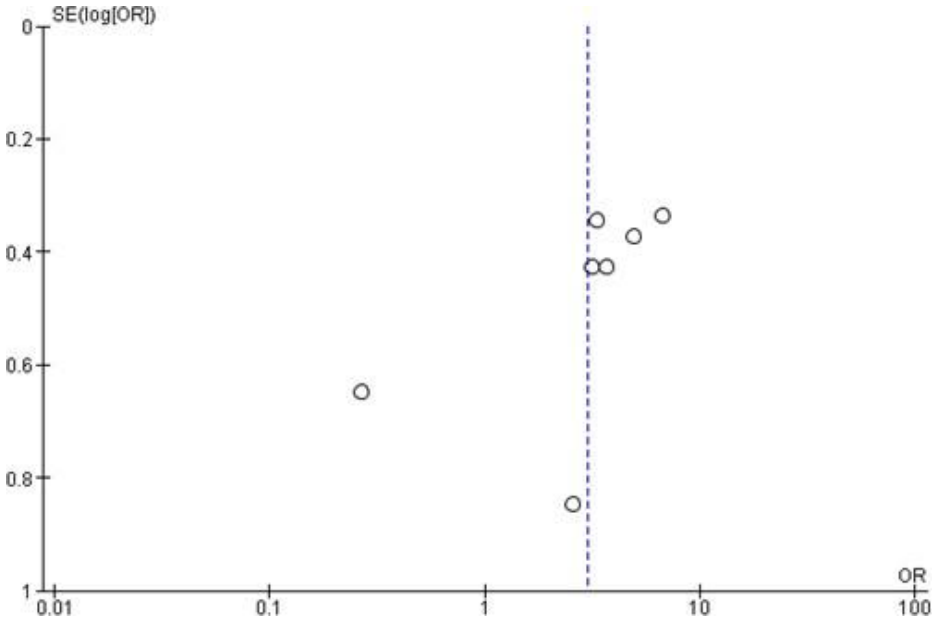

Figure 6. Funnel plot of the effect of short waiting times on the level of satisfaction of outpatients in hospitals

Table 6. Description of primary studies on the influence of drug availability on the level of satisfaction of outpatients in hospitals

Author	Country	Sample	P	I	C	O
Melesse et al. (2022)	Cross-sectional	Ethiopia	419	Outpatients	Availability of medicine	Unavailability of medicine
Mezemir et al. (2014)	Cross-sectional	Ethiopia	414	Outpatients	Availability of medicine	Unavailability of medicine
Sagaro et al. (2015)	Cross-sectional	Ethiopia	421	Outpatients	Availability of medicine	Unavailability of medicine
Mesfin et al. (2019)	Cross-sectional	Ethiopia	270	Outpatients	Availability of medicine	Unavailability of medicine
Berehe et al. (2018)	Cross-sectional	Ethiopia	420	Outpatients	Availability of medicine	Unavailability of medicine
Molla et al. (2022)	Cross-sectional	Ethiopia	422	Outpatients	Availability of medicine	Unavailability of medicine
Geberu et al. (2019)	Cross-sectional	Ethiopia	922	Outpatients	Availability of medicine	Unavailability of medicine

Author	Country	Sample	P	I	C	O
Goben et al. (2019)	Cross-sectional	Ethiopia	589	Outpatients	Availability of medicine	Unavailability of medicine

Table 7. Adjusted Odd Ratio (aOR) of the influence of drug availability on the level of satisfaction of outpatients in hospitals

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Melesse et al. (2022)	1.01	0.32	3.13
Mezemir et al. (2014)	4.304	1.26	14.60
Sagaro et al. (2015)	2.32	0.47	11.36
Mesfin et al. (2019)	2.28	0.58	8.94
Berehe et al. (2018)	1.9	1.12	2.88
Molla et al. (2022)	8.33	2.70	5.0
Geberu et al. (2019)	7.14	1.72	25
Goben et al. (2019)	1.62	1.13	2.22

