



## Meta-Analysis on the Effect of the Quality of Health Services with the Level of Patient Satisfaction

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### ABSTRACT

**Background:** patient-oriented health services are the primary strategy for health service organizations. A good service is determined by the fact that the services provided can meet the patient's needs. Patient satisfaction is an integral part of the quality assurance of health service. This study aims to analyze the quality of tangible health services with patient satisfaction in receiving health services.

**Subjects and Method:** Meta-analysis was performed by searching journals from direct databases such as Google Scholar, Science Direct, and PubMed using the keywords service quality, patient satisfaction, and heat service. The inclusion criteria in this study were full text from 2010-2021, with a cross-sectional study. The data analysis was carried out by RevMan 5-3.

**Results:** Nine articles have been analyzed, showing that the quality of service had direct evidence of an effect on patient satisfaction in accessing health services (aOR= 4.17; 95% CI= 1.78 to 9.78; p <0.001).

**Conclusion:** The quality of direct evidence (tangible) affects patient satisfaction in accessing health services.

**Keywords:** tangible, service, patient satisfaction.

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### BACKGROUND

The rapid economic growth and the challenges of the trade era have resulted in tighter competition in the business world, as well as businesses in health services, which are required to meet customer needs and desires that are not only limited to services (Tjiptono et al., 2012). Quality health

services that are customer-oriented or patient-oriented are the primary strategy for health care organizations to remain during increasingly global solid competition. Improving the quality of physical facilities, available personnel, medicines, and medical devices, including human resources and professionalism, is

necessary so that quality health services and equitable distribution of health services can be enjoyed by all people (Safrudin et al., 2012).

Service is all the efforts made by employees to fulfill the desires of their customers with services to be provided. A service is said to be suitable by the patient, determined by whether the service provided can meet the patient's needs, by using the patient's perception of the service received. Patient satisfaction is an integral part of the quality assurance of health service. Customer satisfaction is the primary indicator of the standard of a health facility. Good service quality will lead to the satisfaction of customers or service users (patients) (Hastuti et al., 2017).

This study analyzes the quality of physical evidence health services oriented to facilities and infrastructure, available personnel, drugs, and medical devices, including human resources, with patient satisfaction in receiving health services.

## SUBJECTS AND METHOD

### 1. Study Design

It was a meta-analysis which is carried out by following the PRISMA Flow diagram. Search for articles was carried out on the internet using accredited journals such as Google Scholar, Science Direct, and PubMed. Article searches were conducted using the keywords "quality service" OR "patient satisfaction" AND "health service."

### 2. Inclusion criteria

Criteria, The inclusion criteria for articles reviewed are full paper articles with a cross-sectional research method. Selected articles were those that presented the final results of the adjusted odds ratio (aOR), reports that performed multivariable data analysis. These articles discussed dimensions of

direct evidence quality and patient satisfaction with health care.

### 3. Exclusion criteria

Criteria, The exclusion criteria for articles included case-control, cohort, and survey studies, reports published before 2011, articles featuring bivariate analysis. Reporting of final results displayed only OR, percent, and mean difference.

### 4. Operational Definition of Variables

Article search was carried out by considering the eligibility criteria, which were determined using the PICO model. The population of this study is patients who use health services with quality-oriented interventions with tangible dimensions, comparison of health services using quality dimensions other than tangible, and the result is patient received in the tangible dimension of quality.

#### Quality of Health Services (Tangible)

The ability was to provide the best service for customers and is a tangible thing. It means that the quality can be seen and felt directly by customers.

#### Patient Satisfaction Level Patient

Satisfaction is an evaluative, affective or emotional response related to the quality of services provided by health service providers and patient expectations for health services.

### 5. Research Instruments

The stages of this study follow the PRISMA Flow diagram and the assessment of the quality of research articles using the Critical Appraisal Skills Program (CASP) for Cross-Sectional.

