Relationship between Quality of Health Services and Patient Satisfaction in Oral and Dental Patients

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ABSTRACT

Background: Oral and dental disease is a health burden in several countries because it affects general health and the quality of life of the people. The factors associated with the use of dental and oral health services are price and quality of service. The combination of the five dimensions of health care quality can significantly influence patient satisfaction. This study aims to determine the relationship between the quality of health services and patient satisfaction in dental and oral patients.

Subjects and Method: This meta-analysis was conducted by collecting and reviewing key studies from PubMed, Google Scholar, Springer Link, ScienceDirect, Scopus, and ResearchGate. The formulation of the problem using the PICO model: Population is dental and oral patients, Intervention: good service quality, Comparison: poor service quality, Result: patient satisfaction. The inclusion criteria used a cross-sectional study design, published in English or Indonesian. , are available in the full text, and report adjusted odds ratios on study results. Articles were collected using PRISMA diagrams and data were analyzed using the Review Manager 5.3 software application.

Results: The estimated OR collected from all studies were (OR = 3.47; 95% CI = 1.01 to 11.97; p = 0.05) with a heterogeneity of 89%.

Conclusion: Based on the literature review, it can be concluded that there is a relationship between the quality of health services and patient satisfaction in dental and oral patients.

Keywords: quality of health services, patient satisfaction, dental and oral patients.

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BACKGROUND

Oral and dental disease is a health burden in several countries because it affects general health and the quality of life of the people. Tooth and mouth disease can cause pain, discomfort, disability, and even death.

It is estimated that 3.5 billion people are at risk of developing oral and dental diseases. Most oral health conditions are preventable and treatable at an early stage. Most low- and middle-income countries cannot afford health services to prevent and treat oral diseases (World Health Organization, 2020).

Dental and oral health problems also have a negative impact on daily life such as low self-esteem, affect productivity, and interfere with performance at school or work. The prevalence of toothache was found to be around 33% among Brazilian adolescents, 9% reported being distressed by the pain. In the America Serikat, dental problems account for 117,000 school hours lost per 100,000 children. Most dental services work during school hours (Sheiham, 2011). On the other hand, many people think that oral health conditions are unnecessary and unimportant. Lack of access to oral health services is associated with a higher prevalence of adverse effects on quality of life (Bastos et al., 2019). In Indonesia, 57.4% of the population has dental and oral health problems but only 10.2% receives treatment by dental medical personnel (Ministry of Health of the Republic of Indonesia, 2018).

The factors associated with the use of dental and oral health services are price and quality of service. The results showed that the convenience factor (75%) and the quality of dental services (87.1%) were important factors in finding and encouraging the use of dental and oral health services in clinics (Tasya, Andriany and Herwanda, 2016). The quality of health services is related to the subjectivity factors of individuals who have an interest in health services. If the health service can satisfy users according to the average level of satisfaction, it is categorized as good or

high quality service (Astuti, Nyorong and Januariana, 2020).

The SERVQUAL model has been used in several countries to measure the quality of health care. This model determines five dimensions, namely tangibility, reliability, responsibility, assurance and empathy to monitor patient expectations and perceptions of service quality. The combination of these five dimensions can significantly influence patient satisfaction. The study results show that in public sector health care, empathy and assurance have a strong correlation with patient satisfaction. Patients expect from medical personnel to feel their pain and treat them well. On the other hand, in private sector health care, responsiveness and reliability have a strong correlation with patient satisfaction. Patients prefer to treat quickly and in comfortable conditions (Javed and Ilyas, 2018).

Based on several published studies related to patient satisfaction with the quality of dental and oral health services, this study aims to determine the relationship between the quality of health services and patient satisfaction in dental and oral patients.

SUBJECTS AND METHOD

1. Study Design
This was a systematic review and meta-analysis. Articles are searched from the PubMed, Google Scholar, Springer Link, ScienceDirect, Scopus, and ResearchGate databases. The keywords used to search for articles were "Oral and Dental Health Services" AND "Patient Satisfaction" OR "User Satisfaction" AND "Quality of Service".