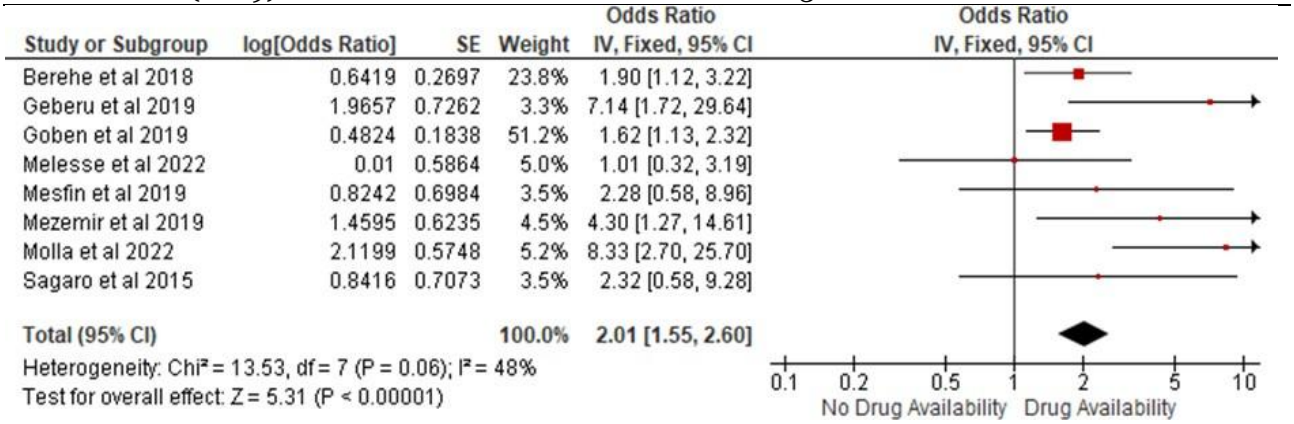

Figure 7. Forest plot of the influence of drug availability on the level of satisfaction of outpatients in hospitals

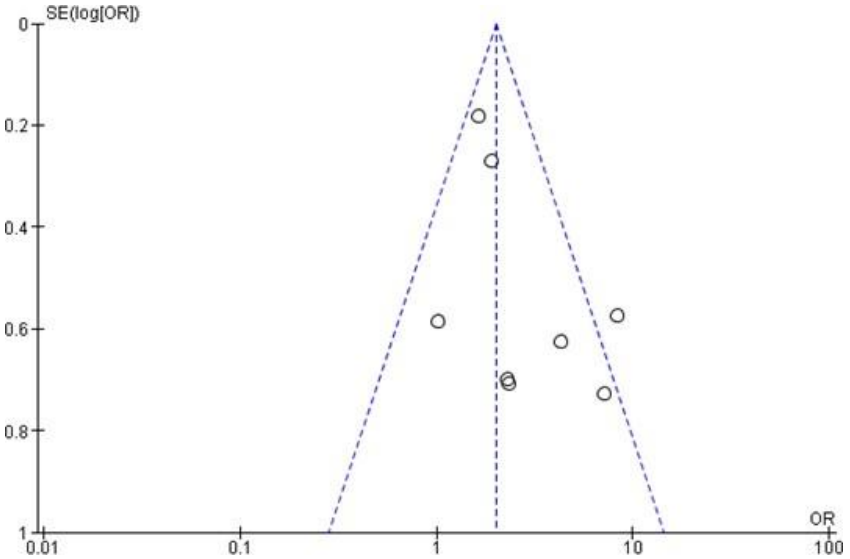

Figure 8. Funnel plot of the influence of drug availability on the level of satisfaction of outpatients in hospitals

The Influence of Drug Availability on The Level of Satisfaction of Outpatients in Hospitals

The forest plot results in Figure 7 show that complete drug availability increases outpatient satisfaction by 2.01 times compared to incomplete drug availability, and this result is statistically significant (aOR= 2.01; 95% CI= 1.55 to 2.60; p <0.001). The forest plot also shows low heterogeneity of effect estimates between primary studies I2 = 48%; p= 0.060, which means that the effect estimate between primary studies in this meta-analysis does not vary. Thus, the calculation of the average estimated effect is carried out using a fixed effect model approach.