### 6. Data Analysis The data

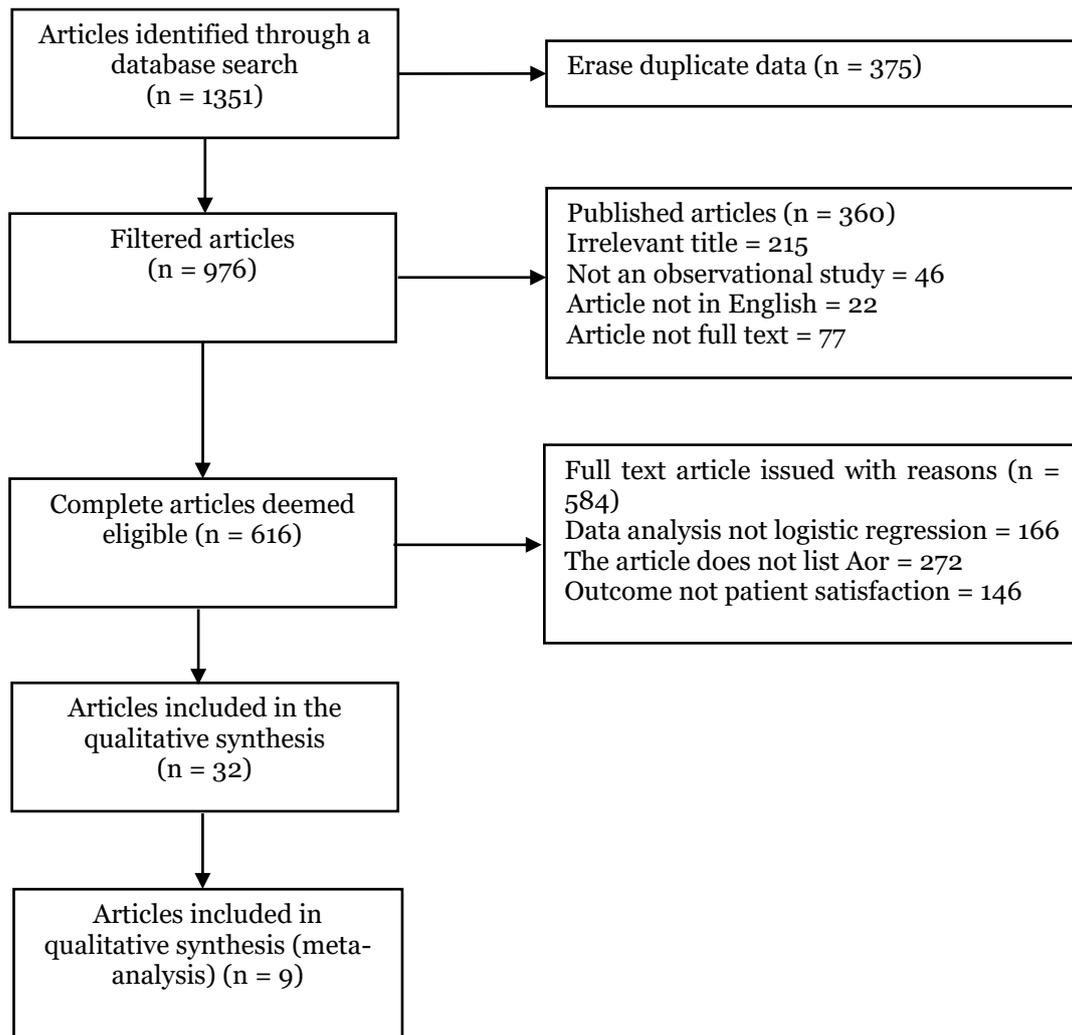
The analysis process in this study was carried out using the RevMan 5.3 application to determine the magnitude of influence and heterogeneity between the dimensions of direct evidence quality and patient satisfaction. The results of data

processing are presented in the form of a forest plot and a funnel plot.

## RESULTS

The search process for articles is carried out by searching through the database according to the PRISMA Flow diagram and can be seen in Figure 1. Based on the assess-

ment of the quality of the research using the critical appraisal checklist for cross-sectional, the majority of respondents, nine articles included in the quantitative meta-analysis synthesis, meet the requirements in assessing the quality of the study. The following is a table of the results of the learning quality assessment.



**Figure 1. PRISMA Flow Diagram**

**Table 1. The main description of the study on the relationship between the quality of health services physical dimensions (tangible) with patient satisfaction**

