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## USER PERCEPTIONS OF THE QUALITY OF THE PEDULILINDUNGI APPLICATION BASED ON THE DIMENSIONS OF ELECTRONIC SERVICE QUALITY (E-SERVICE QUALITY) DURING THE COVID-19 PANDEMIC

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**Abstract.** The use of a contact tracing application is one of the efforts made to overcome the global COVID-19 pandemic with an increasing number of cases. The contact tracing application used in Indonesia is PeduliLindungi which is one of the requirements for accessing public areas, which was initially applied to the Java-Bali region. However, in its use, there are still challenges that affect the quality of electronic services. This study aims to analyze user perceptions of the service quality of the PeduliLindungi application based on the E-Servqual dimension. The method used is observational with a quantitative approach using a cross-sectional design. The results showed that overall, the user's perception of the quality of the PeduliLindungi application was good with positive ratings on the service quality dimensions of the PeduliLindungi application. The dimensions that have a significant relationship to the user's perception of the quality of the PeduliLindungi (ESQ) application are the dimension of user experience (EXP) and user trust (TRU). The dimension of reliability (REL), responsiveness (RES), ease of use (EOU), privacy (PRI), system availability (SA), application design (WD), and information quality (IQ) do not have a significant relationship to user perceptions of the quality of the PeduliLindungi (ESQ) application. Suggestions that can be given are to improve and improve the system and technical functions and improve security for user data.

**Keywords:** PeduliLindungi, Perceived Quality, e-Service Quality, Health Application

**Abstrak.** Penggunaan aplikasi pelacakan kontak merupakan salah satu upaya yang dilakukan untuk mengatasi pandemi global COVID-19 dengan jumlah kasus yang terus meningkat. Aplikasi contact tracing yang digunakan di Indonesia adalah PeduliLindungi yang merupakan salah satu syarat untuk mengakses area publik yang awalnya diterapkan untuk wilayah Jawa-Bali. Namun dalam penggunaannya masih terdapat tantangan yang mempengaruhi kualitas layanan elektronik. Penelitian ini bertujuan untuk menganalisis persepsi pengguna terhadap kualitas layanan aplikasi PeduliLindungi berdasarkan dimensi E-Servqual. Metode yang digunakan adalah observasional dengan pendekatan kuantitatif dengan menggunakan desain cross sectional. Hasil penelitian menunjukkan bahwa secara keseluruhan persepsi pengguna terhadap kualitas aplikasi PeduliLindungi baik dengan penilaian positif pada dimensi kualitas layanan aplikasi PeduliLindungi. Dimensi yang memiliki hubungan signifikan dengan persepsi pengguna terhadap kualitas aplikasi PeduliLindungi (ESQ) adalah dimensi pengalaman pengguna (EXP) dan kepercayaan pengguna (TRU). Dimensi reliabilitas (REL), daya tanggap (RES), kemudahan penggunaan (EOU), privasi (PRI), ketersediaan sistem (SA), desain aplikasi (WD), dan kualitas informasi (IQ) tidak memiliki hubungan yang signifikan terhadap persepsi pengguna terhadap kualitas aplikasi PeduliLindungi (ESQ). Saran yang dapat diberikan adalah memperbaiki dan meningkatkan sistem dan fungsi teknis serta meningkatkan keamanan data pengguna.

**Kata Kunci:** PeduliLindungi, Kualitas, Kualitas e-service, aplikasi kesehatan

### INTRODUCTION

At the end of 2019, an acute respiratory disease emerged, namely Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) or known

as Corona Virus Disease 2019 (COVID-19). (1) The rapid spread to all corners of the world has caused COVID-19 to turn into a public health emergency of international concern or Public Health Emergency of International Concern (PHEIC). On March 11, 2020,

the World Health Organization (WHO) declared COVID-19 a global pandemic.(2)

The number of cases and deaths due to COVID-19 continues to increase every day and has an impact on various aspects that are felt by the community, such as economic, social, tourism, and especially in the health sector.(3) Seeing the number of cases that continues to increase, one of the efforts taken to control the rate of COVID-19 is to strengthen the surveillance system. One of the surveillance strategies that was intensively carried out during the pandemic was 3T (Testing, Tracing, and Treatment). This is stated in the Decree of the Minister of Health of the Republic of Indonesia Number HK.01.07 of 2021 concerning Guidelines for Examination, Tracing, Quarantine and Isolation in the Context of Accelerating the Prevention and Control of COVID-19.(4)

Contact tracing is one of the 3T mitigation strategies carried out to replace the lockdown strategy which is not effective in the long term because the economic damage caused cannot be repaired by the government. This strategy is the main prevention effort that has been recommended by WHO to break the chain of transmission of COVID-19.(5) In the era of technological development, digital contact tracing can provide convenience because it is considered to be faster, more precise, comprehensive, and efficient.(6) The tool used to do digital contact tracing is in the form of a contact tracing application or digital contact tracing application. Several countries that have used contact tracing applications are China, Hong Kong, Singapore, South Korea, Austria, Germany, Switzerland, Taiwan, and Poland.(7)(8)

The contact tracing application created and launched as a breakthrough by the Indonesian government is PeduliLindungi. On April 6, 2020, the Minister of Communication and Informatics issued Decree Number 171 of 2020 concerning the Establishment of the PeduliLindungi Application in the Context of Implementing Health Surveillance for Handling Corona Virus Disease 2019 (COVID-19) which stipulates the use of the application in conducting searches, tracing and giving warnings in deal with the spread of COVID-19.(9) Until the end of September 2021, the PeduliLindungi application has been downloaded 48 million times. As many as 9 million people are accessing the PeduliLindungi application with around 55 million monthly users.(10)

In addition to its role as a solution in controlling the spread of COVID-19, the use of contact tracing applications still has several challenges such as data privacy, poor adaptation of society to application use, user behavior, technical constraints, ethical

issues, and lack of trust from users.(11)(12)(13) These things affect the quality of services provided. The use of the PeduliLindungi application which is increasingly being used by people during a pandemic and supported by existing government policies means that the quality of electronic services provided must always be maintained so that it remains good and improved to be even better.

This study aims to get an overview of user perceptions of the quality of the electronic service of the PeduliLindungi application based on the dimensions of E-Service Quality during the COVID-19 pandemic.

## METHODS

This research is an observational study with a quantitative approach using a cross-sectional design. Data collection was carried out by distributing online questionnaires using the Google form which were distributed from late January to early February 2022 to users of the PeduliLindungi application who are domiciled in the Java-Bali region and have used the application in the last 3 months. Based on the results of data collection, 198 respondents met the criteria. Data analysis in this study was carried out using the Partial Least Squares Structural Equation Model (PLS-SEM) method using SmartPLS3 software.

### Measurement Models

The measurement model or outer model shows how the observed variable represents the latent variable to be measured. The assessment of the outer model in data analysis is carried out by testing the validity and reliability tests on each variable and the existing variable indicators.(14)

The validity test was carried out to find out how good the value of an instrument is for measuring in a study and to ensure that there is a correlation between each indicator and the constructed variable and that there are differences between one construct variable and another. The validity test consists of a convergent validity test and a discriminant validity test.(14)

In the convergent validity test, outer loading on each indicator already has a value of  $> 0.70$  and the Average Variance Extracted (AVE) for each variable already has a value of  $> 0.50$  so that it can be stated that it meets the requirements. After that, a discriminant validity test was performed using the Fornell Larcker Criterion test. Based on the results of the Fornell Larcker Criterion test, all variables have a correlation value with itself that is higher than the correlation value of these variables with other



variables. Therefore, it can be concluded that the instrument meets the requirements and is valid.

After carrying out the validity test, a reliability test is carried out to ensure that each variable indicator can be trusted and represents the constructed variable. Based on the results of the composite reliability test, it is known that the composite reliability value for each variable meets the requirements, namely  $> 0.70$ . So it can be concluded that all variables have met the requirements and are reliable.

## RESULTS

### Characteristics of Respondents

Most of the respondents in this study were aged 17-24 years (46.0%), were female (67.2%), had a bachelor's degree (46.5%), worked as students (37.4%), and came from West Java province (52.0%). In addition, there is an illustration of the use of the PeduliLindungi application by respondents during the COVID-19 pandemic, where most respondents never forgot to check in (65.2%) at the required place during the past month. However, there are still respondents who have forgotten to check in, where the most reasons are because there are no officers to guard or check and because the application is experiencing interference or errors. Then, when viewed from the commonly used features, almost all respondents used the scan QR code feature (93.9%), and most used the vaccine certificate feature (69.7%).

### An overview of the dimensions of E-Service Quality

Based on the results of the analysis carried out, user satisfaction based on the dimensions of user quality perception (ESQ) is good with a final mean value of 3.82.

**Table 1.** Overview of the Dimensions of E-Service Quality

No	Dimensions	Means
1	Reliability (REL)	4.19
2	Ease of Use (EOU)	4.01
3	Application Design (WD)	3.97

4	Quality of Information (IQ)	3.91
5	User Experience (EXP)	3.85
6	User Trust (TRU)	3.81
7	Privacy (PRI)	3.66
8	System Availability (SA)	3.58
9	Responsiveness (RES)	3.54

If seen in Table 1, it can be seen the order of user satisfaction on the E-Service Quality dimension based on the mean value in each dimension. The dimension with the highest satisfaction score is the reliability dimension (REL) with a mean value of 4.19. While the dimension with the lowest satisfaction score is the responsiveness dimension (RES) with a mean value of 3.54 and the system availability dimension (SA) with a mean value of 3.58.

### Structural Model Evaluation

The structural model or commonly referred to as the inner model in PLS-SEM explains the relationship between latent variables, which consists of Coefficient Determination ( $R^2$ ), Cross-validated Redundancy ( $Q^2$ ), and path coefficient. Two things to consider when a structural model is being developed are the sequence of constructs and the relationships between constructs.(14)

The Coefficient of Determination ( $R^2$ ) value is a value that explains how much the latent variable can explain the constructed variable. In this study, the  $R^2$  value obtained was 0.789, indicating that 78.9% of the user's perception of the quality of the PeduliLindungi application is explained by the e-service quality dimensions. However, other variables can explain this but were not examined in this study.

Next is the Cross-Validated Redundancy ( $Q^2$ ) value, which is a measurement performed to determine the predictive power or relevance of predictions outside the sample model or based on the inner model. The  $Q^2$  value of this study is 0.698 or  $\geq 0$  so it can be concluded that the relevance of the model prediction is acceptable. Then, the Path Coefficients test was carried out, the results of which can be seen in Table 2.

**Table 2.** Path Coefficient Test Results

	Original Sample (O)	Sample Means (M)	Standard Deviations (STDEV)	T-Statistics	P-values	Results
EOU→ESQ	-0.053	-0.046	0.078	0.671	0.502	Not Supported

	<i>Original Sample (O)</i>	<i>Sample Means (M)</i>	<i>Standard Deviations (STDEV)</i>	<i>T-Statistics</i>	<i>P-values</i>	<i>Results</i>
EXP→ESQ	0.334	0.322	0.096	3,486	0.001	<i>Supported</i>
IQ→ESQ	0.112	0.115	0.074	1.513	0.131	<i>Not Supported</i>
PRI→ESQ	0.077	0.076	0.056	1,368	0.172	<i>Not Supported</i>
RAIL→ESQ	0.076	0.075	0.052	1,470	0.142	<i>Not Supported</i>
RES→ESQ	0.101	0.096	0.066	1,531	0.126	<i>Not Supported</i>
SA→ESQ	0.049	0.051	0.055	0.891	0.374	<i>Not Supported</i>
TRUE→ESQ	0.279	0.287	0.094	2,955	0.003	<i>Supported</i>
WD→ESQ	0.040	0.040	0.081	0.500	0.617	<i>Not Supported</i>

Based on Table 2, variables that have a significant relationship with user perceptions of the quality of the PeduliLindungi application are user experience (EXP) and user trust (TRU) with p-values below 0.05 and t-statistics >1.96. The user experience variable (EXP) has a p-value of 0.001 and t-statistics 3.486, while the user's trust variable (TRU) has a p-value of 0.003 and t-statistics 2.955.

## DISCUSSION

### Reliability Dimension (REL)

The reliability dimension has four indicators, where the highest indicator value is found in reliability indicator 4 (REL4) regarding the accuracy of check-in history with a mean value of 4.35. While the lowest indicator value is found in reliability indicator 1 (REL1) regarding the accuracy of GPS location points with a mean value of 3.99. These results are supported by respondents' criticism, in which several respondents stated that the GPS location points in the PeduliLindungi application were inaccurate, the location points did not match the check-in location and the difficulty in accessing location points in places with poor internet networks.

The results of the analysis of the relationship between the reliability dimension and the perceived quality of users of the PeduliLindungi application during the COVID-19 pandemic were not statistically significant. These results are in line with research conducted by Liem et al. (2020) in another field, namely the analysis of customer satisfaction with PT. XYZ Bank where the reliability dimension has no significant effect on mobile banking user satisfaction.(15)

### Responsiveness Dimension (RES)

The responsiveness dimension has two indicators, where the indicator with the lowest value is found in responsiveness indicator 2 (RES2) regarding interruptions/crashes in the application during the loading process with a mean value of 3.32. These results are supported by respondent's criticism,

where there are still complaints about crashes when the application is used such as an application that closes or exits by itself when it is being used.

Statistically, the relationship between the responsiveness dimension and the perceived quality of PeduliLindungi application users during the COVID-19 pandemic was also insignificant. These results are in line with research conducted by Tsang, Lai, and Law (2010), where responsiveness does not have a significant effect on user satisfaction and is not an important dimension in influencing overall satisfaction. This could happen because users have high expectations for the responsiveness of the application, but the PeduliLindungi application still cannot meet these expectations which can be seen from the fact that there are still quite several respondents who feel neutral and disagree with the indicator statement.(16)

### Ease of Use Dimension (EOU)

The ease-of-use dimension has three indicators, where the indicator with the lowest score is found in the ease of use indicator 1 (EOU1) regarding the ease of finding information with a mean value of 3.79. These results are supported by the criticism of respondents who are still complaining about these difficulties in finding information about customer service or customer service as well as information regarding explanations regarding the features of the PeduliLindungi application.

The results of the analysis of the relationship between the dimensions of ease of use and the perceived quality of PeduliLindungi application users during the COVID-19 pandemic was not statistically significant. These results are inversely proportional to research conducted by Hoque et al. (2021) regarding evaluating patient satisfaction with the quality of telemedicine services. Nevertheless, it is necessary to increase and improve this area considering that this dimension has a strong influence on customer satisfaction related to the ease of use of the application and obtaining information on the application.(17)

### Privacy Dimension (PRI)

The privacy dimension has three indicators, where the indicator with the lowest score is privacy indicator 3 (PRI3) regarding an adequate security system with a mean value of 3.61. This is supported by the existence of criticism from respondents who complained security and protection of personal data. The bad precedent that occurred regarding the leakage of user data from the PeduliLindungi application also affected the user's view of the security of personal data.

The results of the further analysis found an insignificant relationship between the privacy dimension and the perceived quality of PeduliLindungi application users during the COVID-19 pandemic. The relationship between the privacy dimension and perceived quality is in line with research conducted by Li, Liu, and Suomi (2009) regarding the quality of e-services in online travel services, where the privacy dimension has no significant effect on user perceptions of e-service quality.(18)

### System Availability Dimension (SA)

The system availability dimension has two indicators, where the indicator with the lowest score is found in system availability indicator 2 (SA2) regarding technical issues with a mean value of 3.13. This is supported by the criticism of respondents who complained about technical problems that still often occur, such as the process of loading scan QR code being long and often fails.

If seen from the results of the analysis of the relationship between the dimension of system availability and the perceived quality of users of the PeduliLindungi application, the dimension of system availability has no significant relationship to the perceived quality of users. However, these results are not in line with the research conducted by Cobelli et al. (2018) where system availability has a significant effect on ESQ.(19) This can happen in this study because quite a several respondents have problems resulting from external factors, such as a bad internet signal or network.

### Application Design Dimension (WD)

The application design dimension has three indicators, where the indicator with the lowest value is found in the application design indicator 2 (WD2) regarding the speed of opening applications with a mean value of 3.66. This is supported by the complaints of respondents who feel that the duration to open the application or the loading process when the application is opened is long.

The results of the test of the relationship between the dimensions of the application design on the perceived quality of the PeduliLindungi application users show that there is no significant relationship to the perceived quality of the users. These results are not in line with research conducted by Arilaha, Fahri, and Buamonabot (2021), which states that application design dimensions have a significant influence on user perceptions.(20) The dimensions of application design that are not significantly related to ESQ in this study may occur because, in Indonesia, which is a country with a pragmatic culture, application design only has a minimal influence on the overall quality of electronic services.(21)

### Information Quality Dimension (IQ)

The dimension of information quality has three indicators, where the indicator with the lowest score is found in the information quality indicator 1 (IQ1) regarding the current information presented with a mean value of 3.85. This is supported by the complaints of respondents regarding not up-to-date information on COVID-19 statistics as well as information on inappropriate vaccination certificates.

The results of the further analysis show that there is no significant relationship between the dimensions of information quality and the perceived quality of PeduliLindungi application users. These results are not in line with research conducted by Hoque et al. (2021) which states that the quality of information has a significant influence on user satisfaction.(22) This could have happened because the majority of respondents who had problems on this dimension were not the accuracy of the information, but rather the addition of several types or content of information related to COVID-19.

### User Experience Dimension (EXP)

The user experience dimension has two indicators, where the indicator with the lowest score is the user experience indicator 1 (EXP1) regarding the overall suitability of the PeduliLindungi application features with the respondents' expectations, with a mean value of 3.81. This is supported by respondents' criticism and complaints about the PeduliLindungi application.

