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Effect of Waiting Time and Outpatient's Satisfaction in Hospitals: Meta Analysis

Feby Safitri[1)], Bhisma Murti[1)], Burhannudin Ichsan[2)]

[1)]Masters Program in Public Health, Universitas Sebelas Maret
[2)]Faculty of Medicine, Universitas Muhammadiyah Surakarta

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ABSTRACT

Background: Service waiting time is one of the problems that causes patient complaints in several hospitals. The length of patient waiting time reflects how the hospital manages service components that are tailored to the patient's situation and expectations, as well as analyzing the effect of waiting time on the level of outpatient patient satisfaction at the hospital. The purpose of this study was to determine the effect of waiting time on the satisfaction level of outpatients at the hospital.
Subjects and Method: A systematic review and meta-analysis was performed using the PRISMA guidelines and the PICO model including Population= Outpatients; Intervention= short waiting time <2 hours; Comparison= long waiting time > 2 hours; Outcome= satisfaction. Articles are collected from databases such as PubMed, Science Direct, and Google Schoolar. The keywords used in the database search were "waiting time and satisfaction" OR "satisfaction" AND "outpatient" AND "hospital' AND "cross-sectional study". A total of 9 articles met the inclusion criteria, namely primary full text paper, cross-sectional study design, with a relationship size adjusted Odds Ratio (aOR), outpatient study subjects, interventions in the form of short waiting times < 2 hours and outcomes in the form of outpatient satisfaction for meta-analyses were then assessed using RevMan 5.3.
Results: The meta-analysis which is dominated by Ethiopia shows that there is an effect of waiting time on patient satisfaction. Patients who receive services with short waiting times <2 hours have the possibility to be satisfied 6.86 times compared to long waiting times > 2 hours (aOR= 6.86; 95% CI= 1.31 to 3.26; p= 0.002), I^2= 83%.
Conclusion: Patients who wait for a short time have the possibility to be satisfied 6.86 times compared to long waiting times.

Keywords: waiting time, satisfaction, outpatien, hospital.

Correspondence:
Feby Safitri. Masters Program in Public Health, Universitas Sebelas Maret. Jl. Ir. Sutami 36A, Surakarta, Central Java 57126, Indonesia. Email: safitri.feby@gmail.com. Mobile: +6282143749717.

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BACKGROUND

Patient satisfaction is an indicator that must be considered by health services. Patient satisfaction standards are one of the benchmarks for assessing service quality, staff performance, and other services from health facilities. Unsatisfactory performance can affect the level of patient satisfaction. So that if the performance is in accordance with the wishes and expectations, the patient will

feel satisfied in receiving the service (Supartiningsih, 2017).

Health services are efforts made by individuals or groups or organizations to maintain, improve, prevent, heal, and restore the health of an individual or community. Health services are one of the concerns of the government in Indonesia because one of the services that concerns the needs of many people. Health services are directly related to social aspects of humanity, as well as the largest field of services carried out after education (Shiyam, 2013).

The hospital is a health service institution that provides inpatient, outpatient and emergency services. The hospital is one of the health service institutions that organizes complete individual health services that provide inpatient, outpatient and emergency services. According to Law No. 44 of 2009 concerning hospitals, it is explained that hospitals as one of the health service facilities are part of the health resources that are very much needed to support health services. The delivery of health services in hospitals has complex characteristics and organizations.

The quality of services provided to patients needs to focus on knowing how satisfied patients are with the quality of services provided at the hospital. This shows that the success of hospitals in providing health services is strongly influenced by the quality of services provided to patients so that patient satisfaction becomes feedback in providing an assessment of the hospital as a service user (Suratri et al, 2018).

Aspects of health services that can affect patients' perceptions of utilizing health services consist of several factors including health workers who carry out health services, facilities used in treatment and care services, medical services and medical support ranging from diagnosis to treatment and care and services. administration (Nurul et al., 2021). The quality of health services is a benchmark in assessing patient satisfaction, the better the quality of services provided, the better the assessment of satisfaction given by patients for these services.

Selvarajah et al. (2022) stated that respondents were satisfied with the results of 89.3% compared to 49, 5% of the respondents were dissatisfied. Another study by Desta et al (2017) regarding the Satisfaction Level of Outpatients at Mekelle General Hospital found that 72% were quite satisfied with Hospital services.

Based on the description above, the purpose of this study was to determine the effect of waiting time on the satisfaction level of outpatients at the hospital.