2. Inclusion Criteria
Articles are published in English or Bahasa and use a cross-sectional study design. The research subjects were all patients who visited or took advantage of dental and oral

health services. The results of the study reported a multivariate analysis with adjusted odds ratio (aOR).

3. Study Variables

The article uses case-control, cohort, and experimental designs, not available in full-text; and published before 2011.

4. Operational Definition of Variables

The search for articles was carried out based on the PICO model. The study population was dental and oral patients with good service quality interventions, then the comparison of service quality was not good, and the results were patient satisfaction.

Patient satisfaction was patient's perception of the suitability of expectations for services before and after receiving dental and oral health services.

Quality of health services was dental and oral health services received by patients based on several indicators such as tangible, reliability, responsiveness, assurance, and empathy.

5. Study Instruments

The research instrument was a published article that identified the relationship between quality of health care and patient satisfaction between dental and oral pati-

ents. Data processing consists of the process of identifying articles from several well-known journal sites, followed by the process of screening articles that meet the requirements so that several articles that pass the feasibility stage are obtained and finally analyzed by determining the research results for further processing in the meta-analysis software.

6. Data Analysis

Articles are collected using the PRISMA diagram. Data were analyzed using the Review Manager 5.3 software application by calculating the average effect size of the adjusted odds ratio collected from the primary study. Heterogeneity was also reported in this study to determine the research model to form the final meta-analysis results.

RESULTS

The search process was carried out on articles published between 2012-2020. The databases used are PubMed, Google Scholar, Springer Link, ScienceDirect, Scopus, and ResearchGate. The article review process can be seen in the searh flow as follows:

Articles identified through database search (n= 609) → Delete duplicate data (n = 35)

Filtered articles (n = 574) → Articles done (n = 35)
Irrelevant title = 270
Not Cross sectional = 100
Articles not in English = 5
Article not full text = 3

Full articles that are considered eligible → Complete articles issued with reasons (n = 161)
Not an oral and dental patient (79)
Article does not include aOR= 80
Sample < 100 = 2

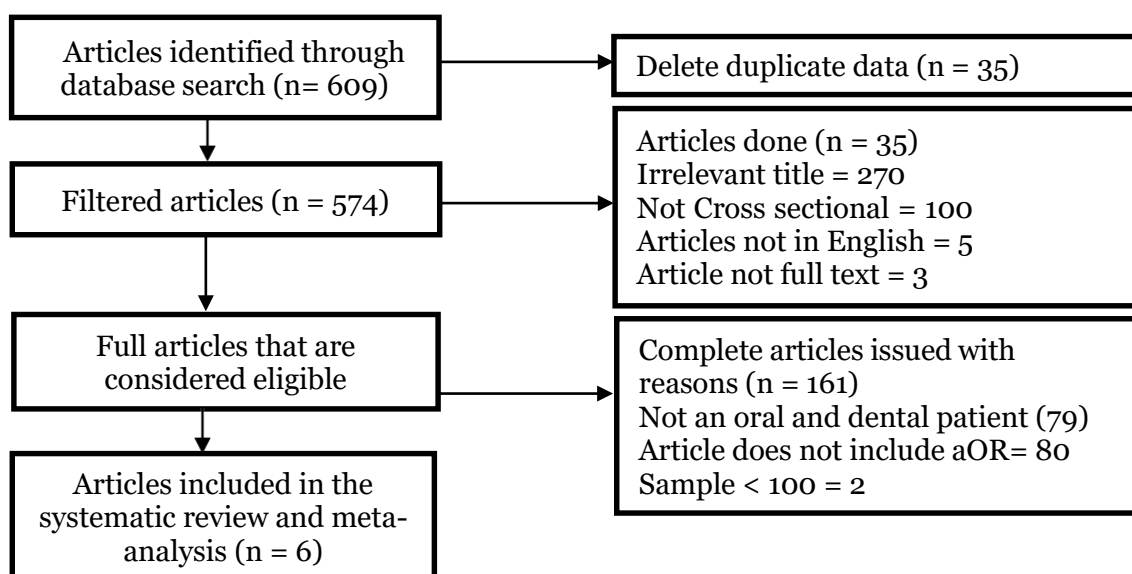Articles included in the systematic review and meta-analysis (n = 6)

Figure 1. PRISMA flow chart

The final results of the review articles, obtained 6 articles that meet the quantitative requirements for meta-analysis. Furthermore, the researchers conducted an assessment of the quality of the articles (Table 1).