The results of this user experience dimension test on the perceived quality of PeduliLindungi application users obtain a significant relationship with a t-statistics value of 3.486 and a p-value of 0.001. These results are in line with research conducted by Vatolkina et al. (2020) which states that user experience has a significant influence on user satisfaction.(17) The user experience dimension

influences the user's perception of the quality of service received. The dimension of user experience is a dimension that has an important role in digital services because it is a cognitive state, where there are user emotions, that are experienced while using or receiving services.(23)

### User Trust Dimension (TRU)

The user trust dimension has two indicators, where both indicators have the same mean value, which is equal to 3.81. The results of this last dimensional test show a significant relationship between the dimensions of user trust and the perceived quality of users of the PeduliLindungi application with a t-statistics value of 2.955 and a p-value of 0.003. These results are in line with research conducted by Arilaha, Fahri, and Buamonabot (2021) which states that the dimensions of user trust have a significant influence on user perceptions.(20) Every digital application or service provider must pay attention to this dimension because it has a dominant influence on the user's desire to use the service. Trust is the basis for initiating, establishing, and maintaining relationships between service providers and users. When users feel confident in service or information provided, user trust will increase. The higher the trust, the higher the level of user satisfaction.(24)(25)

### CONCLUSION

Based on the results of the analysis and discussion in this study, it was concluded that the user's perception of the quality of the PeduliLindungi (ESQ) application is good with a total mean value of 3.82. The dimensions of the service quality of the PeduliLindungi application received positive ratings from respondents with a mean range of 3.54 - 4.19. The REL4 indicator regarding check-in accuracy on the Reliability dimension has the highest mean value of 4.35. While the lowest mean value lies in the SA2 indicator regarding technical problems in applications on the System Availability dimension with a mean value of 3.13. The dimensions that have been proven to make a significant contribution to the quality of the PeduliLindungi application during the COVID-19 pandemic are the User Experience dimension and the User Trust dimension.

### RECOMMENDATIONS

Recommendations that can be given by researchers based on the results of this study are that service providers can improve and improve the technical functions, features, and security of the PeduliLindungi application so that application

utilization can be maximized and can increase application reputation, positive experience, and user trust. service providers can also develop the use of the PeduliLindungi application not only limited to contact tracing or COVID-19. This is done to expand the usefulness of the PeduliLindungi application to become a health-based application that can be a source of information related to health services and can be used for the long term, even after the pandemic ends.

### REFERENCES

1. WHO. Coronavirus [Internet]. World Health Organization. 2020. Available from: [https://www.who.int/health-topics/coronavirus#tab=tab\\_1](https://www.who.int/health-topics/coronavirus#tab=tab_1)
2. Khaedir Y. Perspektif Sains Pandemi Covid-19: Pendekatan Aspek Virologi Dan Epidemiologi Klinik. Maarif. 2020;15(1):40–59.
3. Samudro EG, Madjid MA. Pemerintah Indonesia Menghadapi Bencana Nasional Covid -19 Yang Mengancam Ketahanan Nasional. J Ketahanan Nas. 2020;26(2):132.
4. Kementerian Kesehatan RI. Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/4641/2021 Tentang Panduan Pelaksanaan Pemeriksaan, Pelacakan, Karantina, Dan Isolasi Dalam Rangka Percepatan Pencegahan Dan Pengendalian Coronavirus Disease 2019 (Covid-19). KMK/ Nomor HK ,01,07/MENKES/4641/2021 Indonesia; 2021.
5. Nurjannah, Dar MH, Bangun B. Sistem Pelacakan Kontak COVID-19 Menggunakan Teknologi QR Code Berbasis Web. 2021;VII(3):283–92.
6. Mao Z, Yao H, Zou Q, Zhang W, Dong Y. Digital contact tracing based on a graph database algorithm for emergency management during the COVID-19 epidemic: Case study. JMIR mHealth uHealth. 2021;9(1).
7. Amann J, Sleigh J, Vayena E. Digital contact-Tracing during the Covid-19 pandemic: An analysis of newspaper coverage in Germany, Austria, and Switzerland. PLoS One. 2021;16(2 February):1–16.
8. Mesquita R, Carlos L, Silva F, Fernanda J, Santos M, Farias T, et al. Clinical manifestations of COVID-19 in the general population: systematic review. Cent Eur J Med. 2020;
9. Menteri Komunikasi dan Informatika. Keputusan Menteri Komunikasi dan Informatika Nomor 171 Tahun 2020 tentang Penetapan Aplikasi PeduliLindungi Dalam Rangka Pelaksanaan Surveilans Kesehatan

- 
- Penanganan Corona Virus Disease 2019 (COVID-19). Indonesia; 2020.
10. Bayu DJ. Hambatan PeduliLindungi Menjadi SuperApps di Masa Normal Baru [Internet]. Katadata. 2021. Available from: <https://katadata.co.id/ariayudhistira/analisisdat a/6152932c14921/hambatan-pedulilindungi-menjadi-superapps-di-masa-normal-baru>
  11. Anglemeyer A, Moore TH, Parker L, Chambers T, Grady A, Chiu K, et al. Digital contact tracing technologies in epiDemics: A rapid review. *Saudi Med J*. 2020;41(9):1028.
  12. Chand SS, Chand AA, Chand KK. The use of careFiji app for contact tracing during the COVID-19 pandemic: Digital gap and challenges faced in Fiji. *Int J Surg*. 2021;92(June).
  13. Akinbi A, Forshaw M, Blinkhorn V. Contact tracing apps for the COVID-19 pandemic: a systematic literature review of challenges and future directions for neo-liberal societies. *Heal Inf Sci Syst*. 2021;9(1).
  14. Hair JF, Hult GTM, Ringle CM, Sarstedt M. A primer on partial least squares structural equation modeling (PLS-SEM). Second. Vol. 38, *International Journal of Research & Method in Education*. Los Angeles: SAGE Publications, Inc.; 2017.
  15. Liem AT, Chrisanti IR, Sandag A, Purwadaria DDP. Analisis Kepuasan Pelanggan Terhadap Pelayanan Mobile Banking PT. Bank XYZ Wilayah Airmadidi Menggunakan E-Servqual. *Cogito Smart J*. 2020;6(2):229.
  16. Tsang NKF, Lai MTH, Law R. Measuring E-Service Quality for Online Travel Agencies. *J Travel Tour Mark*. 2010;27(3):306–23.
  17. Vatolkina N, Gorbashko E, Kamynina N, Fedotkina O. E-Service Quality from Attributes to Outcomes: The Similarity and Difference between Digital and Hybrid Services. *J Open Innov*. 2020;6:1–21.
  18. Li H, Liu Y, Suomi R. Measurement of eservice quality: An empirical study on online travel service. In: 17th European Conference on Information Systems, ECIS 2009. e European Conference on Information Systems (ECIS); 2009.
  19. Cobelli N, Bonfanti A, Cubico S, Favretto G, Cobelli N, Bonfanti A, et al. Quality and perceived value in career guidance e-services. *Int J Qual Serv Sci*. 2018;
  20. Arilaha MA, Fahri J, Buamonabot I. Customer Perception of E-Service Quality : An Empirical Study in Indonesia. *J Asian Financ Econ Bus*. 2021;8(6):287–95.
  21. Rita P, Oliveira T, Farisa A. The impact of e-service quality and customer satisfaction on customer behavior in online shopping. *Heliyon*. 2019;5(October):1–14.
  22. Hoque SI, Karim AM, Hossen R, Arjumand D. Evaluation of Patients' Satisfaction in Telemedicine Service Quality: a Case Study on Maizbhanderi Foundation, Fatikchari, Bangladesh. *Am Econ Soc Rev*. 2021;8(1):1–10.
  23. Mclean G, Wilson A. Evolving the online customer experience ... is there a role for online customer support? *Comput Human Behav*. 2016;60:602–10.
  24. N IWAMPA, Wardana M, Sukaatmadja IPG. Pengaruh E-Servqual Terhadap Customer Satisfaction, Trust, dan Word of Mouth Peserta BPJS Ketenagakerjaan. *E-Jurnal Ekon dan Bisnis Univ Udayana*. 2016;5(11):3647–82. Handayani DFR, Widowati R, Nuryakin. The influence of e-service quality , trust , brand image on Shopee customer satisfaction and loyalty. *J Siasat Bisnis*. 2021;25(2):119–30.
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## DISPUTE ANALYSIS OF CLAIMS FOR PATIENTS WITH COVID-19: A CASE STUDY AT HOSPITAL X CLASS B IN BANTUL REGENCY

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**Abstract.** The Indonesian Government established referral hospitals for COVID-19 as an effort in combating the pandemic. Referral hospitals for COVID-19 submit their services' claims to the Ministry of Health. Hospital X in Bantul experienced challenges in submitting COVID-19 claims and underwent claim disputes which caused delays in payment process. This research aimed to explore the factors that led to the disputes over the COVID-19 claims. This descriptive research was conducted with a qualitative approach, using in-depth interviews and observations. The additional descriptive analysis used secondary data COVID-19 claim dispute file reports from 2020. The results showed that the highest criteria of disputed claims at Hospital X were the criteria for non-compliant guaranteed participants, incomplete claim files, non-compliant comorbid diagnoses, and identities that did not comply with the provisions. The causes of the disputes over claims for patients with COVID-19 included inaccurate history taking, differences in regulation perceptions between the provider and payer, PCR results were not provided, and doctors had a lack of understanding regarding the technical guidelines for COVID-19 claims. In addition, there were technical problems faced by the hospital during the process of submitting claims, including regulations were changed frequently, errors in applications, incomplete medical resumes, and unreadable doctors' writings. Disputed claims did not affect the hospital cash flow, yet delayed the payment process to health workers, which might harm the quality of services.

**Keywords:** dispute claim, COVID-19, cash flow, hospital, Indonesia

**Abstrak.** Upaya Pemerintah Indonesia dalam penanggulangan COVID-19 adalah dengan menetapkan rumah sakit rujukan pandemic ini. Rumah sakit rujukan COVID-19 dapat mengajukan klaim ke Kementerian Kesehatan. Rumah Sakit X di Bantul dalam mengajukan klaim COVID-19 mengalami kendala dan adanya kasus *dispute* klaim yang menyebabkan proses pembayaran klaim tertunda. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang menyebabkan *dispute* klaim COVID-19. Jenis penelitian ini merupakan penelitian deskriptif dengan pendekatan kualitatif, dengan wawancara mendalam dan observasi, ditambah analisis deskriptif menggunakan data sekunder yaitu laporan berkas *dispute* klaim COVID-19 tahun 2020. Hasil penelitian menunjukkan bahwa kriteria tertinggi *dispute* klaim di Rumah Sakit X adalah kriteria peserta jaminan tidak sesuai, berkas klaim tidak lengkap, diagnosa komorbid tidak sesuai ketentuan, dan identitas tidak sesuai ketentuan. Penyebab *dispute* klaim pasien COVID-19 disebabkan karena ketidaktepatan anamnesis, perbedaan persepsi, hasil PCR tidak terlampir, kurangnya pemahaman DPJP mengenai juknis klaim COVID-19. Kendala dalam proses pengajuan klaim adalah regulasi yang mengalami perubahan, aplikasi eror, kelengkapan rekam medis lebih dari 2 x 24 jam, ketidaklengkapan resume medis, dan tulisan dokter yang tidak dapat dibaca. Dispute klaim tidak berdampak pada permasalahan cash flow rumahsakit, tapi menunda pembayaran jasa medis dan perawat, dan dapat menurunkan kualitas layanan.

**Kata Kunci:** klaim dispute, COVID-19, arus kas, rumah sakit, Indonesia

### INTRODUCTION

The World Health Organization (WHO) announced the Corona Virus Disease 2019 (COVID-19) as a

global pandemic on March 11, 2020. All countries have been affected by this novel coronavirus disease. As the number of COVID-19 cases continued to increase, the Government of Indonesia

issued a Decree from the Minister of Health of the Republic of Indonesia Number HK.01.07/Menkes/104/2020 that COVID-19 is a certain emerging infectious disease that causes outbreaks and public emergencies, and it is mandatory to enact countermeasures that require financing.(1)

In response to the COVID-19 pandemic, the Indonesian government issued the Decree from the Minister of Health, numbered HK.01.07/Menkes/275 of 2020. This decree designated 132 hospitals located in every province of the country as referral hospitals for the management of certain infectious diseases. The purpose of this measure was to ensure that there were sufficient medical facilities with the necessary resources to manage COVID-19 cases and other infectious diseases.(2)

People infected with COVID-19 can get health services, such as laboratory tests, radiology, and hospitalization if the patient has co-morbidities or with special assistance. The state bears healthcare costs for patients infected with COVID-19 through social insurance.(3) One of the Indonesian government's strategies in dealing with this pandemic is the waiver of COVID-19 patient fees, based on Minister of Health Regulation 59 of 2016, that patients with certain emerging infectious diseases are exempt from financing.(4)

Hospitals that treat patients with COVID-19 can apply for reimbursement of costs following statutory provisions. Claim costs for patients with COVID-19 are regulated in the Decree of the Minister of Health of the Republic of Indonesia Number Hk.01.07/Menkes/446/2020 concerning Technical Instructions for Claiming Reimbursement for COVID-19 Patient Services. Those hospitals providing services for patients infected with COVID-19 can submit claims to the Ministry of Health through the Director General of Health Services. The patient care costs that can be claimed are outpatients and inpatients with the criteria of suspected patients, probable patients, and confirmed COVID-19.(5)

Hospitals have faced challenges in submitting claims for COVID-19-related expenses, leading to a significant number of disputes. A report from the Social Health Insurance Administration Body (BPJS Kesehatan) revealed that, as of October 2021, the agency had received a total of 1,345,970 COVID-19 claims, amounting to IDR 72.3 trillion. After verification, 933,708 claims were deemed appropriate, with a total cost of IDR 50.5 trillion, representing 79.07% of all claims. However, 170,335 claims, or 14.42% of the total, were disputed, with a cost of IDR 9.9 trillion.

Additionally, there were 72,248 pending claims, representing 6.12% of all claims, with a total cost of IDR 3.4 trillion. These challenges in processing claims have added to the burden faced by hospitals as they work to manage the impacts of the COVID-19 pandemic.(6)

Hospital X is one of the hospitals that obtained an Operational Permit and has been designated as a type B hospital in Bantul Regency. It has been designated as a referral hospital for managing certain emerging infectious diseases based on the Decree of the Governor of the Special Region of Yogyakarta Number 61/Kep/2020.(7) While dispute claims also occurred at Hospital X, the increasing number of patients with COVID-19 being treated at Hospital X also increased the filing of COVID-19 claims. However, delays followed this in the payment of claims due to the disputed claims. The delay in paying COVID-19 claims may significantly impact contributing income to hospitals during this pandemic.

From April to July 2020, Hospital X submitted 138 claims and 83 were disputed. The disputed claim costs were IDR 7,557,420,000. The value was large enough to cause potential losses for COVID-19 claims submitted by the hospital and may have affected the financial flows at Hospital X. To understand and mitigate the disputed claims, this research aimed to explore the main factors that led to the disputed claims.

## METHODS

This descriptive research was conducted with a qualitative approach. Qualitative research was used to obtain data regarding the causes of disputed claims by patients with COVID-19. The research design was a case study to dig deeper into the causes of disputed claims. Data were collected through in-depth interviews, and claim file data in 2020.

This research was conducted at Hospital X Class B (a COVID-19 referral hospital) located in Bantul Regency, Special Province of Yogyakarta. The determination of research subjects was selected based on specific criteria. The research subjects who were the primary data sources in this research were Isolation Room Administrative Officers (1 person), Medical Recorder (1 person), COVID-19 Claim Coder (1 person), Claim Person in Charge (1 person), general practitioners (2 people), Doctors in Charge of Patients (2 people), Chief Treasurer (1 person), BPJS Kesehatan Verifier (1 person), and Head of the Health Service Division (1 person). The process of data analysis used content analysis techniques to discuss the management of claims that caused disputes over claims by patients with

COVID-19. Questions were asked openly, then analysis and classification of the answers given were done based on the data.

This research was conducted based on research ethics considerations, and its implementation was conducted after obtaining research approval. The permission in the form of Ethical Clearance issued by the Medical and Health Research Ethics Committee of the Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia, with a letter-number KE/FK/0172/EC/2022.

## RESULTS AND DISCUSSION

### Causes of Disputed Claims of Patients with COVID-19 at Hospital X Class B in Bantul Regency

Based on secondary data from the 2020 report of verification result, the COVID-19 claim at Hospital X has two verification results: an appropriate claim and a disputed claim. The following is the claim file data submitted by Hospital X.

**Table 1.** Report of verification result data of COVID-19 claims at Hospital X Class B, Bantul Regency, 2020

Month	Claim Submitted	Approved	%	Disputed	%
April	37	14	39%	23	62%
May	49	13	27%	36	73%
June	21	10	48%	11	52%
July	31	18	49%	13	42%
August	42	22	52%	20	48%
September	91	14	15%	77	85%
October	28	12	43%	16	57%
November	61	44	72%	17	28%
December	83	44	53%	39	47%
Total	443	191	43%	252	57%

Source: Report of Verification Result 2020.

There were 443 filed claims by Hospital X. Of the 443 claim files, there were 191 claims approved (43%) and 252 files were disputed claims as much as 57%.

Based on the 2020 Report of Verification Result data, there are four criteria for the highest COVID-19 disputed claims at Hospital X. The following describes the criteria for a COVID-19 disputed claim at Hospital X:

**Table 2.** Criteria for the highest disputed claims at Hospital X, Bantul Regency in 2020

No.	Dispute Criteria	Number of Files	%
1.	The criteria for participants in the COVID-19 guarantee do not comply with the provisions	187	74.2
2	Incomplete file	27	11.0
3	Comorbid diagnoses are not in accordance with the provisions	17	7.0

4	Identity does not comply with the provisions	11	4.4
Total		242	96.6

Based on secondary data and the results of interviews, the highest cause of disputed claims involved the inaccuracy in enforcing suspected diagnoses that were not in accordance with the provisions of the Decree of the Minister of Health technical guidelines for COVID-19 claims.