The funnel plot results in Figure 8 show that the distribution of estimated effects is uneven. The distribution of effect estimates shows that the distribution of effect estimates tends to lie more to the right of the vertical line of average effect estimates than to the left. Thus, this funnel plot image shows the existence of publication bias. Because the distribution of the estimated effect is located to the right of the average vertical line in the same direction as the diamond in the forest plot, publication bias tends to exaggerate the true effect (overestimate).

Table 8. Description of primary studies on the influence of payment status (free) on the level of satisfaction of outpatients in hospitals

Author	Country	Sample	P	I	C	O
Kebede et al. (2021)	Cross-sectional	Ethiopia	422	Outpatients	Payment status (Free)	Payment status (Cash)
Mezemir et al. (2019)	Cross-sectional	Ethiopia	270	Outpatients	Payment status (Free)	Payment status (Paying)
Sagaro et al. (2015)	Cross-sectional	Ethiopia	421	Outpatients	Payment status (Free)	Payment status (Paying)
Melesse et al. (2022)	Cross-sectional	Ethiopia	419	Outpatients	Payment status (Free)	Payment status (Paying)
Berehe et al. (2018)	Cross-sectional	Ethiopia	423	Outpatients	Payment status (Free)	Payment status (Paying)
Goben et al. (2019)	Cross-sectional	Ethiopia	589	Outpatients	Payment status (Free)	Payment status (Charge)
Yalew et al. (2019)	Cross-sectional	Ethiopia	528	Outpatients	Payment status (Free)	Payment status (Payment)

Table 9. Adjusted Odd Ratio (aOR) effect of payment status (free) on the level of satisfaction of outpatients in hospitals

Author (Year)	aOR	CI 95%	
		Lower Limit	Upper Limit
Kebede et al. (2021)	3.6	1.47	8.76
Mezemir et al. (2019)	2.510	1.51	4.15
Sagaro et al. (2015)	2.06	1.02	4.17
Melesse et al. (2022)	1.68	1.08	2.63
Berehe et al. (2018)	0.4	0.14	1.01
Goben et al. (2019)	1.57	1.11	2.22
Yalew et al. (2019)	3.70	2.38	5.73

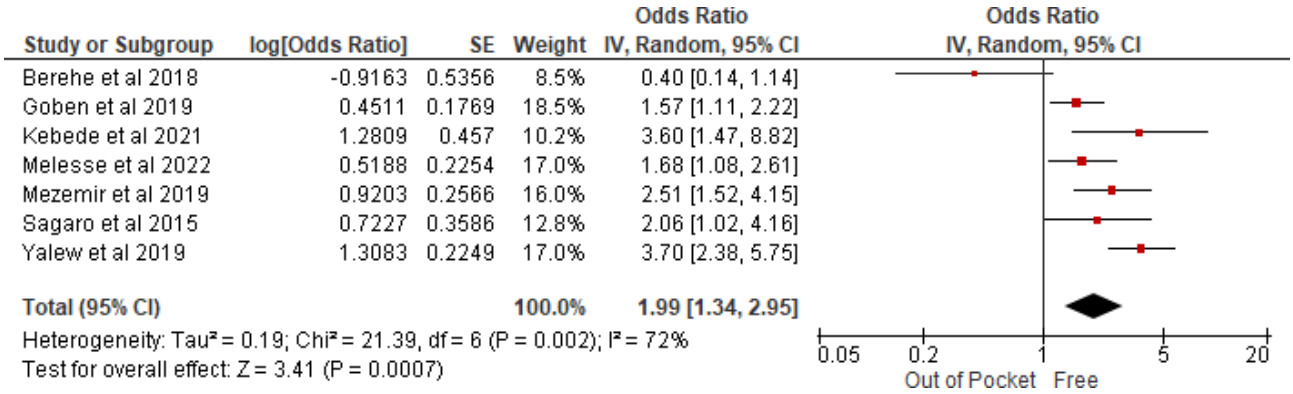

Figure 9. Forest plot of the effect of payment status (free) on the level of satisfaction of outpatients in hospitals