SUBJECTS AND METHOD

1. Study Design

This study uses a systematic review and meta-analysis method, which is a way of analyzing data originating from primary studies from a database based on the PRISMA diagram. Search for articles in this study using electronic databases such as PubMed, Science Direct, and Google Scholar. The keywords used in the database search were "wating time and satisfaction" OR "wating time" AND "satisfaction" OR "outpatient" AND "hospital" AND "cross-sectional study".

2. Steps of Meta-analysis

1) Formulate research questions using the PICO model including P= outpatients; I= long waiting time <2 hours; C= short waiting time >2 hours; O= satisfaction.
2) Search primary study articles from electronic databases such as PubMed, Science Direct, and Google Scholar.
3) Conduct screening and conduct critical appraisal of primary studies.

4) Perform data extraction 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% confidence interval (CI) using effect models and data heterogeneity (I^2).
5) Interpret the results and draw conclusions.

3. Inclusion Criteria

Inclusion criteria in this study were full text paper primary research articles using a cross-sectional study design, using multivariate analysis with adjusted odds ratio (aOR), outpatient study subjects, interventions in the form of long waiting times <2 hours and satisfaction outcomes.

4. Exclusion Criteria

Research articles published before 2014 and after 2023, waiting time for drugs because this study analyzes waiting times before getting drugs and research articles published other than English.

5. Variable Operational Definition

Service waiting time is a problem that often causes patient complaints in several hospitals. The length of patient waiting time reflects how the hospital manages the service components according to the patient's situation and expectations. Good and quality service is reflected in friendly, fast and comfortable service.

Satisfaction is the level of a person's feelings from what he feels with his expectations. In providing health services, the hospital must be more careful, because if patients often feel dissatisfied, it will result in the loss of many patients. This study used the PRISMA flowchart guidelines and the quality assessment in this study used the 2018 Critical Appraisal Skills Program (CASP).

6. Instrument

This research was conducted using the PRISMA flow-chart guidelines and the quality assessment in this study used the 2018 Critical Appracial Skills Program (CASP).

7. Data Analysis

Data processing uses the RevMan 5.3 application by calculating effect size and heterogeneity to determine the combined research model and form the final results of the meta-analysis.

RESULTS

Research data was searched from databases including Google Scholar, PubMed, Science Direct, and Springer Link. The keywords used in searching for articles are "Satisfaction of Outpatient" OR "Waiting time" AND "Satisfaction" OR "Outatient" AND "Cross-sectional Study". The article search was carried out by considering the eligibility criteria which were defined using the PICO (Population, Intervention, Comparison, Outcome) model. This research was conducted based on the PRISMA flow diagram guidelines.

Figure 1 shows the initial search process which displays a total of 1,000 articles. After the process of deleting articles that were duplicated in more than one journal, 871 articles were obtained, 9 of which met the requirements for further full text review. Then there were 9 articles that met the requirements for a full text review.

Figure 2 shows an overview of the research areas used in this meta-analysis of 9 articles originating from the African continent. A total of 9 articles at the end of the review process met the quantitative requirements. All articles use cross-sectional study.