Table 2 presents information on 6 articles with the study design of Systematic Review and Meta-Analysis as a source of meta-analysis of the level of quality of health services with patient satisfaction in dental and oral patients in health services.
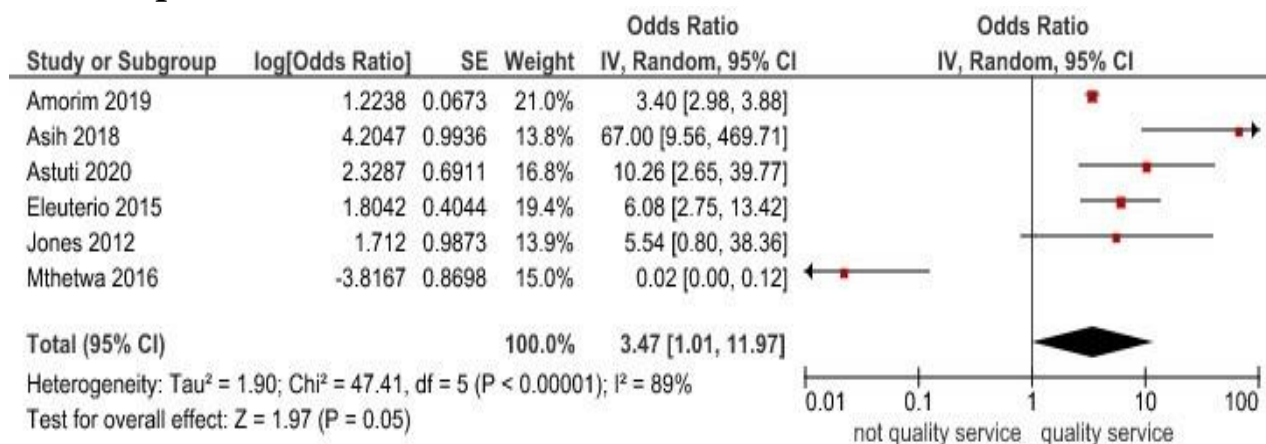
a. Forest plot

Study or Subgroup	log[Odds Ratio]	SE	Weight	Odds Ratio IV, Random, 95% CI
Amorim 2019	1.2238	0.0673	21.0%	3.40 [2.98, 3.88]
Asih 2018	4.2047	0.9936	13.8%	67.00 [9.56, 469.71]
Astuti 2020	2.3287	0.6911	16.8%	10.26 [2.65, 39.77]
Eleuterio 2015	1.8042	0.4044	19.4%	6.08 [2.75, 13.42]
Jones 2012	1.712	0.9873	13.9%	5.54 [0.80, 38.36]
Mthetwa 2016	-3.8167	0.8698	15.0%	0.02 [0.00, 0.12]
Total (95% CI)			100.0%	3.47 [1.01, 11.97]

Heterogeneity: Tau² = 1.90; Chi² = 47.41, df = 5 (P < 0.00001); I² = 89%
Test for overall effect: Z = 1.97 (P = 0.05)

Figure 1. Forest plot of the level of quality of health services with patient satisfaction in dental and oral patients in health services
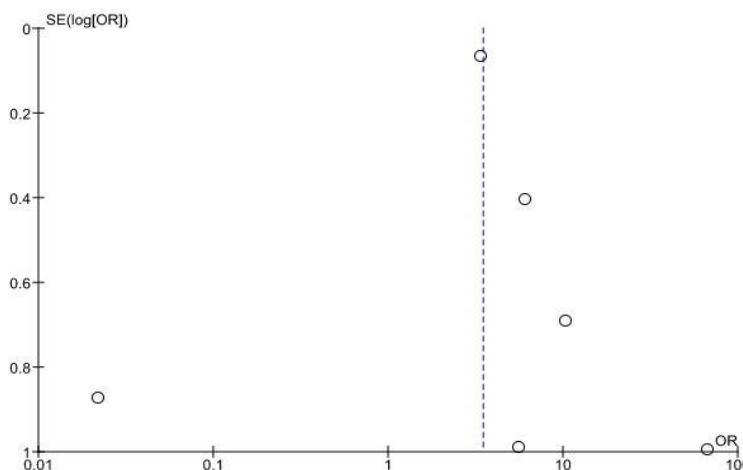
b. Funnel Plots