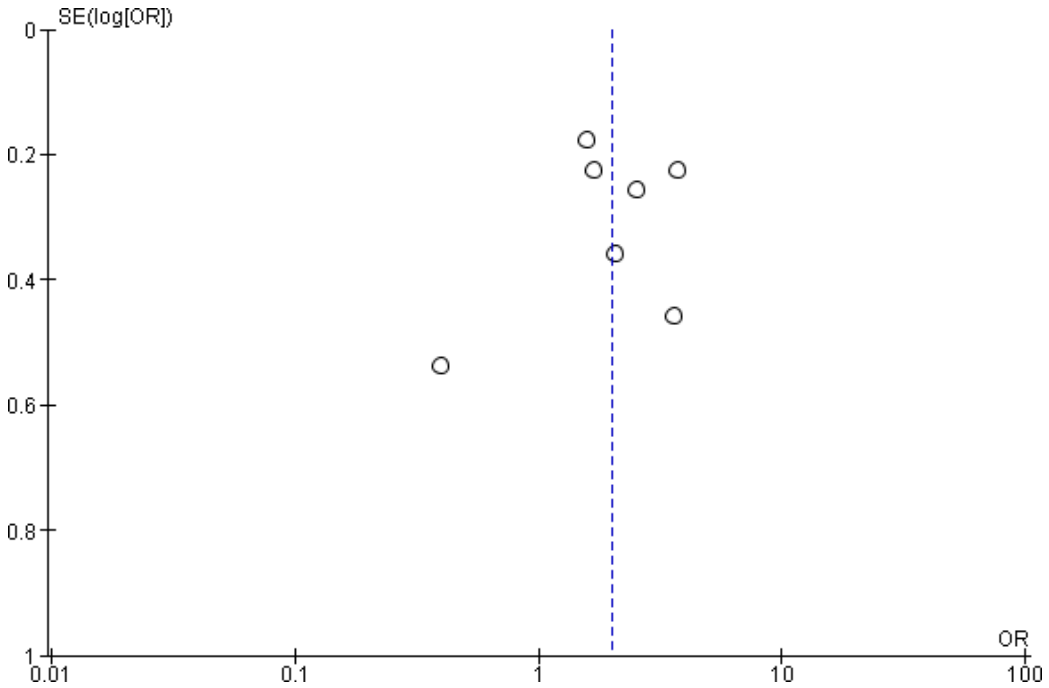

Figure 10. Funnel plot of the influence of payment status (free) on the level of satisfaction of outpatients in hospitals

The Influence of Payment Status (Free) on The Level Of Satisfaction of Outpatients in Hospitals

The forest plot results in Figure 9 show that free health services increase outpatient satisfaction by 1.99 times compared to out-of-pocket health services and this result is statistically significant (aOR= 1.99; 95% CI= 1.34 to 2.95; p < 0.001). The forest plot also shows high heterogeneity of effect estimates between primary studies I2 = 72%; p= 0.002, which means that the effect estimates between primary studies in this meta-analysis vary. Thus, the calculation of the average estimated effect is carried out using a random effect model approach.

The funnel plot in Figure 10 shows an even distribution of effect estimates between the left and right of the vertical line of average effect estimates. Thus, this funnel plot image shows the absence of publication bias.