The large number of patients admitted to isolation facilities at Hospital X has led to inaccuracies in history-taking and physical examinations. With only a few general practitioners on duty, doctors at the hospital have had to work quickly and with limited information provided by patients and their families. In some cases, patients or their families were unaware that they had been in contact with individuals who had tested positive for COVID-19, which further complicated the situation. These challenges are reflected in the results of hospital staff interviews:

*"We are the doctors on duty for the COVID-19 emergency room and the ward. In one team, sometimes consists of 2 or 3 people.*

*So, this is a difficulty for the assessment. Sometimes, the patient also does not realize that his activities can have positive results....” (DUI)*

Another cause of disputed claims was differences in the perceptions of the Doctor in Charge of Services and the verifier, where the Doctor in Charge of Services only made a diagnosis based on clinical circumstances. Meanwhile, the Decree of the Minister of Health verifier and provisions require evidence of fever, other symptoms, contact, and travel history to make a diagnosis. If the Doctor in Charge of Services does not reflect compliance with this information, then the verification process will become a disputed claim, followed by a re-confirmation procedure. This situation is shown in the results of the following interviews:

*“...so just write down according to what is available such as the results of a physical examination, more just the clinical situation. There are patients with typical symptoms of COVID-19 but the PCR is negative, so we give COVID-19 therapy, and the patient recovers.” (Doctor in Charge of Services 1)*

The second criterion for the COVID-19 claim dispute was an incomplete claim file. Supporting claim files was very influential in the process of verifying claims and the success of COVID-19 claims. The terms of completing the claim files were the duty of the isolation room administration officer, but in the results of the verification, there were still incomplete files causing a disputed claim at Hospital X. The incomplete forms were the results of the first polymerase chain reaction (PCR) test and the results of supporting tests that support the diagnosis, such as D-dimer.

Disputed claims for COVID-19 also happened because the files were incomplete due to referral patients, where sometimes the referring hospital forgot to attach the PCR results and laboratory supporting examinations. Even though at Hospital X, a PCR test was repeated, the Verifier still asked for the first PCR result. This is seen in the results of the following interviews:

*“ Sometimes lab results from outside are referral patients, now patients come for referrals, but they don’t bring their lab results, it has to be uploaded.” (Administrator)*

The third criterion for disputed claims for patients with COVID-19 at X Hospital was comorbid diagnoses that do not comply with the provisions. It

was due to an understanding of the related policy for claims that the doctor in charge must understand. It is not only the claims officers who know it since all those related to claims must follow the Decree of the Minister of Health technical guidelines for claims. Based on secondary data and interview results, there were doctors in charge of the patient who wrote incomplete medical resumes and differences in doctors' perceptions regarding comorbid diagnoses of COVID-19. This issue is reflected in the results of the following interviews:

*“like a lack of therapy writing, sometimes there are some Doctors in Charge of the Patient who don’t write....” (RM)*

*“...The comorbid that is often written about is pneumonia, even though pneumonia is not included in the Decree of the Minister of Health...” (VRS)*

*“Then for others, maybe this is a comorbid diagnosis, but in the treatment process, there is no term for special treatment...” (VBPJS)*

*“What kind of comorbidities but there are no supporting examinations.” (PJK)*

The fourth cause for the disputed claims for COVID-19 patients at X Hospital was because the identity did not comply with the guidelines. The highest cause was because the National Identity Number did not match the data in the Indonesian Civil Registry. This is seen in the results of the following interviews:

*“There was a National Identity Number that was the same as the identity, but yesterday there was also a mistyped identity” (KK)*

*“National Identity Number problem, it's only a few, madam” (VRS)*

*“Administratively, it's National Identity Number's fault.” (PJK)*

The process of verifying the COVID-19 claims for identity data uses an Indonesian identity card or national identity number. However, there were some inaccurate national identity numbers, due to typing errors. In entering claim data, accuracy becomes very important.

### **Obstacles Faced by Hospital X in Submitting Claims for Patients with COVID-19**

#### **Human Resources**

Although there was only one coder, it was still considered sufficient. The coder does coding and



data entry, as well as matching the number of files submitted with the inputted files, assisted by a scan officer. While the isolation room administrator is responsible for completing the claim file for patients with COVID-19, in this case, an administrator was deemed sufficient even though there were many claim file requirements that must be completed. This situation is seen in the following interview results:

*"In my opinion, the claim officer is enough."*  
(PJK)

*"The claim officer is quite adequate, even if it's by reducing other parts of the service and assisted by volunteers."* (KBY)

### **Policies and Standard Operating Procedures (SOP)**

Hospitals have relied on the Decree of the Minister of Health's technical guidelines for COVID-19 claims as a reference when submitting claims for patients with the disease. However, these technical guidelines have been amended multiple times, causing confusion among hospital staff. Interviews with staff members have revealed that they struggled to keep up with the guidelines' changes, making it challenging to submit accurate claims for COVID-19-related expenses. This highlights the need for clear and consistent guidelines to ensure that hospitals can effectively manage the costs associated with treating patients with COVID-19.

*"It changes back and forth, so sometimes that's what makes us experience problems because the regulations are out now but apply in the past."* (KK)

*"There are rules that are not applied in the same way as before."* (VRS)

### **Facilities and infrastructure**

Facilities and infrastructure function to simplify and speed up the claim submission process. The facilities and infrastructure that support the claims submission are computers, printers, and scanners. All of these work facilities are available in the isolation administration room and in the case-mix unit. There were 14 computers, 14 printers, five scanners, and one photocopy machine for the case-mix unit. It is discussed in the following interview results:

*"Basically, the facilities and infra*

*structure are adequate, such as computers and printers that already exist"* (ADM)

### **Technology**

Hospital X faced some technical problems in submitting claims. For example, there were unstable network problems and application errors because many referral hospitals upload claim files during working hours, so uploading claim files becomes disrupted. As a result, the coder has to work on them outside of working hours. This is seen in the results of the following interviews:

*"Sometimes the file is unreadable, it's credit, so we failed to send it. That's why I used to work overtime and stay here, that's it."* (KK)

### **Medical Record Completeness**

Another obstacle found in the completeness of the medical record was that the Doctor in Charge of Services did not directly fill in the medical resume. When a patient was allowed to leave the hospital, the Doctor in Charge of Services should immediately complete a medical resume, but the facts in the field are that the Doctor in Charge of Services completes a medical resume two days or more after the patient is allowed to go home. This is because medical specialists have many patients and are only willing to fill out resumes at the polyclinic, which has a practice schedule that is only three times a week. This is discussed in the results of the following interviews:

*"If there are not many patients, we have to take them to the poly, and it usually takes a long time."* (ADM)

*"The room administrator returns the status here, mostly around 2x24 hours, because they are waiting for the doctor's resume and they only photocopy the file, when it's finished, it's returned here."* (RM)

### **Collection of Claim Files**

Claim files were expected to be completed one day after the patient was discharged. This approach helped BPJS Kesehatan to collect the files on time. However, there were obstacles related to the process of collecting the COVID-19 claim files at Hospital X, including incomplete medical resumes written by doctors and Integrated Patient Development Records that were not in accordance with the patient's condition. This is seen in the results of the following interview:

*"Yes, if there are still missing files, for example like a resume, the doctor's writing is lacking...., the Integrated Patient Development Records are out of sync from start to finish ....."* (ADM)

### **Coding and Data Entry Provision**

Hospital X continues to rely on paper-based medical records, which means that coders must manually enter data into the E-claim application for coding purposes. The code assigned by the coder must match the primary diagnoses and actions documented by the doctor in the medical records. Fortunately, the coders at Hospital X have not experienced any major issues with coding and data entry because they have a strong understanding of the Decree of the Minister of Health's technical guidelines for COVID-19 claims. This was confirmed in recent interviews with staff members at the hospital. However, the continued use of paper-based records highlights the need for hospitals to transition to more efficient and reliable electronic systems:

*"If the coding is correct, it's because the coding is all the same." (VBPJS)*

### **Verification of Claims of Patients with COVID-19**

Another obstacle of the BPJS Kesehatan Verifier during the process of verifying the claim file of Hospital X was the doctor's writing which was unclear and illegible. This is because Hospital X still uses manual medical records, although it is known that the doctor's writing greatly influences claims. In responding to this, the Social Health Insurance Administration Body verifier will confirm information in advance with the hospital, as seen in the results of the following interview:

*"There is an unclear doctor's writing ...." (VBPJS)*

### **The Impact of the Dispute Claims of COVID-19 on the Hospital Cash Flow**

During the COVID-19 situation, service utilization decreased at Hospital X. This was because people were worried about being infected with COVID-19 when they came to the hospital. Hospital X also limited the number of patients and opening time. From this situation, the income of Hospital X decreased. However, from the revenue side, Hospital X revenue increased. It is because payments for services in 2019 were paid in 2020, and Hospital X received grants to provide services to COVID-19 patients. This is seen in the results of interviews and secondary data as follows:

*"From the reception side, there was a decline, on the revenue side in 2020 it was rather high because there was payment for services in 2019. It was paid in 2020. As for*

*expenses, it is clear that in 2020 there has been an increase....." (BP)*

Based on the data from the Verification Results Reports, from a total of 443 claim files submitted from April to December 2022, there were 252 dispute claims with a total claim of as much as Rp. 17,823,434,000, which is a very large amount that might affect the financial flows of Hospital X.

Based on the results of the interviews, the impact of dispute claims at Hospital X caused a delay in payment of incentives or services for doctors or other health staff related to patients with COVID-19, as seen in the results of the following interviews:

*"The incentive is delayed; the impact is more incentive..." (PJK)*

*"...For us personally it doesn't really affect us, because we get aid funds and goods grants.... So actually, the impact of the dispute is more on the incentives to retreat ..." (BP)*

*"Does not really affect cash flow, because the percentage of disputes is relatively low." (KBY)*

The impact of the disputed claims of patients with COVID-19 did not really affect hospital cash flow, even though the value of the disputed claims was quite large. This happened because Hospital X received grants and in-kind contributions. However, the impact of disputed claims has caused a delay in paying for the services of doctors, nurses, and other health staff from the promised date.

### **The Criteria for Participants in the COVID-19 Insurance Do Not Comply with the Provisions**

One of the causes of the disputed claim at X Hospital was that written indications and diagnoses did not match the technical guidelines for COVID-19 claims, and it was as many as 187 files (74.2%). It included an incomplete initial medical assessment. Meanwhile, the Decree of the Minister of Health verifier and provisions require evidence of fever, other symptoms, contact history, and travel history to make a diagnosis. If the Doctor in Charge of Services does not reflect this, then the verification process will become a disputed claim, followed by a re-confirmation procedure. Previous research showed that the highest number of disputed claims for COVID-19 in hospitals in Indonesia was because claims did not comply with the guidelines (37.03%).(8)

The initial patient assessment aims to understand the patient's condition and the treatment to be given and establish a diagnosis. The patient's initial assessment consists of the patient's identity and anamnesis results, including a history of current or past illness, physical examination, and medical support.(11) Indications for diagnosing patients suspected of COVID-19 were based on the Decree of the Minister of Health 238 and 446 of 2020. Suspected cases are if the patient has symptoms of fever, cough, runny nose, weakness, headache, muscle aches, nausea/vomiting, diarrhea, a history of fever above 38 degrees, anosmia, travel history, and contact history.(5)

Filling out the initial assessment is the responsibility of the general practitioner. In order to minimize the inaccuracy of the history and speed up the history-taking process, Hospital X has created a COVID-19 screening form that only needs to be filled in with a tick. Despite the existence of the form, the inaccuracy of diagnosis still occurs. The hope is that, before the claim file is uploaded, the internal verifier checks again whether it is following the Decree of the Minister of Health technical guidelines for COVID-19, and if it is not following the claim file, it is returned to the doctor to be completed first.

### **Incomplete claim file**

Supporting claim files is needed in processing claims verification. The terms of completing the claim file are the duty of the administrator of the isolation room. But in the results of the verification, there were still incomplete files causing a disputed claim at Hospital X. Some incomplete result forms involve the first PCR result and the results of supporting examinations that support the diagnosis, such as D-dimer. Previous research at UI Hospital showed that the disputed claim was dominated by incomplete swab and rapid test results, different return times from swab results, and incomplete comorbid support.(9)

Based on the technical guidelines for claims of patients with COVID-19, the criteria for guaranteed patients with COVID-19 are confirmed, suspected, and probable patients. Criteria for COVID-19 inpatients must undergo a reverse transcription-polymerase chain reaction (RT-PCR) examination on the first and second day of treatment, then take another swab on the seventh day.(5) Sometimes, the PCR results and laboratory support were not attached because the patient comes from another hospital or referral patient, where the results are not given to the referral-receiving hospital. To avoid this, cooperation is needed, such as the doctor in charge of the Emergency Room and isolation room administrator reminding each other if there are referral patients and efforts from Hospital X's case-

mix team to make a checklist of claim file requirements. Therefore, when the files are collected, it is complete and following the technical guidelines for the COVID-19 claim.

### **Comorbid diagnoses are not following the provisions**

Healthcare providers are required to document all services provided. These records are written in the medical record. Based on our study, another cause of the dispute claims for patients with COVID-19 at Hospital X was comorbid diagnoses that did not comply with the provisions accounting for as much as 7%. This was due to the Doctor in Charge of Services wrote the incomplete medical resumes, especially in the diagnostic examination section, as well as differences in doctors' perceptions regarding comorbid diagnoses of COVID-19.

The reason for the rejection of the claim is the supporting evidence of an incomplete diagnostic examination (9). The description of the highest dispute criteria in Indonesia based on BPJS Kesehatan data in Ambarwati's research in 2020 was a comorbid diagnosis that does not comply with the provisions as much as 5.4%.(8)

Doctors are healthcare providers who are required to diagnose and provide medical care to patients, and all of these actions are fully documented.(10) Incomplete and non-specific documentation will result in coding inaccuracies and disputed claims.

Based on the technical guidelines for the COVID-19 claim, a comorbid diagnosis is a patient who has a previous chronic illness that will aggravate the COVID-19 disease. Comorbid diagnoses include immunocompromised disease, heart disease, diabetes mellitus, asthma, hypertension, kidney disease, tuberculosis, HIV, and others.(5)

The orderly administration of claims is not enough to attach claim support files, but must be in accordance with the patient's condition and claim regulations. The medical resume must include all healthcare providers and be in accordance with the patient's condition. The completeness of the medical resume is the responsibility of the Doctor in Charge of Services but the doctor on duty can also assist in completing the medical resume. In addition, the medical record department must also ensure whether the forms in the medical record are complete or incomplete. In order for the completeness of the medical record and the success of the claim, the Doctor in Charge of Services must adhere to patient handling guidelines or SOPs.(9,11) In overcoming problems at Hospital X, it is necessary to monitor and always confirm with the doctor in charge of the patient before the claim file is submitted.

### **Identity does not comply with the provisions**

The identity used in the COVID-19 claim is an Indonesian Identity Card, Family Card, or a letter from the village administration for Indonesian citizens, and a passport for foreign citizens. The fourth highest disputed claim criteria at Hospital X was because the identity did not comply with the provisions. The national identity number showed it did not match the civil registry data, leading to disputes claims for patients with COVID-19 at Hospital X, even though the number was small. This happened due to an error in inputting the membership number, the coder made several mistakes in typing the National Identity Number, causing the identity to be incorrect or unverified in Civil Registry, or the wrong and unverified.

### **National Identity Number which caused a dispute claim.**

One of the causes of pending claims at the hospital is the inaccuracy of coders. These errors can occur because the number of files is very large, so the coder is working on coding and inputting data in a hurry.<sup>(12)</sup> One alternative to prevent this from happening at Hospital X is that the internal verifier needs to re-check the data entered by the coder.

Responding to the events and causes of dispute claims of patients with COVID-19 that occurred at Hospital X, the head of the case-mix team records the causes of the dispute and takes direct action. For example, if the patient care days are too long, the officer claims that COVID -19 has immediately cut the treatment day. Then, they should provide direction to officers related to COVID-19 claims, such as the Head of the Isolation Room, the isolation room administrator, the head of the general practitioner, and also the laboratory staff. These briefings are not routinely done. Briefings are only conducted if there is a high dispute incident. But in that briefing, the Doctor in Charge of Services was not included. The Doctor in Charge of Services should have been included.

### **The Process of Submitting a COVID-19 Claim at Hospital X**

The process of submitting a COVID-19 claim for reimbursement costs starts with the hospital submitting a claim by completing claims supporting documents, filling in patient data, and uploading files through the e-claim application until the COVID-19 claim is verified by Social Health Insurance Administration Body.<sup>(5)</sup> In the case of submitting a COVID-19 claim, Hospital X experienced five obstacles, namely the claim regulations or technical instructions which had changed several times, causing the case-mix team to

be confused and overwhelmed in following these changes.

The technical guidelines for Covid-19 have been updated several times, including the Decree of the Minister of Health 238 for 2020, the Decree of the Minister of Health 46 for 2020, the Decree of the Minister of Health 4434 for 2021, the Decree of the Minister of Health 4718 for 2021, and the latest Decree of the Minister of Health 5673 for 2021. The changes of technical guidelines for Covid-19 claims aim to facilitate the process of claims, but in fact, there are still disputed claims and hospitals are confused between the issuance of new regulation and the applicable regulation.

The integrated claim files for patients who are still comorbid, they need treatment. This situation is confusing. Such as, Patients from the isolation room are then transferred to the regular ward, the claim files must be separate.

The problem of criteria for Covid-19 patients not complying with the provisions still occurs, although it's not as much as in 2020. Whereas, the latest regulation states that confirmed patients can be proven with the positive PCR and positive antigen results. However, in the verification process, the Verifier asks for a history of fever above 38 degrees, travel and contact. Then, not all symptoms are found in this suspected patient. When the patient comes to the hospital, symptoms such as fever do not appear.

The technical guidelines for Covid-19 claims state that the Ministry of Health will make payments within 3 working days after receiving BAHV from Social Health Insurance Administration Body with a down payment of 50%. But in fact, the The hospital accepts payments for up to 4 months and the down payment given is below 50%.