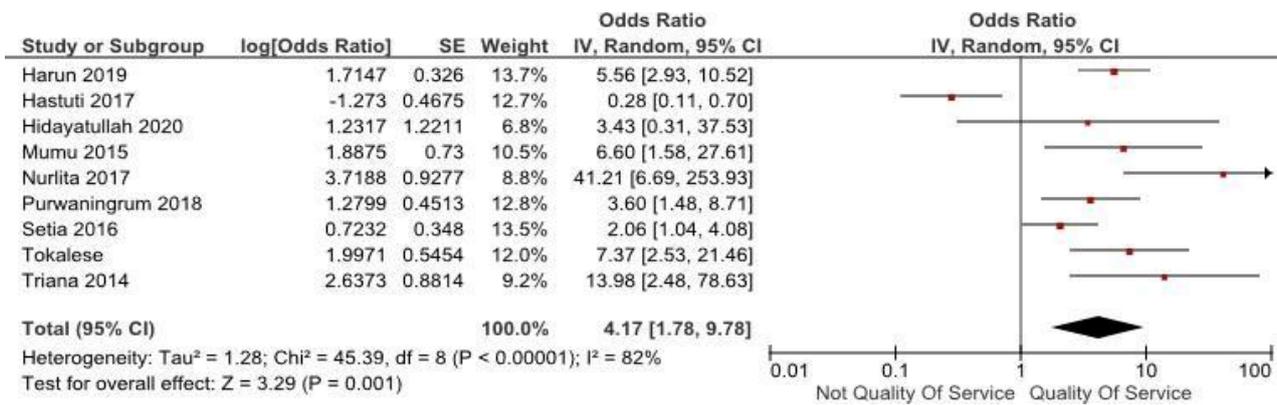
Author, Year	Title	Location	Study Design	Sample Size	Intervention (I) And Comparator (C)	Outcome
Triana, 2014	Dimensions of service quality midwifery on patient satisfaction program Jampersal	Rokan Hulu hospital	Cross-sectional	92	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service	quality dimensions of quality (tangible) related to patient satisfaction.
Mumu, 2015	Analysis of Factors Related to Patient Satisfaction in Internal Medicine Polyclinic Prof. Dr. RD Kandou Manado	Prof. Dr. RD Kandou Manado	Cross-sectional	96	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service quality	dimensions of quality (tangible) related to patient satisfaction
Tokalese, 2015	Analysis of Patient Satisfaction on Perceptions of Quality of Midwifery Services in Inpatient Services at Prof. . Dr. RD Kandou Manado	Prof. Dr. RD Kandou Manado	Cross-sectional	86	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service	quality dimensions of quality (tangible) related to patient satisfaction.
Setia, 2016	The Influence of Service Quality on Perceptions of Patient Satisfaction in the Laboratory of Community Health Center in Banjarbaru City, 2016,	Laboratory of Community Health Center of Banjarbaru City,	Cross-sectional	152	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service	quality the quality dimension (tangible) is related to satisfaction patient
Hastuti, 2017	Relationship of Service Quality with Patient Satisfaction of BPJS Participants in Yogyakarta Regional General Hospital Yogyakarta Regional General	Hospital	Cross-sectional	213	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service	quality dimensions of quality (tangible) related to patient satisfaction
Nurlita, 2017	Relationship of health service quality with patient satisfaction levels of BPJS participants at Caringin health	Caringin community health service	Cross-sectional	123	I: dimensions of the quality of health services (tangible) d: not applying the dimensions of health care	quality dimensions of quality (tangible) related to patient satisfaction.

center March-May 2017						
Purwaningrum, 2018	Analysis of service quality against patient satisfaction at Pertamina Bintang Amin Hospital Bandar Lampung in 2018	Pertamina Bintang Amin Hospital Bandar Lampung	Cross-sectional	120	I: Dimensions of health services (tangible) C: not applying the dimensions of health service	quality dimensions of quality (tangible) related to patient satisfaction.
Harun, 2019	Analysis of factors affecting health service quality on patient satisfaction at inpatient Pasaman health center Regency 2019	The inpatient health center, Pasaman District	Cross-sectional	195	I: dimensions of health service quality (tangible) C: not applying the dimensions of health service	quality dimensions of quality (tangible) related to patient satisfaction.
Hidayatullah, 2020	The influence of service quality dimensions on patient satisfaction about pharmaceutical services at Narmada health center West Lombok	Community health center	Cross-sectional	99	I: dimensions of health service quality (tangible) C: not applying quality of health service of dimensions Quality	dimensions (tangible) relate to satisfaction Patient

**Forrest Plot**

The Forest Plot image shows the primary outcome interpretation of the meta-analysis process of the effect of service on patient satisfaction levels with health services. Based on the analysis results in the figure, nine articles report that service quality affects the level of patient satisfaction. Heterogeneity was high between primary

studies ( $I^2 = 82\%$ ;  $p < 0.001$ ). So, a random effect model is used. In data analysis in the Forrest plot, the quality of health services increased the level of patient satisfaction by 4.17 compared to agencies that did not implement quality patient care and was statistically significant (aOR = 4.17; 95% CI = 1.78–9.78;  $p < 0.001$ ).