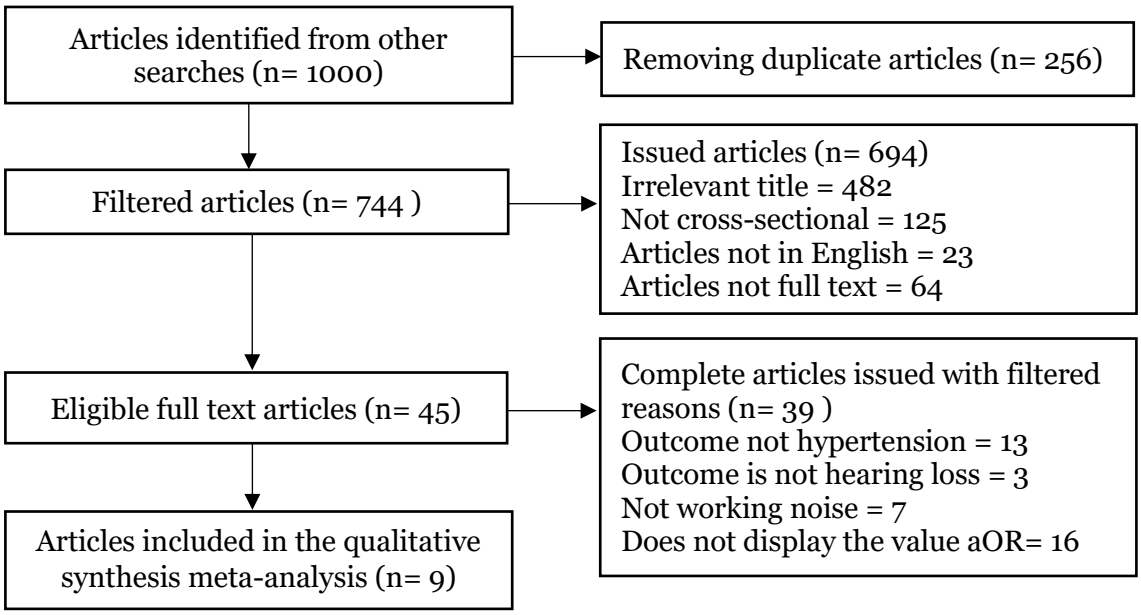

Figure 1. PRISMA flowchart

Figure 2. The research area is a cross-sectional study of the effect of waiting time on the satisfaction level of outpatients at the hospital

Table 1. Results of a critical appraisal cross-sectional study on the effect of waiting time on the satisfaction level of outpatients at the hospital

Author (year)	*Critical Apprisial*															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Asefa et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Ayele et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Desta et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Eshetie et al. (2020)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Geberu et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Melesse et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	28

Author (year)	*Critical Apprisial*															Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Mesfin et al. (2019)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Mezemir et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30
Sagaro et al. (2015)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	30

Description of the question criteria:

1 = Was the population in the primary study the same as the population in the PICO meta-analysis?
2 = Is the operational definition of exposure/intervention in the primary study the same as the definition intended in the meta-analysis?
3 = Was the comparison used in the primary study the same as that planned for the meta-analysis?
4 = Were the outcome variables studied in the primary study the same as those planned in the meta-analysis?
5 = Descriptive cross-sectional (prevalence) study: Was the sample randomly selected?
6 = Analytic cross-sectional study: Was the sample chosen randomly or purposively?
7 = Were exposure/intervention and outcome variables measured by the same instrument (measuring instrument) in all primary studies?
8 = If variables are measured on a categorical scale, are the cutoffs or categories used the same between the primary studies?
9 = What is the Response Rate?
10 = Is non-response related to outcome?
11 = Was there any confusion in the results/conclusions of the primary study?
12 = Did the primary study investigator use appropriate methods to control for the effects of ambiguity?
13 = In which cross-sectional study was a multivariate analysis performed? Multivariate analysis includes multiple linear regression analysis, multiple logistic regression analysis, Cox regression analysis.
14 = Whether the primary study reports effect sizes or relationships on multivariate analysis (eg, adjusted OR, adjusted regression coefficient)
15 = Is there a conflict of interest with the research sponsor?

Description of the answer score:

0 = No
1 = Can't tell
2 = Yes

Table 1. Description of the cross-sectional primary study of the effect of waiting time on outpatient satisfaction levels, n = 4,262.

Author (Year)	Country	Sample	P	I	C	O
Asefa et al. (2014)	Ethiopia	475	Outpatient, from 4 health departments at Hawasa University hospital	< 60, < 60- 120 minutes	121-180 minutes, >180	Satisfaction
Ayele et al. (2022)	Ethiopia	540	South Wolo hospital outpatient	< 1 hour, 1-2 hours	2-6 hours	Satisfaction

Author (Year)	Country	Sample	P	I	C	O
Desta et al. (2018)	Ethiopia	415	Outpatients with mental disorders in Mekelle city hospital	< urs	> 2 hours	Satisfaction
Eshetie et al. (2020)	Ethiopia	413	Outpatient internal medicine department	< 1 hour, 1-2 hours	> 2 hours	Satisfaction
Geberu et al. (2019)	Ethiopia	955	Outpatients from regular services with an average female patient	< 30 minutes, < 31-60 minutes, 61-120 minutes	> 121-180 minutes	Satisfaction
Melesse et al. (2022)	Ethiopia	419	Outpatient of out-patient department	< 2 hours	> 2 hours	Satisfaction
Mesfin et al. (2019)	Ethiopia	266	Outpatient department patient	< 2 hours	> 2 hours	Satisfaction
Mezemir et al. (2014)	Ethiopia	414	Outpatient depart-ment, Deberebirhan Hospital, North Shoa.	< 1 hour, 1-2 hours	> 2 hours	Satisfaction
Sagaro et al. (2015)	Ethiopia	421	Outpatients at Wolaita Sodo Hospital	< 2 hours	>2 hours	Satisfaction

There are 9 articles with cross-sectional studies regarding service waiting time with outpatient satisfaction and a total sample of 4,262. This research was conducted in eight countries of Ethiopia, Africa.