There is a regulation regarding technical documents for COVID -19 claims, which aims to regulate the claim process in a trusted, transparent and smooth manner. The regulations regarding technical guidelines for COVID claims have changed five times so it made Hospital X overwhelmed to adjust them. Ideally, the existence of a new policy should be accompanied by the efforts of policymakers (Ministry of Health and the public health Officer) to socialize it. In this case, the Ministry of Health had done some socialization, although it was not been able to realize a common perception and technical understanding of claims between hospitals and the Social Health Insurance Administration Body.<sup>(8)</sup>

The second obstacle in the process of submitting a COVID-19 claim at Hospital X is the e-claim application, namely, an application error occurs



during working hours, which causes the coder's performance to be disrupted.

One of the claims management challenges lies in the technical challenges, namely software that takes a long time to read instructions in the claims process.(13) Another obstacle in the implementation of claims is the unpreparedness of the application and the system for resubmitting revisions to disputed claims, where claims that have been submitted are not readable in the e-claim system, so the hospital has to re-upload the file.(8)

For claims for patients with COVID-19 at Hospital X to still be submitted in a timely manner, the claims officer decided to work on filing claims outside of working hours or in the afternoon until late at night, because at night the e-claim application runs smoothly.

Another obstacle to the process of submitting a COVID-19 claim at Hospital X was that the process of completing medical records takes a long time, which is more than 2 x 24 hours. So, it does not match the quality indicators of medical records at Hospital X. This is because doctors have many patients. and the practice schedule is only three times a week.

Factors that affect the completeness of medical records for more than 24 hours are medical specialists who tend to have a pile up of the medical resumes. This is because they have many patients in the polyclinics and surgeries so doctors are exhausted and do not have time to fill out the resumes in a timely way.(14)

Medical records involve documents that contain a patient's medical history. The contents of the inpatient medical records at least contain the patient's identity, results of anamnesis, physical examination, supporting examinations, treatment or action, discharge summary. One of the benefits of medical records is it can be used as a basis for paying health care costs.(15)

Based on the medical record quality indicators that are guided by Minister of Finance Regulation 129 of 2008, medical record completeness should be ensured within 24 hours after completion of service and for returning inpatient medical record files within 2 x 24 hours.(16)

The SOPs regarding the completeness and return of medical records at Hospital X already exist. But medical specialists do not apply them properly. In this case it is hoped that monitoring and evaluation should be done once a month and medical specialists who complete inpatient medical records according

to the quality indicator that is 1 x 24 hours will be rewarded.

The fourth obstacle in the process of submitting a COVID-19 claim at Hospital X is the collection of claim files for patients with COVID-19, the completeness of the claim files at Hospital X done by the administrator of the isolation room, and the collection of claim files both hardcopy and softcopy. Obstacles in file collection are mostly incomplete medical resumes written by doctors. An incomplete medical resume written by a doctor will result in the return of the claim file.

Completeness of the supporting requirements for submitting a COVID-19 claim include the medical resume, treatment room description, laboratory results, radiology results, other supporting results, prescriptions for drugs or medical devices, billing, and etc.(5)

The quality of medical records is influenced by the knowledge of doctors, but good knowledge does not always ensure optimal medical record filling. This happens because doctors have a high workload, and lack of support from hospitals and lack of communication.(17) The existence of incomplete medical resumes at X Hospital requires supervision from the Head of Health Services Division and the medical committee.

The claim file submitted by the hospital is then subjected to a verification process by the Social Health Insurance Administration Body to determine whether the claim file is eligible to be paid or not. Claim verification is a procedure for testing the correctness of health care fee claims submitted by the hospital and if there is a resume that is not accompanied by an examination, then the claim will be returned to the hospital for confirmation.(12)

In verifying the claim files from Hospital X, the verifier experienced a problem, namely a medical resume that was difficult to read because Hospital X still used conventional medical records. The handwritten medical resumes make it difficult to read, resulting in errors in the claim report.(18) To reduce medical resumes where doctors' handwriting are unclear and unreadable, it is hoped that Hospital X will implement electronic medical records.

### **Impact of Hospital X's Cash Flow**

At the beginning of the COVID-19 pandemic, the hospital limited patient visits and did not have operations except during emergencies which caused the hospital's income to decrease. Financial problems were also compounded by the disputed claims of patients with COVID-19 which caused payment delays. These problems disrupted

hospital's cash flow and had other impacts, namely providing COVID-19 service infrastructure, such as negative pressure isolation rooms and medicines that require large funds. Then, the cost of health care increased, due to the rearrangement of services in hospitals, namely the separation of infectious and non-infectious patient care services, patient screening, clean, healthy, safe medical services and increased digitization of hospital services. These can delay the payments to providers of drugs and medical devices, and salaries of health workers which will result in decreased performance.(8,18,19)

Even though Hospital X experienced a decrease in the number of patient visits and had many disputed claims for patients with COVID-19, it did not really affect the cash flow at Hospital X, because Hospital X received assistance funds for healthcare for patients with COVID-19 and received substantial goods grants. Not all hospitals experienced financial problems during the COVID-19 pandemic. In some areas, there are hospitals experiencing greater revenue for treating patients with COVID-19 and getting resource assistance.(19)

## CONCLUSIONS

Hospital X faced several challenges in submitting claims for patients with COVID-19, including inaccurate patient history, differing perceptions between providers and payers, missing PCR and laboratory results for referral patients, a lack of understanding of technical guidelines for COVID-19 claims by the doctor in charge of services, and typos in national identity numbers.

The frequent changes to claim regulations also posed a significant challenge for Hospital X, which struggled to keep up with the updates. In addition, there were technical issues, such as e-claim application errors that resulted in delayed completion of claim data, incomplete medical resumes, inaccurate patient records, and unreadable resumes.

Despite these challenges, Hospital X has managed to maintain its cash flow without significant disruption from disputed claims related to COVID-19. Nonetheless, the hospital needs to address these issues and ensure that patients receive the care they need while managing costs effectively. Improving the accuracy of patient history, and ensuring adherence to technical guidelines are all critical steps that Hospital X can take to streamline the claims submission process and deliver high-quality care to patients with COVID-19.

## RECOMMENDATIONS

To minimize dispute claims and expedite payment of claims at X Hospital, it is crucial to establish regular monitoring and evaluation processes in collaboration with the case-mix team, medical specialists, general practitioners, heads of rooms, and the finance department. One effective step towards this goal is to implement an electronic medical record system to eliminate errors resulting from illegible handwriting. Additionally, incentives and penalties for doctors who submit their medical resumes on time or late can encourage timely submission.

Furthermore, X Hospital and the Social Health Insurance Administration Body must work together to coordinate COVID-19 claims and facilitate quick payments. It is also recommended that the Ministry of Health closely monitors disputed claims that arise in hospitals to ensure prompt and accurate resolution. By implementing these measures, X Hospital can minimize the occurrence of claim disputes and expedite payment, resulting in improved patient care and financial stability.

## ACKNOWLEDGEMENTS

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## REFERENCES

1. Kemenkes RI. Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/104/2020 Tentang Penetapan Infeksi Novel Coronavirus (Infeksi 2019-Ncov) Sebagai Penyakit Yang Dapat Menimbulkan Wabah Dan Upaya Penanggulangannya. 2020.
2. Kementerian Kesehatan. Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/Menkes/275/2020 tentang Penetapan Rumah Sakit Rujukan Penanggulangan Penyakit Infeksi Emerging Tertentu. 2020.
3. OECD. Initial assessment of insurance coverage and gaps for tackling COVID-19 impacts. 2020 Apr;15. Available from: <https://www.oecd.org/finance/Initial-assessment-of-insurance-coverage-and-gaps-for-tackling-COVID-19-impacts.pdf>

4. Kemenkes RI. Peraturan Menteri Kesehatan Republik Indonesia Nomor 59 Tahun 2016 Tentang Pembebasan Biaya Pasien Penyakit Infeksi Emerging Tertentu. 2016. p. 11.
5. Kementerian Kesehatan. Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.01.07/Menkes/446/2020 tentang Petunjuk Teknis Klaim Penggantian Pelayanan Pasien Penyakit Infeksi Emerging Tertentu Bagi Rumah Sakit Yang Menyelenggarakan Pelayanan Corona Virus Disease 2019. 2020.
6. BPJS Kesehatan. BPJS Kesehatan Dorong RS Ajukan Berkas Klaim Covid secara Lengkap [Internet]. 2021. p. 1–7. Available from: <https://bpjs-kesehatan.go.id/bpjs/post/read/2021/2070/BPJ-S-Kesehatan-Dorong-RS-Ajukan-Berkas-Klaim-Covid-secara-Lengkap>
7. Gubernur Daerah Istimewa Yogyakarta. Keputusan Gubernur Daaerah Istimewa Yogyakarta Nomor 61/Kep/2020 tentang Penetapan Rumah Sakitt Rujukan Penanggulangan Penyakit Infeksi Emerging Tertentu. 2020.
8. Ambarwati W. Pembiayaan Pasien COVID-19 dan Dampak Keuangan terhadap Rumah Sakit yang Melayani Pasien COVID-19 di Indonesia Analisis Periode Maret 2020 – Desember 2020. *Ekonomi Kesehatan Indonesia* [Internet]. 2021;6(1):23–37. Available from: <https://journal.fkm.ui.ac.id/jurnal-eki/article/view/4881/1181>
9. Hidayat R, Hidayat B. Dispute Analysis of Claims for Covid-19 Patients at Hospitals of Indonesia University. In: *The 7th International Conference on Public Health*. Solo; 2020. p. 40–9.
10. Tang K, Lucyk K, Quan H. Coder perspectives on physician-related barriers to producing high-quality administrative data: a qualitative study. *CMAJ Open*. 2017;5(3):617–22.
11. Said M, Windyaningsih C, Andarusito N, Saidi K. Analysis of Medical Record Completeness Factors on The Realization of Claims of COVID 19 Inpatients in Rsud Dr Chasbullah Abdulmadjid Kota Bekasi. 2020;2(2):3–7.
12. Kusumawati AN, Pujiyanto. Faktor-Faktor Penyebab Pending Klaim Rawat Inap di RSUD Koja tahun 2018. 2020;47(1):25–8.
13. Sodzi-Tetty S, Aikins M, Awoonor-Williams JK, Agyepong IA. Challenges In Provider Payment Under The Ghana National Health Insurance Scheme : A Case Study Of Claims Management In Two Districts. *Ghana Med J*. 2012;46(4):189–99.
14. EP AA. Faktor-Faktor Penyebab Klaim Tertunda BPJS Kesehatan RSUD Dr . Kanujoso Djatiwibowo, Periode Januari - Maret 2016. *Jurnal ARSI* [Internet]. 2018;4(2):122–34. Available from: <http://journal.fkm.ui.ac.id/arsi/article/view/2564>
15. Menteri Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Nomor Tentang Rekam Medis. 2008 p. 7.
16. Kementerian Kesehatan Republik Indonesia. Menteri Kesehatan Republik Indonesia Nomor 129/Menkes/SK/II/2008 Tentang Standar Pelayanan Minimal Rumah Sakit. Jakarta; 2008.
17. Ismawati NDS, Supriyanto S, Haksama S, Hadi C. The influence of knowledge and perceptions of doctors on the quality of medical records. *J Public Health Res*. 2021;10(2):332–5.
18. Akweongo P, Chatio ST, Owusu R, Salari P, Tedisio F, Aikins M. How does it affect service delivery under the National Health Insurance Scheme in Ghana? Health providers and insurance managers perspective on submission and reimbursement of claims. *PLoS One* [Internet]. 2021;16(3 March):1–15. Available from: <http://dx.doi.org/10.1371/journal.pone.0247397>
19. Khullar D, Bond MA, Schpero LW. COVID-19 and the Financial Health of US Hospitals. *American Medical Association* [Internet]. 2020;323:2127–8. Available from: <https://jamanetwork.com/> on 03/14/2022

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## POLICY CONSIDERATIONS FOR THE UTILIZATION AND RATIONALIZATION OF PPE IN MATERNAL CARE DURING COVID-19 PANDEMIC – LITERATURE REVIEW

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**Abstract.** Policies regarding utilizing and rationalizing Personal Protective Equipment (PPE) during the COVID-19 pandemic challenge every healthcare service provider. Within the maternal health sector, it is suspected that the negative perception of patients and the lack of implementation and compliance with infection prevention and control policies disrupt the quality of care provided. This research is a narrative review highlighting all proper considerations for using and rationalizing PPE within the maternal health sector. Articles are gathered and filtered from well-known scientific publishing sites, and ten articles became the main discussion of this research. The utilization of PPE impacts all levels of maternal health service, from prenatal care to postnatal and neonatal care. Standardized PPE utilization and rationalization are needed to maintain the quality of care and reduce any negative impacts that PPE use might bring. Policies regarding the use of PPE must be well thought out to ensure that it will benefit its user without the risks of its side effects.

**Keywords:** Personal Protective Equipment; Utilization and Rationalization; Infection Prevention and Control; COVID-19; Policy Considerations.

**Abstrak.** Kebijakan tentang penggunaan dan rasionalisasi Alat Pelindung Diri (APD) selama pandemi COVID-19 menjadi tantangan bagi setiap penyedia layanan kesehatan. Dalam bidang kesehatan ibu, persepsi negatif pasien, kurangnya implementasi, dan kepatuhan terhadap kebijakan pencegahan dan pengendalian infeksi diduga mengganggu kualitas pelayanan yang diberikan. Penelitian ini merupakan tinjauan naratif yang menyoroti semua pertimbangan untuk menggunakan dan merasionalisasi APD dalam sektor kesehatan ibu. Artikel dikumpulkan dan disaring dari situs-situs penerbitan ilmiah ternama, dan sepuluh artikel menjadi bahasan utama penelitian ini. Penggunaan APD berdampak pada semua tingkat layanan kesehatan ibu, mulai dari perawatan prenatal hingga perawatan postnatal dan neonatal. Penggunaan dan rasionalisasi APD standar diperlukan untuk menjaga kualitas perawatan dan mengurangi dampak negatif yang mungkin ditimbulkan oleh penggunaan APD. Kebijakan mengenai penggunaan APD harus dipikirkan dengan matang agar dapat memberikan manfaat bagi penggunaannya tanpa risiko efek samping.

**Kata Kunci:** Alat pelindung diri; Pemanfaatan dan Rasionalisasi; Pencegahan dan Pengendalian Infeksi; COVID 19; Pertimbangan Kebijakan

### INTRODUCTION

Personal Protective Equipment (PPE) is an integral part of maintaining the safety and performance of healthcare workers during the COVID-19 pandemic. However, as it is known, the increased demand and fluctuation of the price of PPE changes every time a surge of COVID-19 cases hits. It is estimated that

during a surge of cases, the Cost per Unit (CPU) price of PPE in the United States can reach 2.5x and up to 13.7x its pre-pandemic price.<sup>(1)</sup> This price fluctuation impacts the supply of PPE to healthcare facilities, thus reducing its protective efforts toward healthcare workers. A study in Italy,<sup>(2)</sup> finds that among 516 doctors, 13% of them have not had proper PPE since the pandemic.



Even though there is an increased risk of around 2.6x for healthcare workers to contract COVID-19 compared to the general population, the protective measures in place are not without its side effects.(3) The PPE can produce such side effects Include rash, headaches, fatigue and respiratory problems.(4) Psychological side effects may also present themselves with the use of PPE, such as depression, anxiety, and sleep disturbances.(5) All of the symptoms above can directly impact the quality of the healthcare services provided and ultimately increase the risk of patient safety incidents.

The COVID-19 pandemic impacts various sections within the healthcare community, one of them is the maternal health sector. The COVID-19 pandemic impacts various sections of the healthcare community, including the maternal health sector. A study in India stated a significant decrease in medically-assisted births of around 2.26% in healthcare facilities, 22.91% in antenatal care, and immunization for pregnancy of around 20% across the country.(6) Suspectedly, the causes of low maternal health coverage are the perception of COVID-19 and the rising fear of contraction among the population. Generally, a pandemic can cause increased risks of maternal morbidity and mortality, such as preeclampsia, preterm births, and maternal mortality are among them. Because of those risks, maternal healthcare facilities need to strengthen their efforts for Infection Prevention and Control (IPC) efforts to lower these risks and change the public perception altogether.

The COVID-19 pandemic also impacts postnatal care, where a study that involves 61 countries stated that there is a significant decrease in early initiation of breastfeeding of around 26% due to maternal COVID-19 cases. There are also efforts to shorten the length of stay for postpartum patients of around 60% of the cases in order to lower the risk of transmission and a 27% decrease in postpartum outpatient visits due to the existing fear of contraction among the population. These factors contribute to lower the quality of postpartum care that could have clinical implications for maternal patients.(8)

Policies regarding the rationalization of PPE are needed to maintain the quality of healthcare delivery and ensure the safety of both patients and healthcare professionals. But often the rationalization process does not go according to the existing standards, such as inappropriate reuse of PPE. The existing guideline for PPE rationalization was published by the World Health Organization in 2020. Unfortunately, the implementation of said guideline has been suboptimal. Rationalization efforts such as security guards equipped with PPE level 3, laboratory technicians equipped only with PPE level

2 are evident, mainly on low- and middle-income settings.(9)

This paper aims to find all possible considerations regarding the utilization and rationalization of PPE, mainly as policy considerations. Proper risk-based assessments and considerations regarding the side effects of PPE use must be well thought in order to maintain the quality of healthcare delivery and to ensure both patient and medical professional's safety.

## METHODS

The paper's steps are first to identify the research question, find the proper method to acquire relevant sources, select, chart, and conclude and report all findings.

This research aims to find all relevant sources to identify all risks of COVID-19 transmissions to utilize and rationalize PPE properly. Relevant studies are explored in scientific sites such as PubMed, Nature, Sage Journals, and Science Direct. Keywords used to explore sites are Personal Protective Equipment; Infection Prevention and Control (IPC); COVID-19; Maternal Care.