DISCUSSION

The article search obtained 16 articles from 4 databases. Waiting room comfort has 7 articles, short waiting time has 7 articles,

drug availability has 8 articles, and payment status (free) has 7 articles

1. The influence of waiting room comfort on the level of satisfaction of outpatients in hospitals

An outpatient's first impression of a hospital begins with the outpatient environment. A noisy, crowded, and uncomfortable outpatient environment creates negative feelings and low satisfaction (Hu et al., 2017). Environment and facilities were found to have a close relationship with outpatient satisfaction (Mazaheri et al., 2018). The environment and facilities are associated with clear signage, appropriate layout, adequate chairs in the waiting area, clean water in the waiting area, and guidance/self-service. Clear signage arrangements are very important in optimizing outpatient triage (Zhao et al., 2020).

Appropriate room layout can reduce ineffective movement of outpatients. Adequate seating and clean water in the waiting room create a comfortable environment, thereby reducing the negative emotions of outpatients and avoiding chaos due to long waiting times (Adhikari et al., 2021). In addition, practical guidance or self-service helps choose the appropriate department (Yu et al., 2016). Promoting self-service is critical to improving outpatients' experience of seeking healthcare (Zhou et al., 2022).

Meta-analysis of 7 cross-sectional studies showed that patients who received a comfortable waiting room had a 2.54 times higher likelihood of increasing outpatient satisfaction compared to an uncomfortable waiting room and this result was statistically significant (aOR= 2.54; 95% CI= 2.01 to 3.21; p <0.001). This research is in line with research conducted by Kebede et al. (2021) at the Ethiopian General Hospital stated that waiting room comfort can increase patient satisfaction (aOR=1.87; 95% CI=1.13 to 4.18).

2. The effect of short waiting times on the level of satisfaction of outpatients in hospitals

Waiting time is the total time a patient spends in a facility from the time they arrive at the registration desk until the patient leaves the facility or last service. More specifically, namely the period of time between registering a patient on the waiting list and the period of time the patient needs to be at each service point before being treated (Musinguzi, 2015). Long waiting times have a negative impact on patients' willingness to return to the clinic and thus greatly reduce the utilization of health services (Camacho et al., 2006). Waiting time in hospitals is an important factor that causes patient dissatisfaction and causes discomfort for patients. American Institute of Medicine guidelines state that patients should be seen within 30 minutes of their arrival at the hospital, if patients wait more than 30 minutes they are dissatisfied with the service provided (O'Malley et al., 2016; Med et al., 2015).

Based on a meta-analysis of 7 cross-sectional articles with an outpatient population, it shows that patients who have a short waiting time have a 2.97 times higher likelihood of increasing outpatient satisfaction compared to a long waiting time and this result is statistically significant (aOR= 2.97 ; 95% CI= 1.62 to 5.47; p <0.001).

This research is in line with research by Biya et al. (2022) regarding waiting times and their associated factors in patients attending the outpatient department at Jimma Zone General Hospital, South West Ethiopia showed that shorter waiting times were positively associated with patient satisfaction by clinical service providers, every aspect of the patient experience in particular confidence in service providers and perceived service quality were positively correlated with

shorter waiting times (aOR= 1.93; 95% CI= 1.16 to 3.21).

Waiting time is an important factor influencing outpatient satisfaction. As healthcare solutions become more personalized and consumer-oriented, the need to provide overall patient satisfaction becomes more important (Sun et al., 2017).

3. The influence of drug availability on the level of satisfaction of outpatients in hospitals

The main role of the hospital pharmacy is the provision of medicines, although practically the entire process of distributing medicinal products is within the competence of the hospital pharmacy, including the very important functions of controlling, correcting and informing patients about the medicinal products used. The duties of a hospital pharmacy include distributing medicinal products and medical devices as specified in separate regulations, preparing prescription medicines and pharmaceutical drugs, providing information on medicinal products and medical devices, providing medicinal products and medical devices to hospitals, preparing medicines for enteral and parenteral nutrition. Preparation of drugs in daily doses, including cytostatic drugs, preparation of radiopharmaceuticals, preparation of infusion fluids, preparation of hemodialysis and intraperitoneal dialysis solutions, monitoring of side effects of medicinal products, participation in clinical trials carried out in hospitals, and supply of medicinal and medical products to hospitals (Schepel et al., 2019; Ahmed et al., 2020).