Figure 2. Funnel Plot of the quality of health services with satisfaction of the dental and oral patient

Figure 1 forest plot shows that the level of quality of health services increases patient satisfaction by 3.47 times. The distribution of the data is stated to be heterogeneous (Random Effect Model) which is shown from the I² value of 89%.

Figure 2. Funnel Plot of the influence of health care quality on dental and mouth patient satisfaction, the plots on the right and the left are not symmetrical with each other and do not form an inverted funnel. The plot has a standard error of> 0.6. In addition there is one plot on the left side which is away from the vertical center line. This suggests a bias in these studies.

Table 1.Assesment of Research Quality

Publication	Cross Sectional	With the control group	Pre/post intervention	Random Assignment	Random Selection for assesment	Sample size (>100)	Follow up rate >80%	Comparable sociodemo-graphic betwen study arms	Comparable baseline out come measures betwen study arms	Total
Amorin et al., 2019	1	1	1	1	1	1	1	1	1	9
Asih et al., 2018	1	1	1	1	1	1	0	1	1	9
Astuti et al., 2020	1	1	1	1	1	1	0	1	1	8
Eleuterio et al., 2015	1	1	1	1	1	1	1	0	1	8
Jones et al., 2012	1	1	1	1	1	1	0	1	1	8
Mthetwa et al., 2016	1	1	1	1	1	1	0	1	1	8

Table 2. Summary source of Relationship between Quality of Health Services and Patient Satisfaction between Oral and Dental Patients

Author	Design	Title	Location	Sample	Population	Intervention	Comparation	Outcome
Jones (2012)	Cross sectional	Access to Oral Health Care : The Role of Federally Qualified Centers in Addressing Disparities and Expanding Access	America	4,562 Paetient	Health center grantee organization sampled first, followed by eligible sites insecind sampled and eligible patient served	Good Have source of care	No have source of care	Have usual source of care
Astuti (2020)	Cross sectional	Pengaruh pelayanan kesehatan gigi dan mulut terhadap kepuasan pasien di PKM Sentosa Baru Kota Medan	Medan	81 Patient	81 patient who visited the dental and oral clinic	Good service quality	No have service quality	Quality of health services eith satification in dental and oral patient in health service
Amorim (2019)	Cross sectional	User satisfaction with public and private dental services for different age group in brazil	Brazil	7,018 sampel	5.072 resident of brazil and 19,946 oral health workers	Good service quality	Never service quality	Quality of health services with satification in dental and oral patient in health service
Mthetwa (2016)	Cross sectional	Comparing repeat and first visit patients' satisfaction with service quality at Medunsa Oral Health Centre	Brazil	194 patient	As many as 194 patients, namely 97 patients group.	Good service quality	No have service quality	Quality of health services eith satification in dental and oral patient in health service
Eleuterio	Cross	Users' dissatisfaction with	Brazil	781	781 people who required	Good service	Nohave service	Quality of health

de 2015	sectional	dental care: a population based household study		people	dental care in Montes Claros, MG, Southeastern Brazil, in 2012, a city with of medium-sized population situated in the North of Minas Gerais.	quality	quality	services eith Satification in Dental and oral patient in health service
Asih (2018)	Cross sectional	The Analysis of factors affecting patiensatifaction on aral and dental health service in GustiHasanAman oral and dental hospital of Kalimantan Selatan	Borneo South	75 res-pon-dents	Sampling by Purposive sampling counted 75 respondents. The independent variables are reliability, responsiveness,assurance, empathy, tangible, age, and gender.	Good service quality	Never service quality	Quality of health services eith satification in dental and oral - patient in health service

DISCUSSION

Patient satisfaction is defined as the patient's perception of the suitability of the patient's wishes, expectations and needs can be met. In this study, it shows the level of patient satisfaction with services before and after receiving dental and oral health services.