The relevant studies searched are practice guidelines, guidelines, meta-analyses, systematic reviews, and original research.

Standards used as a comparison and source material are the utilization of PPE by the Indonesian Association of Obstetrics and Gynecology (POGI) and the COVID-19 pandemic-era maternal health delivery and services by WHO.

**Table 1.** Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Articles published in English and Bahasa	Articles in other languages
Articles published in the year of 2020-2022	Articles published < 2020
Articles published by an accredited journal	Articles with no author listed / correspondence
Full text articles	Partial articles

## RESULTS AND DISCUSSION

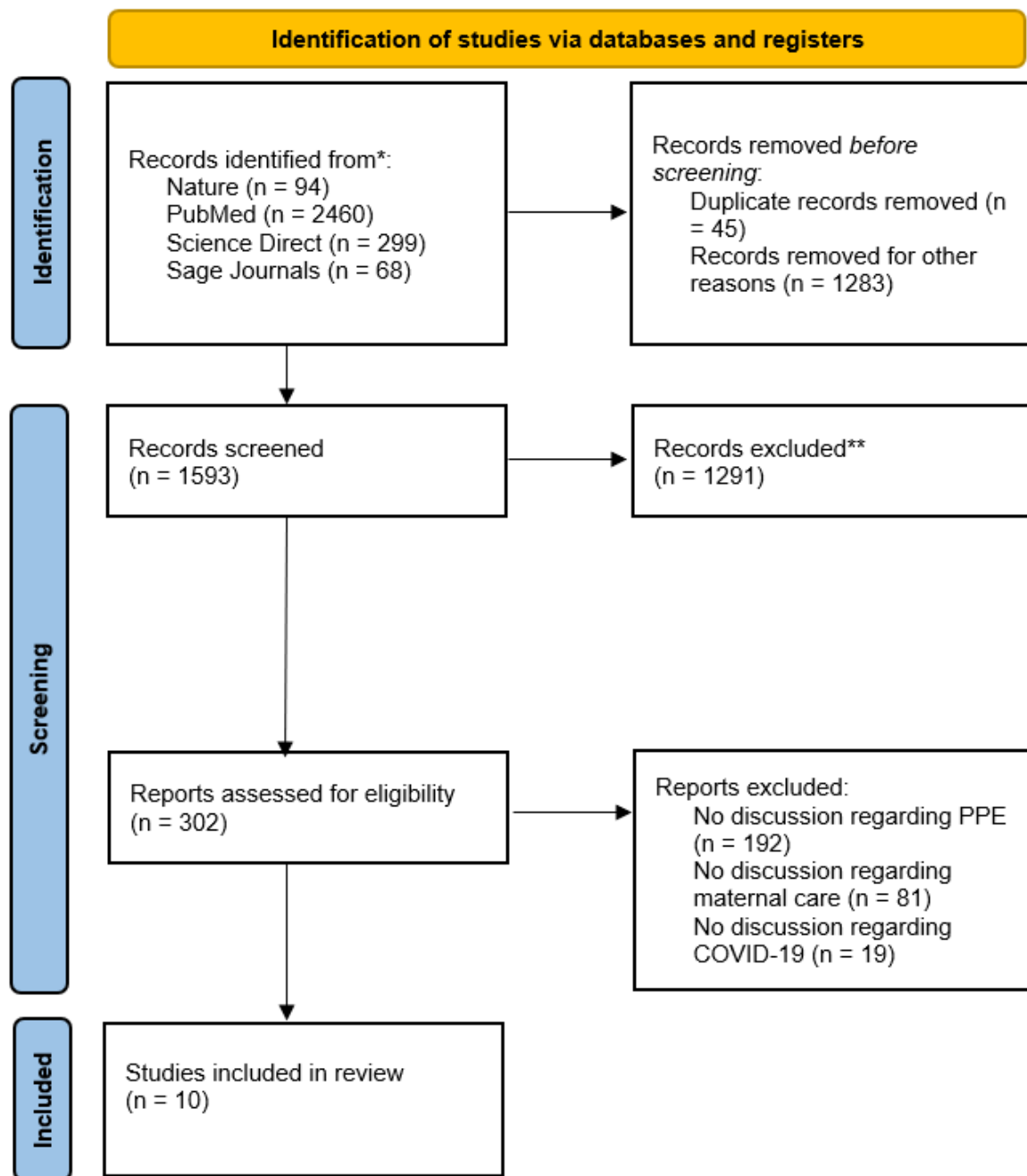


Figure 1. PRISMA Flow-char

**Table 2.** Articles Filtered by PRISMA

No	Author	Title	Country	Research	Conclusion
1.	Kotlar B, Gerson E, Petrillo S, Langer A, Tiemeier H	<i>The Impact of the COVID-19 Pandemic on Maternal and Perinatal Health: A Scoping Review</i>		<i>Scoping Review</i>	Eventhough women and prengnant women are not at a higher risk of COVID-19 transmission, those who contract COVID-19 are at a higher risk of maternal morbidity and mortality.
2.	Aranda Z, Binde T, Tashman K, et al	<i>Disruptions in maternal health service use during the COVID-19 pandemic in 2020: Experiences from 37 health facilities in low-income and middle-income countries</i>	Haiti, Lesotho, Liberia, Malawi, Mexico and Sierra Leone	<i>Original Research</i>	There are evidence that suggests a decrease in antenatal care and medically asissted births in healthcare facility.
3.	Goyal M, Singh P, Singh K, Shekhar S, Agrawal N, Misra S	<i>The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center</i>	India	<i>Original Research</i>	There is a decrease of 45.1% in medically assissted births in healthcare facilities and an increased risk of maternal morbidity and mortality.
4.	Hazfiarini A, Akter S, Homer CSE, Zahroh RI, Bohren MA	<i>'We are going into battle without appropriate armour': A qualitative study of Indonesian midwives' experiences in providing maternity care during the COVID-19 pandemic</i>	Indonesia	<i>Original Research</i>	Evidence suggets that proper PPE protection is suboptimal and there is an increase load of work during the COVID-19 pandemic.
5.	Altman MR, Gavin AR, Eagen-Torkko MK, Kantrowitz-Gordon I, Khosa RM, Mohammed SA	<i>Where the System Failed: The COVID-19 Pandemic's Impact on Pregnancy and Birth Care</i>	USA	<i>Qualitative Study</i>	Policies regarding COVID-19 in maternal care often shifts and changes repeatedly and is inconsistent.
6.	Lazzerini M, Covi B, Mariani I, et al	<i>Quality of facility-based maternal and newborn care around the time of childbirth during the COVID-19 pandemic: online survey investigating</i>	12 Countries in Western Europe	<i>Orginial Research</i>	There is an abundace of new barriers regarding the delivery of maternal health service that rendered maternal patients unwilling to go to healthcare facilities.

		<i>maternal perspectives in 12 countries of the WHO European Region</i>			
7.	Musiimenta A, Tumuhimbise W, Atukunda EC, et al.	<i>Challenges in accessing maternal and child health services during COVID-19 and the potential role of social networking technologies</i>	Uganda	<i>Original Research</i>	Transportation barriers, fear of COVID-19 infection contributes to the suboptimal delivery of maternal health during COVID-19 pandemic.
8.	Haidari E, Main EK, Cui X, et al	<i>Maternal and neonatal health care worker well-being and patient safety climate amid the COVID-19 pandemic</i>	USA	<i>Qualitative Study</i>	The welfare of medical professionals are not optimal during the COVID-19, thus increasing the risk of patient safety incidents.
9.	Mimouni F, Lakshminrusimha S, Pearlman SA, Raju T, Gallagher PG, Mendlovic J	<i>Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal–neonatal specialists</i>	-	<i>Literature Review</i>	There are a lot more that hasn't been researched regarding the risk of transmission of COVID-19 from mothers to newborns.
10.	Lin C, Chu SM, Hsu JF, et al	<i>Delivery management of suspected or confirmed COVID-19 positive mothers.</i>	China	<i>Review Article</i>	Proper coordination between medical professionals are needed to ensure the quality of care of newborns during the COVID-19 pandemic.

### The Impact of COVID-19 Pandemic on Maternal Health Services

During the COVID-19 pandemic, there has been a significant decline in the number of prenatal visits worldwide.(10) Apart from that, other problems arose, such as mental health issues among pregnant women, a surge of domestic abuse cases, and the rising risk of unemployment among women as the pandemic continues. In his studies, Kotlar et al. also found variabilities within the maternal health sector regarding its COVID-19 policies. Studies found a significant decline in antenatal services in healthcare facilities during the pandemic. Moreover, economic barriers add to the decreasing coverage of maternal health services.(11)

A study in India found that during the COVID-19 pandemic, the declining number of antenatal cares in about 1/3 of maternal patients resulted in complicated pregnancies. The number estimates that

about 44.7% of these complicated pregnancy cases were found in patients that did not go through the first steps of antenatal care.(12)

UNFPA, WHO dan UNICEF(13), stated that the global economic crisis due to the COVID-19 pandemic provided new challenges for healthcare service providers, urging them to allocate more resources for the care of COVID-19 patients. This restructuring and reorganization rendered the maternal care services with fewer resources than before the pandemic. These two processes created a new barrier that aids in lowering the accessibility of maternal health care.

### The Scope of Maternal Health

In Indonesia, the regulation that governs maternal care is the Minister of Health's Regulation no 97,



2014 (14) regarding health services before pregnancy, during pregnancy, birthing services, after pregnancy, contraception and sexual health. At the same time, maternal health can be defined as prenatal, antenatal, birthing services, and postnatal care. The guideline regarding Continuing essential Sexual, Reproductive, Maternal, Neonatal, Child, and Adolescent Health services during COVID-19 pandemic (13) by WHO defined the segments of maternal care during COVID-19 pandemic:

- a. Antenatal care
- b. Birth services
- c. Postnatal care
- d. Neonatal and lactation care
- e. Pediatric and nutrition care
- f. Adolescent care
- g. Reproductive care Include: gender considerations, planned parenthood, comprehensive abortion care, gender-based domestic abuse and HIV care.

### **Policy Considerations for the Utilization of PPE in Maternal Care During The COVID-19 Pandemic.**

#### **Antenatal Care**

The Indonesian Association of Obstetrics and Gynecology (POGI) (15) recommends that for ambulatory maternal care, healthcare workers should at least wear a head cap, face shield, surgical mask, gown, gloves, and shoe covers for general precautions.

Though the guidelines provided standards for everyday practice, their implementation yielded different results. A study in East Java (16) showed midwives in different healthcare facility settings faced difficulties regarding the health system's preparedness and logistical support throughout their practice. One of them is the continuous and necessary supply of PPE. Policies that restrict the use of PPE and improper training on the use of PPE render medical staff unsafe in their practices.(17) This event also happened in the more developed countries such as Luxembourg and Sweden, where patients reported that healthcare workers seemed to not use PPE properly.(18) It is suspected that these problems become contributing factors that hindered the accessibility of maternal health services. Fear of contracting COVID-19 due to the factors above is

suspected to help contribute to the overall decline of maternal health services worldwide.(19)

Burnouts also occur to healthcare workers due to the burden of service created during the COVID-19 pandemic that leads to reduced performance and professionalism in healthcare facilities.(20) The lack of access to proper PPE and improper use is one of the contributing factors to those burnouts. These burnouts impact the overall service quality and patient safety in healthcare facilities.

#### **Birth Services**

POGI (15) recommends that in assisting births, all healthcare workers should at least wear a headcap, N95 mask, face shield, goggles, gown / apron, gloves and boots. Healthcare facilities should also make sure that COVID-19 screening should always be done to maternal patients in order to adjust risk-based use of PPE. Risk and the occurrence of contamination should also be a consideration.(15)

#### **Postnatal Care**

A few treatments, such as neonatal care, can often be separated from comprehensive postnatal care. Some of them pose an aerosol-generating risk, such as Continuous Positive Airway Pressure (C-PAP) and airway intubation. Thus, in postnatal care, PPE is recommended to properly use to ensure the safety of both patients and healthcare workers.(21) An interdisciplinary approach with effective communication is also needed to ensure the risk of transmission during birth. Action plans, such as how many team members will be in the room and the potential use of aerosol-generating treatments are to be appropriately discussed before the whole process starts.(21) An interdisciplinary approach with effective communication is also needed to ensure the risk of transmission during birth. Action plans such as how many team members are going to be present in the room and potential use of aerosol generating treatments are to be discussed properly before the whole process starts.(22)

### **Policy Considerations for the Rationalization of PPE in Maternal Care During The COVID-19 Pandemic.**

The recommendation for PPE rationalization can be found in WHO's Rational Use Of Personal Protective Equipment For Coronavirus Disease 2019 (COVID-19) And Considerations During Severe Shortages (23) Guideline. Rationalization efforts are used in conditions such as PPE supply difficulties or shortages. POGI (15) also recommends rationalization as a critical case scenario for PPE shortages. Other strategies used to

reduce PPE during shortages include physical partitions such as a glass wall and/or acrylic wall in consultation rooms, triage areas, screening areas and pharmacy/drug dispensing areas. Partitions such as the above can help reduce contact and droplets during services. Healthcare facilities can also temporarily postpone elective and other non-emergency medical procedures to reduce the use of PPE. The limitation of medical staff members in COVID-19 service area and/or the forming of COVID-19 taskforce in the facility can also help reduce the utilization of PPE. Family members must also be limited if not prohibited in the inpatient ward, to reduce the risk of transmission. Healthcare service providers can also utilize telemedicine to lessen the risk of contact and to ensure healthcare services are given as best as it can.

Healthcare facilities must use COVID-19 risk-based assessments as a base for policies regarding PPE, to ensure PPE use are targeted for units with high risks of transmission. These assessments must be supported administratively in order for its implementation to take place.

During the pandemic, make sure the logistics cycle for PPE is at an optimal level. Apply forecasting methods, centralize the PPE dispensing and distribution, and monitor the stock level to ensure optimal end-to-end distribution. Logistical monitoring and evaluation are critical, especially during severe shortages.

In scenarios where rationalization efforts are still unable to be adequately implemented and PPE supply is still in shortage, some alternative efforts can be carried out. However, as a reminder, these efforts are only implemented in such severe cases of shortage. Efforts include prolonging PPE use, reusing PPE after disinfection, and substituting PPE with other objects with the same function (e.g., goggles with swim goggles). WHO emphasized that these efforts are temporary and can only be implemented if other rationalization efforts have failed.

The role PPE in healthcare facilities is highly central during the COVID-19 pandemic. It serves as a means to protect healthcare workers against COVID-19 and ensure cross-transmissions between patients at minimal risk. However, as it is known, the supply of PPE during the COVID-19 pandemic has become a challenge for healthcare facilities, be it because of price fluctuations or logistical issues within the facility.(1,10) Not only that, improper use of PPE also pose a side effect for its user. Side effects both physical and psychological might endanger patient's safety measures.(4,20)

The COVID-19 pandemic disrupts maternal healthcare efforts globally.(10) From antenatal care, birth services, and postnatal care were all disrupted. These disruptions created a decline in the number of maternal services given, which leads to the risk of complications in the later stage of maternal care.(11,12) These declines are probably contributed by factors such as a wrong public perception regarding the quality and safety of healthcare provided in healthcare facilities.(19)

Therefore, the considerations for policymakers regarding the utilization and rationalization must be well thought in order help gain the public trust regarding the safety of the delivery of maternal healthcare services. PPE must be utilized appropriately (3,13) both according to standards and through proper risk based assessments. Improper use of PPE might increase the public fear regarding the safety of healthcare services, especially for pregnant patients.(18) As with overutilization of PPE might risk the development of side effects in healthcare workers that would endanger patient safety measures.(4,20) Rationalization efforts must also be done through proper standards. Through proper indicator for crisis and/or severe shortages, healthcare facilities must be able to prioritize and ensure the distribution of PPE are implemented according to risk-based assessments. Proper PPE rationalization would ensure the safety of both patients and healthcare workers during the COVID-19 pandemic.

## CONCLUSION

Policies regarding the utilization and rationalization of PPE in maternal health services must be considered thoroughly. Not only because improper use of PPE would endanger both patients and healthcare workers, but also create a perception that the healthcare service provided in the facility is unsafe. The public's fear of contracting COVID-19 in healthcare services is one of the factors that are suspected in the decline of maternal health services globally. Proper utilization of PPE both according to standards and risk-based practices can increase the quality of services given and ensure the safety of all parties involved.

## RECOMMENDATIONS

Healthcare facilities must be able to identify the role of PPE in their everyday service. Not only because it serves as means to protect both patients and healthcare workers against the COVID-19 transmission, but also because it plays a part in the public's perception regarding the safety of the services provided. Proper utilization and

rationalization of PPE would hopefully gain back the public's trust, especially maternal patients, at the safety of the delivery of care in healthcare facilities. Both of these efforts would hopefully increase the quality of service given and ensure the safety of all within the healthcare facility.