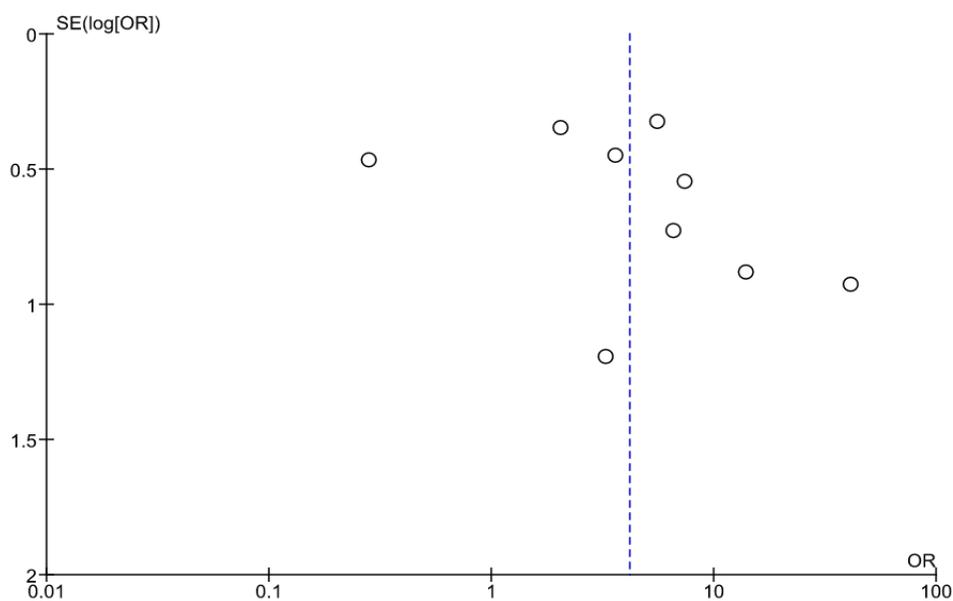


**Figure 2. Forrest plot**

**Funnel Plot**

The figure below shows no publication bias where the plot distance between the right and the left looks symmetrical, and the number of requests and left plots is almost

equal, that is, there are four plots on the left and five plots on the right, no plots that are on the line between right and left plot sections.



**Figure 3. Funnel Plot**

## DISCUSSION

This study shows that the quality of service evidence directly affects patient satisfaction in accessing health services. Similar study in Yogyakarta (Waryono et al., 2011); Sulawesi (Burhanuddin, 2016); West Lombok (Hidayatullah et al., 2020); Pekanbaru (Susmaneli et al., 2014); East Kalimantan (Hermanto et al., 2012); and Jakarta (Purnama, 2013).

Based on Ainy et al. (2012), the tangible dimension consists of three attributes with the percentage of suitability below the total mean value. First, the comfort of the waiting room; second, the comfort and tidiness of the treatment room; third, completeness, readiness, and cleanliness of the tools used. The study by Hafizurrachman (2009) states that improving the cleanliness of facilities by intensifying the efforts of cleaning service officers to work harder or intensive supervision in addition to the efforts of the to invite's the visitors to maintain the cleanliness of the hospital environment.

According to Kurniasari et al. (2006), the quality of a health service is closely related to the desire to meet the needs of health service users in the form of physical evidence so that the more perfect the fulfillment of these needs, the better the quality of service. Hizrani (2012) states that customers must be satisfied because if a customer is not satisfied with the services provided, he will look for another more enjoyable place. If the customer has fulfilled their satisfaction, the level of loyalty will be good too. It can be done by providing quality services that can meet the needs of patients. A similar study by Andriani (2009) shows that patient quality influences the level of patient satisfaction. An increase in hospital service management can realize patient satisfaction and an indicator of inpatient satisfaction at the

hospital. In addition, for patients, the quality of service can be a factor in choosing a quality hospital. One way to increase patient satisfaction is with a telemedicine program (Atmojo et al., 2020). Telemedicine provides satisfaction to patients with various parameters including it can improve health care outcomes, ease of use, low cost, or cost savings, can improve communication, cut travel time to the hospital, increase access, increase self-awareness, no need to wait long to get services, reduce transportation costs, reduce the frequency of direct visits, increase independence, increase compliance and reduce readmissions (Kruse et al., 2017).

Based on the study results, it can be concluded that the quality of service is evidence directly influencing patient satisfaction in health care. The perception of direct evidence must be paid more attention to by the agency. Therefore it is necessary to make various efforts to improvement and long-term supporting factors such as improving the quality of direct evidence by educating/ training officers based on competence, improving the quality of health services both facilities and infrastructure and improving performance including attitudes and behavior of service officers.

## AUTHOR CONTRIBUTION

Siti Mar'atul M, Nindita Arum V, Ervia Fahma D contributed to data processing and analysis. Happy Nurhayati, Hesti Krisnawati, Wita Hana Puspita contributed in interpreting and writing articles. Andang Sudarmono, Dian Handayani, Bani Dianika, Kristuri Catur S contributed in finding and sorting articles to be used in this research.

## CONFLICT OF INTEREST

The authors state that there is no conflict of interest in this study.

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