Table 2. Adjusted Odds Ratio (aOR) the effect of waiting time on the satisfaction level of outpatients at the hospital (N = 4,262)

Author (Year)	aOR	95% CI	
		Lower limit	Upper limit
Asefa *et al.* (2014)	4.54	2.38	8.65
Ayele *et al.* (2022)	2.50	0.81	0.007
Desta *et al.* (2018)	100	14.2	500
Eshetie *et al.* (2020)	66.7	10	333
Geberu *et al.* (2019)	7.69	1.61	33.3
Melesse *et al.* (2022)	1.44	0.94	2.20
Mesfin *et al.* (2019)	3.65	1.58	8.46
Mezemir *et al* (2014)	6.71	3.48	12.98
Sagaro *et al.* (2015)	3.16	1.37	7.25

Based on Table 2, it can be seen that of the nine articles that display aOR values related to the effect of waiting time on outpatient satisfaction at the hospital. The highest aOR value was in the study by Desta et al. (2018) (aOR= 100; 95% CI= 14.2 to 500) and the lowest aOR value in the study of Melesse et al. (2022) (aOR= 1.44; 95% CI= 0.94 to 2.20.

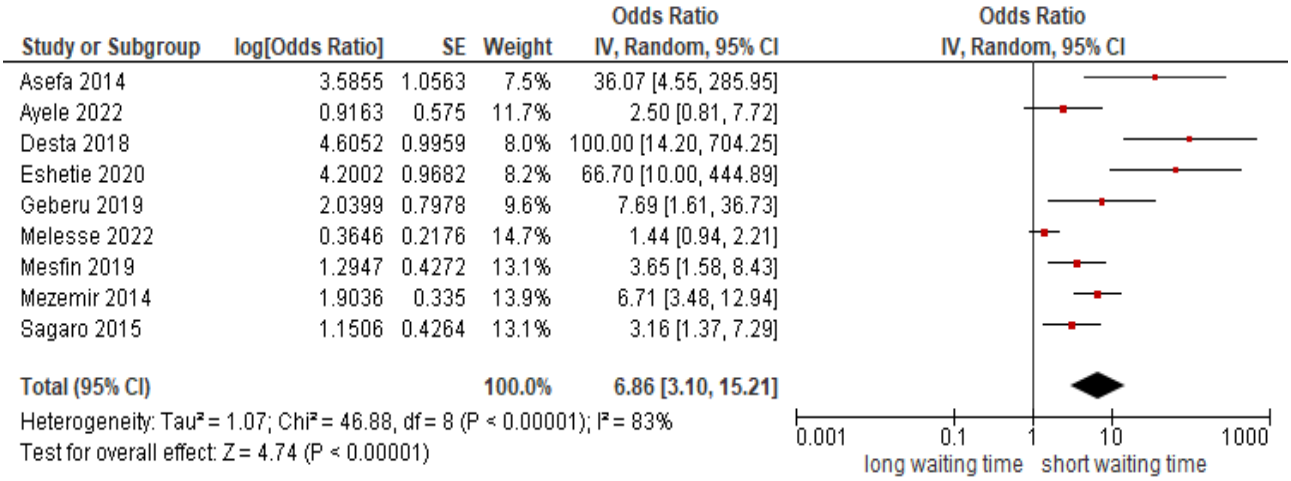

Figure 3. Forest plot of the effect of waiting time on the satisfaction level of outpatients at the hospital

Forest plot in Figure 3. Shows that short waiting times affect the satisfaction level of outpatients at the hospital. Patients who received short waiting time services were 6.86 times more likely to be satisfied than long waiting times, and the effect was statistically significant (aOR = 6.86 ; 95% CI= 3.10 to 15.21. Forest plots show high heterogeneity of effect estimates between primary studies I^2= 83%, p= 0.001. Likewise, the calculation of the average effect estimate was carried out using the random effect model approach.