## REFERENCES

1. Selimos A, Buchanan M, DiBiase L, et al. Using a Quality-Driven Approach to Maintain an N-95 Respirator Supply During a Pandemic-Driven Global Shortage. *Antimicrob Steward Healthc Epidemiol*. 2021;1(S1):s48-s49. doi:10.1017/ash.2021.92
2. Savoia E, Argentini G, Gori D, Neri E, Piltch-Loeb R, Fantini MP. Factors associated with access and use of PPE during COVID-19: A cross-sectional study of Italian physicians. *PLoS One*. 2020;15(10 October 2020):1-12. doi:10.1371/journal.pone.0239024
3. Quigley AL, Stone H, Yen P, Ahmad A. Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information. 2020;(January).
4. Galanis P, Vraika I, Fragkou D, Bilali A, Kaitelidou D. Impact of personal protective equipment use on health care workers' physical health during the COVID-19 pandemic: A systematic review and meta-analysis. *Am J Infect Control*. 2021;49(10):1305-1315. doi:10.1016/j.ajic.2021.04.084
5. Shaukat N, Mansoor A, Razzak J. Physical and mental health impacts of COVID-19 on healthcare workers: A scoping review. *Int J Emerg Med*. 2020;13(1):1-8. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7370263/pdf/12245\\_2020\\_Article\\_299.pdf](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7370263/pdf/12245_2020_Article_299.pdf)
6. Singh AK, Jain PK, Singh NP, et al. Impact of COVID-19 pandemic on maternal and child health services in Uttar Pradesh, India. *J Family Med Prim Care*. 2021;10(1):509-513. doi:10.4103/jfmpc.jfmpc\_1550\_20
7. Villar J, Ariff S, Gunier RB, et al. Maternal and Neonatal Morbidity and Mortality among Pregnant Women with and without COVID-19 Infection: The INTERCOVID Multinational Cohort Study. *JAMA Pediatr*. 2021;175(8):817-826. doi:10.1001/jamapediatrics.2021.1050
8. Semaan A, Dey T, Kikula A, et al. "Separated during the first hours"—Postnatal care for women and newborns during the COVID-19 pandemic: A mixed-methods cross-sectional study from a global online survey of maternal and newborn healthcare providers. *PLOS Glob Public Heal*. 2022;2(4):e0000214. doi:10.1371/journal.pgph.0000214
9. Olaru ID, Ferrand RA, Magwenzi MT, Robertson V, Musenyereki V, Kranzer K. Risk assessment for rationalizing the use of personal protective equipment for SARS-CoV2 in healthcare settings with special focus on low- and middle-income settings. *Clin Microbiol Infect*. 2021;27(2):169-171. doi:10.1016/j.cmi.2020.10.015
10. Kotlar B, Gerson E, Petrillo S, Langer A, Tiemeier H. The Impact of the COVID-19 Pandemic on Maternal and Perinatal Health: A Scoping Review. Vol 18. *BioMed Central*; 2021. doi:10.1186/s12978-021-01070-6
11. Aranda Z, Binde T, Tashman K, et al. Disruptions in maternal health service use during the COVID-19 pandemic in 2020: Experiences from 37 health facilities in low-income and middle-income countries. *BMJ Glob Heal*. 2022;7(1):1-10. doi:10.1136/bmjgh-2021-007247
12. Goyal M, Singh P, Singh K, Shekhar S, Agrawal N, Misra S. The effect of the COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center. *Int J Gynecol Obstet*. 2021;152(2):231-235. doi:10.1002/ijgo.13457
13. WHO/SEARO, UNFPA, UNICEF. Continuing essential sexual, reproductive, maternal, neonatal, child and adolescent health services during COVID-19 pandemic: Practical Considerations. *Oper Guid South South-East Asia Pacific Reg*. Published online 2020:33. <https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus->
14. Peraturan Menteri Kesehatan Republik Indonesia Nomor 97 tahun 2014 Pelayanan Kesehatan Masa Sebelum Hamil, Masa Hamil, Persalinan, Dan Masa Sesudah Melahirkan, Penyelenggaraan Pelayanan Kontrasepsi, Serta Pelayanan Kesehatan Seksual. Jakarta.

15. Aziz MA et al. Rekomendasi Penanganan Infeksi Virus Corona (Covid-19) Pada Maternal (Hamil, Bersalin Dan Nifas) Revisi 2. Pokja Infeksi Saluran Reproduksi Perkumpulan Obstet dan Ginekolog Indones. Published online 2020:3-15. <https://pogi.or.id/publish/rekomendasi-penanganan-infeksi-virus-corona-covid-19-pada-maternal/>
16. Hazfiarini A, Akter S, Homer CSE, Zahroh RI, Bohren MA. 'We are going into battle without appropriate armour': A qualitative study of Indonesian midwives' experiences in providing maternity care during the COVID-19 pandemic. *Women and Birth*. 2022;35(5):466-474. doi:10.1016/j.wombi.2021.10.003
17. Altman MR, Gavin AR, Eagen-Torkko MK, Kantrowitz-Gordon I, Khosa RM, Mohammed SA. Where the System Failed: The COVID-19 Pandemic's Impact on Pregnancy and Birth Care. *Glob Qual Nurs Res*. 2021;8. doi:10.1177/23333936211006397
18. Lazzerini M, Covi B, Mariani I, et al. Quality of facility-based maternal and newborn care around the time of childbirth during the COVID-19 pandemic: online survey investigating maternal perspectives in 12 countries of the WHO European Region. doi:10.1016/j
19. Musiimenta A, Tumuhimbise W, Atukunda EC, et al. Challenges in accessing maternal and child health services during COVID-19 and the potential role of social networking technologies. *Digit Heal*. 2022;8. doi:10.1177/20552076221086769
20. Haidari E, Main EK, Cui X, et al. Maternal and neonatal health care worker well-being and patient safety climate amid the COVID-19 pandemic. *J Perinatol*. 2021;41(5):961-969. doi:10.1038/s41372-021-01014-9
21. Mimouni F, Lakshminrusimha S, Pearlman SA, Raju T, Gallagher PG, Mendlovic J. Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal-neonatal specialists. *J Perinatol*. 2020;40(5):820-826. doi:10.1038/s41372-020-0665-6
22. Lin C, Chu SM, Hsu JF, et al. Delivery management of suspected or confirmed COVID-19 positive mothers. *Pediatr Neonatol*. 2021;62(5):476-482. doi:10.1016/j.pedneo.2021.06.004
23. World Health Organization (WHO). Rational use of personal protective equipment for COVID-19 and considerations during severe shortages: interim guidance, 23 December 2020. *World Heal Organ*. 2020;(December):2. [https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-\(covid-19\)-and-considerations-during-severe-shortages](https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages)



## POTRAIT OF PUBLIC PRIVATE PARTNERSHIP POLICY SUBSTANCES IN REGIONAL HOSPITALS IN INDONESIA

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**Abstract.** Public Private Partnership (PPP) is a strategy of the Indonesian Government to deal with budget constraints and overcome gaps in infrastructure, access, and quality of health services. PPP on the operational cooperation (KSO) model is the oldest and most widely applied practice by regional hospitals in Indonesia. The implementation of KSO must refer to government policies in the form of laws and regulations. Since its initial implementation until today, the Ministry of Home Affairs, as the body that oversees the local government, has not carried out a comprehensive evaluation of the KSO policy. This study was carried out by conducting document analysis related to the operational cooperation policies of regional hospitals and reviewing the substance of operational cooperation policies at the national and regional levels. Study found that there are no articles governing service level agreements; no performance indicators of cooperation in monitoring and evaluation, limited autonomy; several regional head regulations are not accompanied by technical guidelines; and there are variations in the substance of the regional head regulations. This study concludes that the KSO policy framework for regional hospitals is inadequate, incomplete, and limits the autonomy of regional hospitals.

**Keywords:** Policy, Operational Cooperation, KSO, Regional Hospital, Regional Public Service Agency, BLUD

**Abstrak.** Public Private Partnerships (PPP) merupakan strategi efektif pemerintah dalam menghadapi keterbatasan anggaran, mengatasi permasalahan kesenjangan infrastruktur, akses dan kualitas pelayanan. PPP model kerja sama operasional (KSO) adalah praktik yang telah lama dan banyak dilakukan oleh Rumah Sakit Daerah (RSD) di Indonesia. Pelaksanaan KSO harus mengacu pada kebijakan pemerintah berupa peraturan perundang-undangan. Sejak awal penerapannya hingga saat ini, Kementerian Dalam Negeri sebagai lembaga yang membawahi pemerintah daerah belum melakukan evaluasi menyeluruh terhadap kebijakan KSO. Kajian ini dilakukan dengan melakukan analisis dokumen terkait kebijakan kerjasama operasional RS daerah dan mengkaji substansi kebijakan kerjasama operasional di tingkat nasional dan daerah. Studi menemukan bahwa tidak ada pasal yang mengatur perjanjian tingkat layanan; tidak ada indikator kinerja kerjasama monitoring dan evaluasi, otonomi terbatas; beberapa peraturan kepala daerah tidak disertai juknis; dan terdapat variasi substansi peraturan kepala daerah. Studi ini menyimpulkan bahwa kerangka kebijakan KSO untuk rumah sakit daerah tidak memadai, tidak lengkap, dan membatasi otonomi rumah sakit daerah.

**Kata Kunci:** Kebijakan, Kerjasama Operasional, KSO, RSUD, Badan Layanan Umum Daerah, BLUD

### INTRODUCTION

As the only health facility with significant capital, abundant human resources, and broad knowledge, hospitals have an important position in the healthcare system in many countries.(1,2) From the 80s to date, the health care financing at hospitals has spent the largest proportion of the allocation of health expenditures.(3,4) In OECD member countries, this expenditure ranges from 26% to 53% of health expenditures or between 1.5% and 5.7% of national gross domestic product.(5) High health costs arise as a result of the increasing trend of life expectancy as well as chronic degenerative diseases

and cancer.(6) Meanwhile, the limited government budget demands efficiency in health services.(7)

Public Private Partnership (PPP) is known as the government's effective strategy in dealing with budget constraints and overcoming gaps in infrastructure, access, and service quality.(8) In the last few decades, the popularity of PPP has increased in line with government actions that have opened up opportunities for the private sector to be able to contribute to the provision of public goods.(9,10) A number of researchers agree that PPP is a form of collaboration, which is defined as a collaborative effort with clear accountability, mutually agreed

obligations, and a readiness to share risks within a well-structured management to produce or provide public commodities, with defined performance results, within a certain timeframe by the interests of public sector and private one.(11)

As is the case in many countries, budget constraints have prompted the Indonesian Government to choose PPP to overcome the problems of infrastructure, access, and service quality gaps.(12) PPP as a funding strategy in the health sector will continue to be developed by Indonesian Government as written in the National Medium-Term Development Plan (RPJMN).(13) PPP in the health sector has four models, namely infrastructure, service delivery, financial protection, and other model.(11,14) Service delivery is a commonly used PPP model which aims to expand access to service as well as to upgrade the quality and efficiency of services.(15,16) Service delivery in the Indonesian context is known as Operational Cooperation (KSO), KSO itself is a PPP practice that has been around for a long time and is mostly done in government hospitals (12), especially Regional General Hospital (RSUD) which is the largest proportion of Government-owned hospitals, with a percentage of 76%.(17)

The practice of KSO in Regional Hospitals (RSD) is normally found in hemodialysis and diagnostic services such as laboratories and radiology with their sophisticated technological equipment which is developing so rapidly. In laboratories, KSO practice is common, not only to develop services but also to meet service standards, such as the KSO in the provision of laboratory equipment for examination of hematology, blood chemistry, electrolytes, and HbA1c. In radiology services, the rapid development of MRI (Magnetic Resonance Imaging) and CT (Computed Tomography) scan technology is also known to be one of the driving factors for KSO. KSO has also developed advanced eye diagnostic tools and cardiac catheters and angiography (cath lab) and has even expanded to non-medical services such as nutrition, laundry, sanitation, and parking.

Policy is known to be one of the challenges of the mechanism of PPP in health services, especially hospitals.(18,19) Policies in the form of laws and regulations have a relationship with the management of public resources and services.(20) They have a direct impact on the effectiveness of a collaboration, especially those related to public issues, such as health.(21) In the health sector, policies and laws have an important effect(22–25), where changes in policy, whether in the form of regulations or guidelines, influence service management.(26) Policy is known to be a key factor in successful collaboration between organizations.(27–29)

As an institution belonging to the Regional Government, RSD is obliged to refer to laws and regulations in implementing KSO. The KSO model is one of the flexibility of the status of the Regional Public Service Agency (BLUD) which began to be implemented in 2007. Practically since the issuance of the regulation, the government has not conducted a review of the substance of the KSO policy on RSD. Given the great influence of policy on the success of PPP, this study aims to review the substance of the KSO RSD policy.

## DESIGN AND METHODS

This study was carried out by conducting document analysis related to the KSO policy of Regional Hospitals in Indonesia. Policy documents search was done online using Google search engine with the keyword “Kerja sama operasional Rumah Sakit Daerah” (Operational Cooperation in Regional Hospital) published between 2007-2021 which are available for access and download in full text. The criteria used in this study are documents sourced from the official websites of the Central Government ([peraturan.bpk.go.id](http://peraturan.bpk.go.id); [jdih.go.id](http://jdih.go.id)) and Regional Governments ([jdih.go.id](http://jdih.go.id)) and published after 2007. This year was used as a criterion because it was in that year that the first Minister of Home Affairs Regulation was issued regarding the Regional Public Service Agency (BLUD). All documents that meet the criteria are then analyzed using the Nvivo software. Review was done by mapping the substance of KSO found in Regional Head Regulations (Governor, Regent, and Mayor). Research ethics approval was obtained from the National Health Research and Development Ethics Commission (KEPPKN) of the Ministry of Health with number No.: LB.02.01/2/KE. 717/2021

## RESULTS AND DISCUSSION

Since 2001, through Law No. 22/1999, Indonesia has decentralized several affairs to local governments, including health matters. This regional autonomy aims to improve services to the community. Each of these governments has a hospital, hereinafter referred to as Regional Hospital (RSD) re required to implement the institutional form of Regional Public Service Agency (BLUD).(30,31) BLUD introduces the concept of enterprising the government through principal – agency which is based on output. This institutional form, which has been implemented since 2007, provides more flexibility and autonomy to RSD with the aim of achieving efficiency and effectiveness in providing services to the community. This BLUD institution then gives authority to RSD in implementing KSO.(32)

KSO as a form of public private partnership (PPP) is regulated in Indonesian laws and regulations as asset management. At the national and regional levels, laws and regulations provide opportunities for Government Hospitals to implement PPP. At the national level, the government opens opportunities for PPP which can be seen in the policies of the financial sector (33), and health sector (12) domestic sector.(32,34) For hospitals owned by local governments, it refers to the regulations issued by the Ministry of Home Affairs. KSO is regulated in several articles in the Regulation of the Minister of Home Affairs regarding Regional Public Service Agency which then instructs the issuance of Regional Head Regulations as a derivative regulation that further regulates the implementation of KSO. This regulation explicitly states that those being able to carry out KSO are RSDs in the form of BLUD (32,34) and the RSDs with BLUD aiming to implement KSO must refer to the Regional Head Regulation.

The availability of regional head regulation is crucial since it becomes the legal protection for the implementation of KSO. This study succeeds in reviewing three national-level and twenty-nine regional-level regulations in the form of regional head regulations, be it governor, mayor, or regent regulations. From the results of this study, it is found that several RSDs have not been covered by regional head regulations and numerous regional head regulations have not been updated with the latest Regulation of the Minister of Home Affairs of the Republic of Indonesia issued in 2018. In addition, some regional head regulations are not accompanied by more technical guidelines and there are variations in the substance of regional head regulations. The substances regulated in regional head regulations generally consist of objectives, mechanisms, authorities, cooperation agreements, and evaluation of KSO.

**Table 1.** Substance Map of Regional Head Regulations

No	Province / City / Regency	Year	Regulatory Substance							
			objectives	initiation	Feasibility Study	team	authorities	mechanisms	cooperation agreements	evaluation
1	Provinsi Banten(35)	2017	√	√	√	√	√	√		√
2	Provinsi Kalimantan Tengah(36)	2017	√		√	√		√	√	√
3	Provinsi Bali(37)	2020	√	√			√		√	
4	Provinsi Aceh(38)	2018	√		√	√		√	√	√
5	Provinsi Jawa Barat(39)	2015		√		√		√	√	
6	Provinsi Kalimantan Selatan(40)	2015	√		√	√		√	√	√
7	Provinsi Nusa Tenggara Barat(41)	2015	√			√			√	√
8	Provinsi Sumatera Selatan(42)	2014	√							

No	Province / City / Regency	Year	Regulatory Substance							
			objectives	initiation	Feasibility Study	team	authorities	mechanisms	cooperation agreements	evaluation
9	Kota Madya Samarinda	2018	√		√	√	√		√	
10	Kota Madya Surabaya	2015				√	√			
11	Kota Madya Surakarta	2013					√			
12	Kota Madya Bogor	2014				√	√			
13	Kabupaten Bandung Barat(43)	2017	√		√	√			√	√
14	Kabupaten Hulu Sungai Utara(44)	2016	√		√	√	√		√	√
15	Kabupaten Lombok Utara(45)	2019	√							√
16	Kabupaten Tabalong(46)	2018	√		√	√			√	√
17	Kabupaten Bangka(47)	2019			√	√			√	
18	Kabupaten Rembang(48)	2020				√		√		
19	Kabupaten Karanganyar(49)	2017		√	√	√	√		√	√
20	Kabupaten Katingan(50)	2018	√		√				√	√
21	Kabupaten Semarang(51)	2013	√	√					√	
22	Kabupaten Lampung Utara(52)	2020	√	√	√	√		√	√	√
23	Kabupaten Gayo Lues(53)	2020					√			
24	Kabupaten Tuban(54)	2012	√		√	√			√	√
25	Kabupaten Barito Selatan(55)	2018		√	√	√				√



No	Province / City / Regency	Year	Regulatory Substance							
			objectives	initiation	Feasibility Study	team	authorities	mechanisms	cooperation agreements	evaluation
26	Kabupaten Gunung Kidul(56)	2012		√		√			√	
26	Kabupaten Ketapang(57)	2013	√		√	√			√	√
27	Kabupaten Klaten(58)	2015					√			
28	Kabupaten Pasuruan(59)	2012		√						
29	Kabupaten Serang(60)	2012			√	√			√	√

The objective is the first substance regulated in all regional head regulations. The results of the review of 29 regional head regulations discover that KSO in RSD aims to improve the quality and quantity of services(43,50,52–55,58,60); improve public services(38,44); increase the revenue of RSD; acquire assets and utilize the assets of RSD. KSO can be implemented if there is a need for RSD for tools, services, and/or facilities to improve its services to the community but it does not have sufficient funds, human resources, and/or other resources to provide this need. In line with the above-mentioned policy, the results of another study find that the implementation of KSO in a number of RSDs is based on limited human resources.(61–64) The breadth and variety of resources and conditions of health services are the reasons for collaboration in order to produce improvements.(65) The need to fix up or improve services, coupled with limited resources, encourages organizations to do collaborations such as KSO.(66)

Although KSO can be implemented for other reasons, limited resources are the main reason for RSD to implement KSO. KSO practices can be initiated by RSD or other institutions, and regulations in Indonesia make this possible.(49,56) However, a study on the feasibility of cooperation is still required.(43,47,49,50,54) The feasibility study is essential in justifying two things: to answer the feasibility of developing services and to use the KSO mechanism. The feasibility study will provide data and analysis that leads to a conclusion about whether it is feasible for RSD to develop these services and whether procurement with KSO is the most appropriate. The results of the feasibility study then

justify the existence of problems that establish cooperation as a solution. A feasibility study is the first step in the collaborative process being implemented. The importance of the cooperation feasibility study is not in line with the results of this study which does not find any technical guidelines issued by the regional head regarding the conduct of the feasibility study. This condition is most likely due to the absence of guidance from regulations at the top level, namely the Regulation of the Minister of Home Affairs(32,34) this is in contrast to the regulation issued by the Ministry of Finance, which regulates in detail the components that must be included in a cooperation feasibility study.(33) Ideally a policy issued is followed by implementing regulations that serve as a guide.