Quality of dental and oral health services is defined as dental and oral health services received by patients based on several indicators such as tangible, reliability, responsiveness, assurance, and empathy.

Dental and oral health care is a planned dental and oral health service to be shown to certain groups that can be followed within a certain period of time and is continuously organized to achieve optimal oral and dental health (KepMenKes, 2006).

Patient satisfaction with a health service shows the quality of service from all activities and infrastructure for health service activities and can be used as an evaluation of the quality of a service with an approach to patients to overcome certain problems in increasing the satisfaction of dental and oral patient services for better quality health services.

This study uses a Systematic Review and Meta-Analysis design. The purpose of this study was to determine the relationship between the quality of health services and patient satisfaction in dental and oral patients. The main studies involved in this research are those carried out in various countries in order to obtain conclusions that can generally be applied as a basis for intervention.

The results of the meta-analysis are presented in the form of forest plot diagrams and funnel plots. The forest plot is a graphical representation of the results of the meta-analysis which contains information related to the incorporation of the results of the primary study. Then, on the right side there is a line that represents each lesson carried out with meta-analysis which is plotted according to its weighting, visually the forest plot can also show the magnitude of heterogeneity between learning outcomes (Akobeng, 2005 in Murti, 2018).

A funnel plot is a diagram in a meta-analysis that illustrates possible publication bias. In this case, the funnel plot shows the relationship between the effect size of the study and the sample size or standard error of the effect size of each study studied. The bias shown by the funnel plot can be seen by assessing the asymmetry of the study (number of points on the right and left) compared to the standard error and imbalance in the number of studies on the right and left (Murti, 2018).

The results of the meta-analysis of 6 articles on the level of health care quality and patient satisfaction among dental and oral patients in health care are summarized in a forest plot. The forest plot in Figure 1 shows that the level of quality of health services can increase patient satisfaction by 3.47 times. There was high heterogeneity between trials (I^2 = 89%; p <0.001) so a random effects (REM) model was used. These results were statistically significant OR 3.47; 95% CI = 1.01-11.97; p = 0.050.

This result is supported by research by Astuti (2020), that there is an effect of tangible, reliability, responsiveness, assurance and empathy for dental and oral health services on patient satisfaction. Based on the results of the study, it is known that tangible, reliability, responsiveness, assurance and empathy have an effect on patient satisfaction at Sentosa Baru Health Center Medan City and the most influencing variable on patient satisfaction is responsiveness.

In another study supporting Emlly Jones (2012), health centers play a role in reducing racial and ethnic differences as well as serving as a critical access portal to affordable and culturally competent oral health services in underserved communities. Oral health services offered at health centers are an important component of the strategy to meet the Healthy People 2020 oral health goals and fulfill IOM's vision of a public health infrastructure that improves access to affordable, timely, and culturally competent oral health care. Already 80% of health center organizations provide oral health services at least 1 location and future expansion will increase the number of access points for oral health services.

This study is also supported by Amorim (2019), that users who are less fortunate are socially and economically more satisfied with oral health services, this satisfaction increases with age. Improving the quality of oral health services in primary care can result in greater satisfaction.

Eleuterio (2015) concluded that the level of dissatisfaction with dental care is low. This dissatisfaction is associated with socio-economic conditions, oral health subjectivity, the skills of health workers related to patient professional relations and infrastructure. Educational interventions are suggested to improve the quality of care among professionals by responsible institutions as well as improve the infrastructure of care units.

AUTHOR CONTRIBUTION

Lina Eta Safitri is the main researcher who acts as the main researcher who plays a role in coordinating the research, Arlina Azka who is the background and the research method, Yuyun Manggandhi who conducts the discussion. Novita Herlita Dewi is looking for journals and editing articles. Fristyaningrum Hidayah is looks for journals. Herawati Prianggi is looks for journals and editing. Amalia Ulfah Suparno is looks for journals. I Gusti Bagus Panji Widyatmaja is looking for journals. Dwi Marwanto is looks for journals, Farid Efffendi looks for journals.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

FUNDING AND SPONSORSHIP

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