Challenges faced by the healthcare system, including healthcare institutions, include, for example, the increasing number of patients hospitalized for multiple illnesses resulting in multiple medications, not only resulting in much higher costs but also leading to a greater risk of errors. Therefore, it is very important for hospital pharmacies to consider the possibility of supporting hospital medicine distribution with automated systems (Wylegała et al., 2023).

Based on a meta-analysis of 8 cross-sectional articles with an outpatient population, it shows that patients who have complete drug availability have a 2.01 times higher likelihood of increasing outpatient satisfaction compared to drugs that are not available with this result being statistically significant (aOR= 2.01 ; 95% CI = 1.55 to 2.60; $p < 0.001$).

This research is in line with research by Ayele et al. (2020) on outpatients in Eastern Ethiopia regarding the assessment of patient satisfaction with health services which stated that the availability of medicines needed by patients can increase patient satisfaction (aOR = 2.2; 95% CI = 1.4 to 3.5; $p < 0.05$). Another study conducted by Eshetie et al. (2020) regarding patient satisfaction and factors related to the use of outpatient health services in primary hospitals in Northwest Ethiopia showed that patients who had complete medication availability increased the likelihood of patient satisfaction (aOR= 0.15, 95% CI= 0.07 to 0.37).

Consultation regarding treatment options is an important factor in predicting the level of patient satisfaction. When healthcare providers continually consult with their patients regarding treatment options, patient satisfaction increases. So, this suggests that outpatient consultations should be given attention to treatment options to increase patient satisfaction (Sagaro et al., 2015).

4. The influence of payment status (free) on the level of satisfaction of outpatients in hospitals

Health financing is a core function of health systems that can enable progress towards universal health coverage by increasing effective service coverage and financial protection. Currently, millions of people do

not access services because of the cost. Many other countries receive poor quality services even though they pay out of pocket. Carefully designed and implemented health financing policies can help overcome health problems (WHO, 2023).

Patient satisfaction is a primary concern for assessing the quality of health services provided and provides information about the level of success of service providers in meeting patient expectations and values. The quality and access to health care delivery services can be evaluated according to expected standards (Derebe et al., 2017). Low economic status in developing countries and poor health are inseparable, and this is largely within the domain of public health systems. Clients who are not charged for services have higher satisfaction than those who pay for services rendered. Therefore, assessing client satisfaction has become an important part of healthcare management to promote patient-oriented healthcare (Assefa et al., 2011).

The cost of diagnosis and treatment is also related to outpatient satisfaction (Li et al., 2016). Several studies have proven that the higher costs of diagnosis and treatment result in lower patient satisfaction (Huerta et al., 2016). This suggests that diagnosis and treatment costs are related to patient treatment expectations. If patients expect too much from the impact of diagnosis and treatment, they may feel that medical treatment is not as effective as expected and claim that the fees paid for medical services are not worth it, resulting in strong dissatisfaction with the hospital (Gao et al., 2019).

Meta-analysis of 7 cross-sectional articles with outpatient populations showed that patients who received free health services had a 1.99 times higher likelihood of outpatient satisfaction compared to out-of-pocket health services with this result being statistically significant (aOR= 1.99; 95% CI= 1.34 to 2.95; $p < 0.001$).

This research is in line with research conducted by Yalew et al. (2020) stated that free health services can increase patient satisfaction (aOR= 3.69; 95% CI= 2.38 to 5.73). Another study conducted by Goben et al (2020) in an Ethiopian Hospital on outpatients stated that patients who received free health services had a high level of satisfaction with health services (aOR= 1.57; 95% CI=1.11 to 2.22). Patients who receive free services are poor people and cannot afford medical costs, so they may be grateful to have their needs met without charge.

AUTHOR CONTRIBUTION

Desi Noviani, Titis Cipta Purwantanti and Annisa Risnasari as the main researcher who chose this topic, carried out searches to collect data in this research. 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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