The results of the feasibility study that state the feasibility of cooperation are followed by the mechanism for selecting KSO partners. This stage focuses on the process of identifying which partners will be involved. Meanwhile, the findings of this study show that the mechanism for selecting partners vary from one regional head regulation to another. The selection of partners begins with the formation of a selection committee of prospective partners, where some regional head regulations strictly regulate the composition of this committee and the status of its workforce(47,49,52), while other regulations leave it entirely to the director of RSD. Likewise, in the selection process, some regulations emphasize the existence of a tender/bidding process in the selection of potential partners (36,38,40,44,48,52), while other regulations do not regulate it. Those regulations vary because the regulations at the top level do leave the

regional heads to regulate the procedures for cooperation without giving any guidelines.(32)

The preparation of a cooperation agreement (PKS) is the next step in formulating an agreement on the division of roles and responsibilities, goals, objectives and evaluation criteria. One of the causes of the conflict is the dispute over PKS. Until today, there is no specific statutory provision (Lex Specialist) that regulates the Operational Cooperation (KSO) Agreement between government agencies and private companies, regarding the requirements, procedures, and minimum content that must be contained in the Operational Cooperation Agreement so that there is no uniformity in the format of the Operational Cooperation Agreement among RSDs. In addition, the boundaries of the cooperation agreement are still unclear, so the applicable legal norms are mainly based on mutual agreement between the parties.(67) It is also found that the service level agreement is not included in the clause. One of the problems found in the implementation of PPP is the agreement that does not state detailed measurable results, which are incredibly important to obtain good governance and accountability.(24,68)

A number of factors contribute to the success or failure of PPP in meeting the expected performance, including ineffective evaluation.(8) The regulations require RSD to carry out periodic monitoring and evaluation of the implementation of KSO to be reported to the Regional Head(43,50,54,55)(44,49,60)(45,46,57). However, these regulations do not regulate the monitoring and evaluation strategies, mechanisms, and parameters. Another study finds that there are obstacles in the implementation of KSO in the reporting, monitoring, and evaluation processes.(64,69) Weak monitoring and evaluation systems are indicated by the absence of KSO implementation schedule and program.(69) Monitoring and evaluation need to include components of collaborative performance displayed in the indicators based on time, cost, and quality as well as in the key performance indicators.(8)

Another substance that is also regulated in the regional head regulations is the limitation on the authority of the director of RSD in implementing KSO. The regional head regulations give several authorities to the director of RSD in implementing KSO, including: (1) to establish a selection committee of KSO partner; (2) to establish Standard Operating Procedures (SOP) for partner determination; (3) to select partners with an investment value of 1 billion rupiah; (4) to set the rate; and (5) to sign the agreement. A number of regional heads limit the authority of the director of RSD through the limited value of the assets being

collaborated and/or the presence of capital participation. This policy shows that regional heads maintain their power by limiting autonomy in terms of financial management. Limited flexibility in financial management does not support smooth procurement of goods and services since it still follows an extremely bureaucratic pattern of local government financial management.(70,71) Decentralization of decisions at the hospital level is difficult to succeed as the stakeholders at higher levels try to maintain their power through human resources and finance.(72) Autonomy in the actions of RSD must indeed be balanced with public accountability. For this reason, adequate regulation is needed.(73)

## CONCLUSION

PPP as a funding mechanism is a strategy for Indonesian Government in meeting the needs for high-quality health services. PPP in the form of Operational Cooperation Practice is one of the flexibilities of regional hospitals (RSD) with BLUD status. This study concludes that the KSO policy framework for regional hospitals is inadequate, incomplete, and limits the autonomy of regional hospitals. Indonesian government, both central and regional, has issued policies that provided opportunities for the implementation of KSO. However, these opportunities cannot be utilized optimally as the policy framework is incomplete, inadequate, and limits the autonomy of RSD.

## RECOMMENDATIONS

Known to be a key factor in successful collaboration between organizations, policy related to KSO in RSD needs to be evaluated nationally by the Minister of Home Affairs. It has been almost fifteen years since this practice was implemented without any evidence-based and comprehensive evaluation. The results of this evaluation are then used to review and update current regulations considering that this practice has been implemented. In order to strengthen the regional head regulations, it must include complementing with derivative regulations as technical guidelines, updating the articles related to service level agreements and cooperation performance (in monitoring and evaluation), and providing sufficient authority to the director of RSD to implement the KSO. On the other hand, local governments (according to their functions) need to strengthen their oversight and evaluation functions in the implementation of KSOs.

## REFERENCES

1. Eeckloo K, Delesie L, Vleugels A. Where is the pilot? The changing shapes of governance in the European hospital sector. *J R Soc Promot Health* 2007;127(2):78–86.
2. Eeckloo K, Van Herck G, Van Hulle C, Vleugels A. From Corporate Governance to Hospital Governance. Authority, transparency and accountability of Belgian non-profit hospitals' board and management. *Health Policy (New York)* 2004;68(1):1–15.
3. Collins D, Njeru G, Meme J, Newbrander W. Hospital autonomy: The experience of Kenyatta National Hospital. *Int J Health Plann Manage* 1999;14(2):129–53.
4. Chawla M, Govindaraj R, Berman P, Needleman J. Improving Hospital Performance through Policies to Increase Hospital Autonomy : Implementation Guidelines. 1996.
5. OECD. Health at a Glance 2017 (Internet). OECD; 2017. Available from: <http://www.oecd.org/health/health-systems/health-at-a-glance-19991312.htm>
6. Bravi F, Gibertoni D, Marcon A, Sicotte C, Minvielle E, Rucci P, et al. Hospital network performance: A survey of hospital stakeholders' perspectives. *Health Policy (New York)* 2013;109(2):150–7.
7. Kaiser L, Bartz S, Neugebauer EAM, Pietsch B, Pieper D. Interprofessional collaboration and patient-reported outcomes in inpatient care: Protocol for a systematic review. *Syst Rev* 2018;7(1):1–6.
8. Liu HJ, Love PED, Smith J, Sing MCP, Matthews J. Evaluation of public-private partnerships: A life-cycle Performance Prism for ensuring value for money. *Environ Plan C Polit Sp* 2018;36(6):1133–53.
9. van den Hurk M, Hueskes M. Beyond the financial logic: Realizing valuable outcomes in public-private partnerships in Flanders and Ontario. *Environ Plan C Polit Sp* 2017;35(5):784–808.
10. Roehrich JK, Lewis MA, George G. Are public-private partnerships a healthy option? A systematic literature review. *Soc Sci Med (Internet)* 2014;113:110–9. Available from: <http://dx.doi.org/10.1016/j.socscimed.2014.03.037>
11. Raman AV, Björkman JW. Public – Private Partnerships in Healthcare. In: Kuhlmann E, Blank RH, Bourgeault IL, Wendt C, editors. *The Palgrave International Handbook of Healthcare Policy and Governance*. London: Palgrave Macmillan; 2015. page 376–92.
12. Kementerian Kesehatan. Peraturan Menteri Kesehatan Nomor 40 Tahun 2018 Tentang Pedoman Pelaksanaan Kerjasama Pemerintah Dengan Badan Usaha Dalam Penyediaan Infrastruktur Kesehatan. Indonesia: 2018.
13. Kementrian PPN/ Bappenas. Rencana Pembangunan Jangka Menengah Nasional 2015-2019. 2019.
14. Nikolic IA, Maikisch H. Public-private partnerships and collaboration in the health sector: An overview with case studies from recent European experience. Washington: 2006.
15. Khan NN, Puthussery S. Stakeholder perspectives on public-private partnership in health service delivery in Sindh province of Pakistan: a qualitative study. *Public Health (Internet)* 2019;170:1–9. Available from: <https://doi.org/10.1016/j.puhe.2019.02.004>
16. Thadani KB. Public Private Partnership in the Health Sector: Boon or Bane. *Procedia - Soc Behav Sci (Internet)* 2014;157:307–16. Available from: <http://dx.doi.org/10.1016/j.sbspro.2014.11.033>
17. Kementerian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia Tahun 2020. 2021.
18. Nuhu S, Mpambije CJ, Ngussa K. Challenges in health service delivery under public-private partnership in Tanzania: Stakeholders' views from Dar es Salaam region. *BMC Health Serv Res* 2020;20(1):1–13.
19. Khetrpal S, Acharya A, Mills A. Assessment of the public-private-partnerships model of a national health insurance scheme in India. *Soc Sci Med* 2019;243(October).
20. Emerson K, Nabatci T. Collaborative Governance Regimes. Washington: Georgetown University Press; 2015.
21. Bryson JM, Crosby BC. Failing into Cross-Sector Collaboration Successfully. In: Bingham LB, O'Leary R, editors. *Big Ideas in Collaborative Public Management*. London: Routledge; 2015. page 55–78.

22. Kosycarz EA, Nowakowska BA, Mikołajczyk MM. Evaluating opportunities for successful public-private partnership in the healthcare sector in Poland. *J Public Heal* 2019;27(1):1–9.
23. Torchia M, Calabrò A, Morner M. Public-Private Partnerships in the Health Care Sector: A systematic review of the literature. *Public Manag Rev* (Internet) 2015;17(2):236–61. Available from: <http://dx.doi.org/10.1080/14719037.2013.792380>
24. Basabih M, Prasajo E, Rahayu AYS. Hospital services under public-private partnerships, outcomes and, challenges: A literature review. *J Public health Res* 2022;11(3).
25. Gordon D, McKay S, Marchildon G, Sacha Bhatia R, Shaw J. Collaborative governance for integrated care: Insights from a policy stakeholder dialogue. *Int J Integr Care* 2020;20(1):1–11.
26. Olson CA, Balmer JT, Mejicano GC. Factors Contributing to Successful Interorganizational Collaboration: The Case of CS2day. *J Contin Educ Health Prof* 2011;31(3):S3–12.
27. Kozuch B, Sienkiewicz-małyjurek K. Key factors of inter-organisational collaboration in the public sector and their strength. *Int J Contemp Manag* 2016;15(3):123–44.
28. Mattessich PW, Monsey BR. Collaboration: What Makes It Work. A Review of Research Literature on Factors Influencing Successful Collaboration. St. Paul, Minnesota: Amherst H. Wilder Foundation All; 1992.
29. Seddoh JE. Stakeholder Perception on Factors Influencing NGO Collaboration With Government In Family Health Education in The Tema Metropolis of The Greater Accra Region of Ghana. *Glob J Polit Sci Adm* 2017;5(2):50–63.
30. Undang-Undang Nomor 44 Tahun 2009 Tentang Rumah Sakit. Indonesia: 2009.
31. Peraturan Pemerintah Nomor 72 Tahun 2019 Tentang Perubahan Atas Peraturan Pemerintah Nomor 18 Tahun 2016 Tentang Perangkat Daerah. Indonesia: 2019.
32. Kementerian Dalam Negeri. Peraturan Menteri Dalam Negeri Nomor 79 Tahun 2018 Tentang Badan Layanan Umum Daerah. 2018.
33. Kementerian Keuangan. Peraturan Menteri Keuangan Nomor 129 Tahun 2020 Tentang Pedoman Pengelolaan Badan Layanan Umum. 2020.
34. Kementerian Dalam Negeri. Peraturan Menteri Dalam Negeri Nomor 61 Tahun 2007 Tentang Pedoman Teknis Pengelolaan Keuangan Badan Layanan Umum Daerah. Indonesia: 2007.
35. Pemerintah Daerah Provinsi Banten. Peraturan Gubernur Banten Nomor 24 Tahun 2017 tentang Pedoman Kerja Sama Pada Badan Layanan umum Daerah Rumah Sakit Umum Daerah Banten. 2017.
36. Pemerintah Provinsi Kalimantan Tengah. Peraturan Gubernur Kalimantan Tengah nomor 12 tahun 2017 Tentang Pedoman Pelaksanaan Kerja Sama Operasional Pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah dr. Doris Sylvanus. 2017.
37. Pemerintah Daerah Provinsi Bali. Peraturan Gubernur Bali nomor 17 Tahun 2020 Tentang Tata Cara Kerja Sama Badan Layanan Umum Daerah Unit Pelaksana Teknis Daerah Rumah Sakit Di Lingkungan Dinas Kesehatan Provinsi Bali (Internet). 2020. Available from: <http://www.akrabjuara.com/index.php/akrabjuara/article/view/919>
38. Pemerintah Daerah Provinsi Aceh. Peraturan Gubernur Aceh Nomor 84 Tahun 2018 Tentang Pedoman Pelaksanaan Kerja Sama pada Badan Layanan Umum Daerah Rumah Sakit Pemerintah Aceh Dengan Pihak Lain. 2018.
39. Pemerintah Provinsi Jawa Barat. Peraturan Gubernur Jawa Barat Nomor 83 Tahun 2015 tentang Pedoman Pelaksanaan Kerja Sama Pada Perangkat Daerah Provinsi Jawa Barat Yang Menerapkan Pola Pengelolaan Keuangan Badan Layanan umum Daerah. 2015.
40. Pemerintah Provinsi Kalimantan Selatan. Peraturan Gubernur Kalimantan Selatan Nomor 032 Tahun 2015 Tentang Pedoman Pelaksanaan Kerja Sama Operasional Pada Rumah Sakit Pemerintah Provinsi Kalimantan Selatan Yang Menerapkan Pola Pengelolaan Keuangan Badan Layanan Umum Daerah. 2015.
41. Pemerintah Provinsi Nusa Tenggara Barat. Peraturan Gubernur Nusa Tenggara Barat nomor 23 tahun 2015 tentang Pedoman Pelaksanaan Kerja Sama Badan Layanan



- Umum Daerah Rumah Sakit Umum Daerah Provinsi Nusa Tenggara Barat Dengan Pihak Lain. 2015.
42. Pemerintah Provinsi Sumatera Selatan. Peraturan Gubernur Sumatera Selatan nomor 32 Tahun 2014 tentang Pedoman Kerja Sama Rumah Sakit Ernaldi Bahar Dengan Pihak Lain. 2014.
  43. Pemerintah Daerah Kabupaten Bandung Barat. Peraturan Bupati Bandung Barat Nomor 55 tahun 2017 Tentang Tata Cara Kerjasama Pada Unit Kerja Dinas Kesehatan yang Menerapkan Pola Pengelolaan Keuangan Badan Layanan Umum Daerah. 2017.
  44. Pemerintah Daerah Kabupaten Hulu Sungai Utara. Peraturan Bupati Hulu Sungai Utara Nomor 8 Tahun 2016 Tentang Pedoman Pelaksanaan Kerja Sama Operasional Pada Rumah Sakit Umum Daerah Pambalah Batung yang Menerapkan Pola Pengelolaan Keuangan Badan Layanan Umum Daerah. 2016.
  45. Pemerintah Daerah Kabupaten Lombok Utara. Peraturan Bupati Lombok Utara Nomor 27 Tahun 2019 Tentang Tata Cara Pelaksanaan Pinjaman dan Kerja Sama Pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah Kaputen Lombok Utara. 2019.
  46. Pemerintah Daerah Kabupaten Tabalong. Peraturan Bupati Tabalong Nomor 38 Tahun 2018 tentang Pedoman Pelaksanaan kerja Sama pada Badan Layanan umum Daerah Rumah Sakit Umum Daerah H Badaruddin Kasim. 2018.
  47. Pemerintah Daerah Kabupaten Bangka. Peraturan Bupati Bangka Nomor 102 tahun 2019 Tentang Tata Cara Pelaksanaan Kerja Sama badan Layanan Umum Daerah Rumah Sakit Umum Daerah Depati Bahrin Kabupaten Bangka. 2019.
  48. Pemerintah Daerah Kabupaten Rembang. Peraturan Bupati Rembang Nomor 11 tahun 2020 tentang Tata Cara Kerja Sama Operasional Pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah dr. R. Soetrasno Kabupaten Rembang. 2020.
  49. Pemerintah Daerah Kabupaten Karanganyar. Peraturan Bupati Karanganyar Nomor 37 Tahun 2017 tentang Kerja Sama Daerah pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah Kabupaten Karanganyar. 2017.
  50. Pemerintah Daerah kabupaten Katingan. Peraturan Bupati Katingan Nomor 2 tahun 2018 Tentang Pedoman Pelaksanaan Kerja Sama pada Badan Layanan umum Daerah Rumah Sakit Umum Daerah Mas Amsyar Kasongan. 2018.
  51. Pemerintah Daerah Kabupaten Semarang. Peraturan Bupati Semarang Nomor 65 tahun 2013 tentang Pedoman Pelaksanaan Kerja Sama Pada Bdan Layanan Umum Daerah Rumah Sakit Umum Daerah Kabupaten Semarang. 2013.
  52. Pemerintah Daerah Kabupaten Lampung Utara. Peraturan Bupati Lampung Utara Nomor 42 Tahun 2020 tentang Tata Cara Kerja Sama badan Layanan Umum Daerah (BLUD) Pada Rumah Sakit Daerah Mayjen HM Ryacudu Kabupaten Lampung Utara. 2020.
  53. Pemerintah Daerah Kabupaten Gayo Lues. Peraturan Bupati Gayo Lues Nomor 1 Tahun 2020 Tentang Pedoman Kerja Sama Pada Badan Layanan Umum Daerah Rumah Sakit Umum Muhammad Ali Kasim Kabupaten Gayo Lues. 2020.
  54. Pemerintah Daerah Kabupaten Tuban. Peraturan Bupati Tuban Nomor 13 Tahun 2012 Tentang Pedoman Pelaksanaan Kerja Sama Pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah Dr. R Koesma Kabupaten Tuban. 2012.
  55. Pemerintah Daerah Kabupaten Barito Selatan. Peraturan Bupati Barito Selatan Nomor 26 tahun 2018 Tentang Tata cara Kerja Sama Badan Layanan Umum Daerah Rumah Sakit Daerah Jaraga Sasameh. 2018.
  56. Pemerintah Daerah Kabupaten Gunungkidul. Peraturan Bupati Gunungkidul Nomor 7 tahun 2012 Tantang Pedoman Kerjasama Pada Layanan umum Daerah Rumah Sakit Umum Daerah Wonosari Kabupaten Gunungkidul. 2012.
  57. Pemerintah Daerah Kabupaten Ketapang. Peraturan Bupati Ketapang Nomor 7 Tahun 2013 Tentang Pedoman Pelaksanaan Kerja Sama Pada Badan Layanan Umum Daerah Kabupaten Ketapang. 2013.
  58. Pemerintah Daerah Kabupaten Klaten. Peraturan Bupati Klaten Nomor 22 Tahun 2015 tentang Kerja sama Badan layanan Umum Daerah “Bagas Waras” Kabupaten Klaten. 2015.