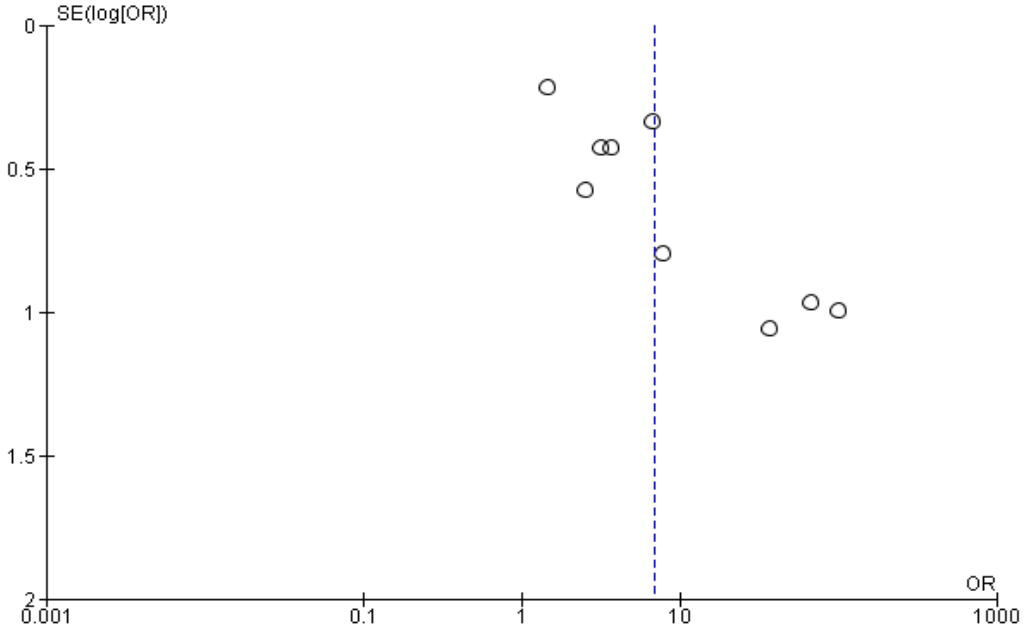

Figure 4. Funnel plot of the effect of waiting time on the satisfaction level of outpatients at the hospital

The funnel plot in Figure 4 shows a fairly symmetrical distribution of effect estimates between studies to the right and left of the average vertical line of estimation.

Thus the Funnel plot does not indicate bias in the meta-analysis.

DISCUSSION

Systematic review research and meta-analysis in this study themed the effect of waiting time on outpatient satisfaction at the hospital. The intervention in this study was a short waiting time < 2 hours affecting the satisfaction level of outpatients at the hospital. Patients who receive services with short waiting times are 6.86 times more likely to be satisfied (Sagaro et al., 2016).

The effect of waiting time on the satisfaction level of outpatients at the hospital

Outpatients who receive short service waiting times or <2 hours in the hospital, are likely to have a higher level of satisfaction. Hospitals with service waiting times >2 hours can result in decreased outpatient satisfaction levels, where the length of patient waiting time reflects how the hospital manages service components according to the patient's situation and expectations. Good and quality service is reflected in friendly, fast and comfortable service (Utami, 2015).

Primary research related to service waiting time on outpatient satisfaction levels was included in this synthetic meta-analysis of nine articles which were then analyzed using Revman 5.3. Based on the results of the synthesis of the nine primary studies, there was high heterogeneity between experiments (I^2= 83%; p = 0.001) so that the analysis used a random effect model. High heterogeneity is based on sample sizes that vary between studies.

Exposure to long waiting times has the possibility of reducing patient satisfaction levels. The decrease in the level of patient satisfaction due to long waiting times is due to the responsiveness factor that has not been given optimally by the hospital. This result is in accordance with the hypothesis. A meta-analysis of nine cross-sectional articles related to the effect of service waiting time on outpatient satisfaction with waiting time for services received <2 hours, 6.86 times likely to be more satisfied (aOR= 6.86; 95% CI= 3.10 to 15.21; p= 0.001). This meta-analysis used random effects and the results were statistically significant.

This is in line with the research by Mezemir et al. (2014) which stated that a service waiting time of <2 hours would make patients more satisfied than a service waiting time of >2 hours. Supported by Afianto et al. (2017) that waiting time is an inhibiting factor for service. The faster the service time provided, can affect the patient's feelings and the possibility of being satisfied. Thus, this can be categorized as responsiveness of health services. Responsiveness is a dimension of the responsiveness of health workers to help and provide quality health services that are fast and precise to patients. If patients wait for a long time and without certainty, this will give a poor perception of service quality (Tomonob, et al., 2023)).

The responsiveness dimension shows the willingness of service providers, especially their staff, to help and provide appropriate services according to consumer needs. This dimension is inseparable from the influence of the services provided, the better the quality of the health services provided, the higher the patient's level of satisfaction. (Kurniawan et al., 2019).

AUTHOR CONTRIBUTION

Feby Safitri, Bhisma Murti, and Burhannudin Icshan, as the main researchers who chose the topic, conducted a search for data collection in this study.

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CONFLICT OF INTEREST

There is no conflict of interest.

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