59. Pemerintah Daerah Kabupaten Pasuruan. Peraturan Bupati Pasuruan Nomor 10 tahun 2012 Tentang Kewenangan Badan Layanan umum Daerah Rumah Sakit Umum Daerah Kabupaten Pasuruan Untuk Melakukan Kerja Sama dengan Pihak Lain. 2012.
60. Pemerintah Daerah Kabupaten Serang. Peraturan Bupati Serang nomor 48 tahun 2012 tentang Pedoman Pelaksanaan Kerja Sama Pada Badan Layanan Umum Daerah Rumah Sakit Umum Daerah Kabupaten Serang. 2012.
61. Sudirahayu I, Harjoko A. Analisis Kesiapan Penerapan Rekam Medis Elektronik Menggunakan DOQ-IT di RSUD Dr. H. Abdul Moeloek Lampung. *J Inf Syst Public Heal (Internet)* 2016;1(2):35–43. Available from: <https://journal.ugm.ac.id/jisph/article/view/6536>
62. Sulfiani andi ni'mah. Kerjasama Pemerintah dan Swasta Dalam Pengelolaan Parkir di RSUD Sawerigading Kota Palopo. *J I La Galigo | J Adm Publik* 2020;3(1):48–56.
63. Prabowo B. Model Mitra Government Dan Private Partnership Dalam Meningkatkan Service Quality Pada Rumah Sakit di Jawa Timur. *Develop* 2018;2(2):44–55.
64. Saragih JM, Yuliani F. Strategi RSUD Arifin Achmad Provinsi Riau dalam Melaksanakan Program Penyehatan Lingkungan Guna Meningkatkan Kebersihan dan Keindahan Lingkungan Rumah Sakit. *JOM FISIP* 2016;3(1).
65. Emerson K, Nabatchi T. Collaborative Governance Regimes. Georgetown University Press; 2015.
66. Emerson K, Nabatchi T, Balogh S. An integrative framework for collaborative governance. *J Public Adm Res Theory* 2012;22(1):1–29.
67. Marpaung RPP, Simamora YS. Perjanjian Kerjasama Operasional Rumah Sakit Umum Daerah (RSUD) dalam Pengelolaan Alat Kesehatan. 2011;
68. Karpagam S, Roy B, Seethappa VK, Qadeer I. Evidence-based Planning—A Myth or Reality: Use of Evidence by the Planning Commission on Public–Private Partnership (PPP). *Soc Change* 2013;43(2):213–26.
69. Herawati DMD, Nurparida IS, Arisanti N. Analisis Kebijakan Outsourcing Penyelenggaraan Makan Pasien di Rumah Sakit Umum Daerah Sumedang. *MKB, Maj Kedokt Bandung* 2014;46(2):234–40.
70. Rondonuwu J, Trisnantoro L. Manajemen Perubahan Di Lembaga Pemerintah: Studi Kasus Implementasi Kebijakan Pelaksanaan Ppk-Blud Di Rumah Sakit Jiwa Provinsi Ntb. *J Kebijak Kesehat Indones* 2013;02(04):163–70.
71. Iskandar I, Mutiarin D. Implementasi Kebijakan Badan Layanan Umum Daerah: Studi Kasus RSUD dr. Soemarno Sosroatmodjo Tanjung Selor Kabupaten Bulungan. *J Gov Public Policy* 2014;1(1).
72. Mehdi Jafari, Rashidian A, Abolhasani F, Mohammad K, Yazdani S, Parkerton P, et al. Space or no space for managing public hospitals; a qualitative study of hospital autonomy in Iran. *Int J Health Plann Manage* 2011;26(July 2010):110–3.
73. Abdullah MT, Shaw J. A review of the experience of hospital autonomy in Pakistan. *Int J Health Plann Manage* 2007;22(September 2006):110–3.

## DETERMINANT OF LOYALTY OF EXECUTIVE CLASS PATIENTS AT AMBULATORY SERVICES AT SILOAM HOSPITALS TB SIMATUPANG DURING COVID-19 PANDEMICS

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**Abstract.** Business competition in the health industry is getting tighter, especially since the COVID-19 pandemic has significantly decreased patient visits. This study aims to determine the determinants of executive patient loyalty at the Siloam Hospitals TB Simatupang outpatient installation during the COVID-19 pandemic era. This research is quantitative research with an observational research design. The study population consisted of 520 patients with a sample of 84 patients with research instruments using a questionnaire. The results of the study stated that most respondents were loyal to services at the executive clinic, with an NPS of 50%. Customer satisfaction, service quality, perceived value, trust, hospital brand image, and commitment significantly and positively affect executive patient loyalty. Specifically, the commitment variable has a direct influence on loyalty. Customer satisfaction, service quality, trust, hospital brand image, and OCB indirectly affect loyalty. Commitment (0.865) is the most influential variable on patient loyalty. Furthermore, the variables customer satisfaction (0.541), trust (0.484), service quality (0.425), OCB (0.249), hospital brand image (0.107) respectively also have a degree of influence on patient loyalty.

**Keywords:** *patient loyalty, executive patient, loyalty, COVID-19*

**Abstrak.** Persaingan bisnis di industri kesehatan semakin ketat, apalagi pandemi COVID-19 telah menurunkan kunjungan pasien secara signifikan. Penelitian ini bertujuan untuk mengetahui determinan loyalitas pasien eksekutif di instalasi rawat jalan Siloam Hospitals TB Simatupang di era pandemi COVID-19. Penelitian ini merupakan penelitian kuantitatif dengan desain penelitian observasional. Populasi penelitian terdiri dari 520 pasien dengan sampel 84 pasien dengan instrumen penelitian menggunakan kuesioner. Hasil penelitian menyatakan bahwa sebagian besar responden loyal terhadap pelayanan di klinik eksekutif, dengan NPS sebesar 50%. Kepuasan pelanggan, kualitas layanan, nilai yang dirasakan, kepercayaan, citra merek rumah sakit, dan komitmen secara signifikan dan positif mempengaruhi loyalitas pasien eksekutif. Secara khusus, variabel komitmen memiliki pengaruh langsung terhadap loyalitas. Kepuasan pelanggan, kualitas layanan, kepercayaan, citra merek rumah sakit, dan OCB secara tidak langsung mempengaruhi loyalitas. Komitmen (0,865) merupakan variabel yang paling berpengaruh terhadap loyalitas pasien. Selanjutnya variabel kepuasan pelanggan (0,541), kepercayaan (0,484), kualitas pelayanan (0,425), OCB (0,249), citra nama rumah sakit (0,107) masing-masing juga memiliki pengaruh terhadap loyalitas pasien.

**Kata Kunci:** *loyalitas pasien, pasien eksekutif, loyalitas, COVID-19.*

### INTRODUCTION

Business competition in the health industry is getting more challenging, especially between hospitals. This can be seen from the growth in the number of hospitals in Indonesia which has been increasing from year to year, where DKI Jakarta

Province is ranked fourth in terms of private hospital growth in Regional 1 after East Java, West Java and Central Java.(1) People are reluctant to go to the hospital for treatment during the COVID-19 pandemic and of course this affects the income costs to meet the operational needs of the hospital,

especially with the increasingly tight competition in the hospital world today.

Siloam Hospitals TB Simatupang is one of the Siloam Hospitals Group hospitals in the elite area of South Jakarta that does not cooperate with BPJS Kesehatan. At the beginning of 2020, this hospital decided to have the newest superior service in the outpatient unit, namely the executive clinic.

Patient loyalty is the key to healthcare providers' business success and provides the best health impact for patients.(2) Many dimensions affect patient loyalty in the hospital. The results of an integrated review conducted by Zhou et al. (2017) from various sources (PubMed, CINAHL, OVID, ProQuest and Elsevier Science Direct) regarding the determinants of patient loyalty in healthcare providers, found that there were eight determinants of patient loyalty, namely: satisfaction, quality, value, brand image, trust, commitment, OCB (Organizational Citizenship Behavior), and customer complaints. Loyal patients are more likely to return to the same health service, spread positive word-of-mouth and recommend it to others.(2) On the other hand, patients who are disloyal will very easily switch to other health services and spread negative news to others.(3)

However, since the COVID-19 (Coronavirus Disease 2019) pandemic, there has been a significant decrease in the number of outpatient visits at Siloam Hospitals TB Simatupang. In addition, the researchers also conducted a brief telephone survey of outpatients at Siloam Hospitals TB Simatupang in

June 2020. Based on information from the patients, they did not feel the need to go to the hospital because they were not in a sick condition, and others said they still felt afraid and worried about visiting the hospital because of the COVID-19 pandemic. Therefore, this research is expected to provide an overview of the determinants of executive patient loyalty to face increasingly fierce business competition in the era of the COVID-19 pandemic.

## METHODS

This type of study is quantitative with a survey method and is descriptive-analytic with a cross-sectional approach. The study population was all Siloam Hospitals TB Simatupang executive clinic patients (520 patients), and the study sample was carried out by accidental purposive sampling. These patients came for treatment at the Siloam Hospitals TB Simatupang executive clinic (82 patients) with exclusion criteria, namely patients who were not willing to be research respondents.

Before data collection, the researcher administered an ethical review to the Research Ethics and Community Service Commission FKM UI with the certificate number for approval for this research ethics: Ket- 721/UN2.F10.D11/PPM.00.02/2020. This study began with collecting and processing data obtained from questionnaires using a Likert scale, then tested for validity, reliability, and normality. The data processing results will be analyzed further to answer the research objectives by conducting a path analysis to see the relationship between the independent and dependent variables.

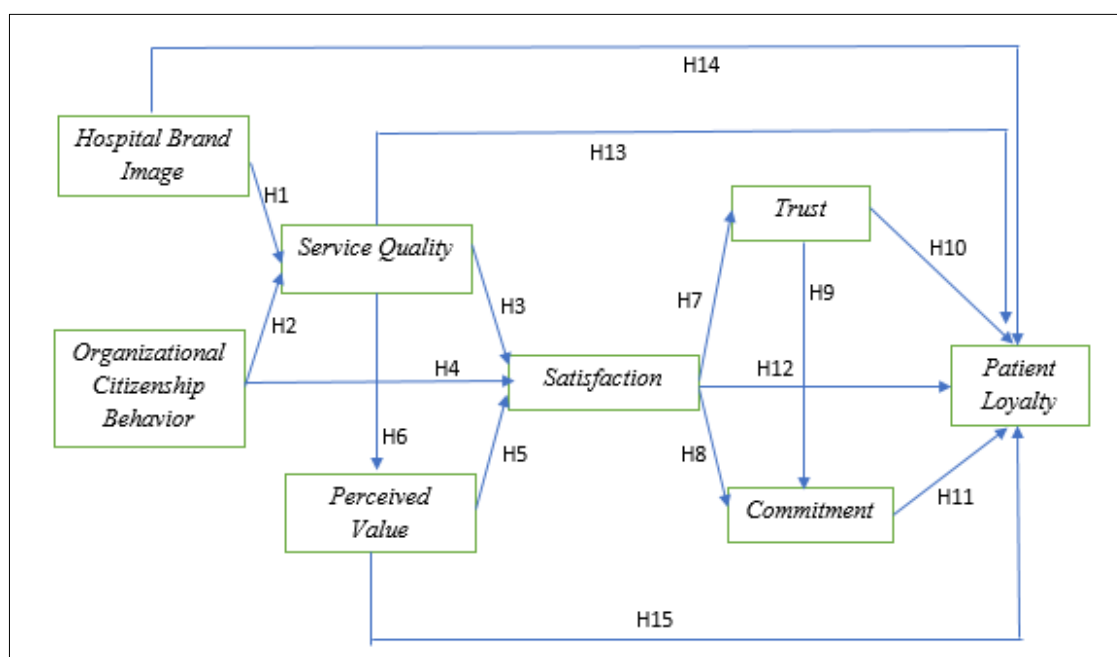


Figure 1. Research Path Diagram



## RESULTS

### Distribution of Respondent Characteristics

This study examines the characteristics of respondents based on age, gender, education, occupation, and sources of medical expenses.

Moreover, statistical analysis shows that the adult age group (20-60 years), female gender, residence distance of  $\leq 5$ km from Siloam, personal payment method, obtaining information from relatives and family regarding the executive clinic are the most respondents in this study.

**Table 1.** Distribution of Respondent Characteristics Respondent in Siloam Hospitals TB Simatupang 2022

Variable		freq.	%
Age			
Youth (11-19 years)		3801	3.57
Adult (20-60 years)			95,24
Elderly (>60 years)			1.19
Gender			
Man		1371	15,48
Woman			84.52
Residential Distance			
$\leq 5$ km		6321	75
>5km			25
Education			
College		7932	94.05
SMASMP or below			3,571,19
Big Income			
<10m		1944	22,62
10-25 million			52,38
>25 million		21	25
Profession			
Private sector employee		3926	46,43
Self-employed			30.95
Taking care of household		6	7,14
Student		4	4.76
PNS/BUMN/TNI/Polri		9	10.71
Payment method			
Personal		76	90.48
Insurance		5	5.95
Company Guarantee		3	3.57
Executive Clinic information			
Internal Hospital (hospital staff, Banner)		24	28.57
RMO & Specialist Recommendations		9	10.71
Relatives and Family		45	53,57
Corporate and Insurance		2	2.38
Digital Media		2	2.38
Other		2	2.38

### Variable Description Analysis

Based on descriptive statistics analysis on all variables: customer satisfaction, service quality, perceived value, trust, hospital brand image, commitment, OCB, and loyalty; it found that the overall mean value for each variable is  $> 4$ , which means that the respondent's response to the statement regarding each variable is the majority agree. Based on statistical results, the average

respondent is loyal to executive clinic services (Mean = 4.307).

This research is reinforced by the results of the NPS which show 52.4% of respondents are promoters (customers who are enthusiastic about the products/services offered and will buy continuously and customers voluntarily recommend products/services to people around them).<sup>(4)</sup> Besides, this study found that some passive respondents (45.2%) were almost in balance with the

number of promoters. This finding is a signal that needs to be responded to because customers in the passives category have the potential to switch to becoming customers of other hospitals.(4)

## **Causal Relationship Hypothesis Analysis**

### **Variable Trust to Loyalty**

This study reveals a significant and positive influence between trust and loyalty. Trust is a desire to depend on a trusted partner, so trust is the main predictor of loyalty in relationships in the service industry.(5,6) This is also in line with various studies which state that the higher the level of patient trust, the more loyal the patient is to a hospital. Even patients who trust a particular hospital tend not to consider moving or changing their destination hospital.(6–11)

### **Variable Commitment to Loyalty**

This study reveals a significant and positive influence between commitment and loyalty. Commitment is essential in building mutually beneficial long-term relationships that will eventually form loyalty to a brand, store, or supplier based on a positive attitude and is reflected in consistent repeat purchases.(12) It is in accordance with research on outpatients at RSI Gondanglegi which shows that most patients have high loyalty and are committed to staying in treatment when they switch membership to become BPJS participants.(13) Other studies have also found that patient commitment significantly affects patient loyalty.(10,14)

### **Variable Customer Satisfaction to Loyalty**

This study reveals a significant and positive influence between customer satisfaction and loyalty. Customer satisfaction is the most important factor in linking customer loyalty. If the customer is satisfied, then the customer will buy the product or service again and again.(14,15) This is in accordance with various studies on patients in hospitals that customer satisfaction is positively related to customer loyalty.(16–18)

### **Variable Service Quality to Loyalty**

This study reveals that there is a significant and positive influence between service quality on loyalty. The perceived quality of service at the

hospital is a subjective evaluation of service from the patient's perspective.(19) The measuring model/instrument developed to assess service quality based on consumer perceptions is the SERVQUAL (Service Quality) scale with five dimensions, namely: tangibles, reliability, responsiveness, assurance, individual attention (empathy).(20) Based on research Fatima, Malik and Shabbir (2018), aspects of healthcare quality (physical/environmental, staff friendliness, responsiveness, communication, privacy and security) have a significant relationship with patient loyalty which is intervened by patient satisfaction.(17)

### **Hospital Brand Image Variable on Loyalty**

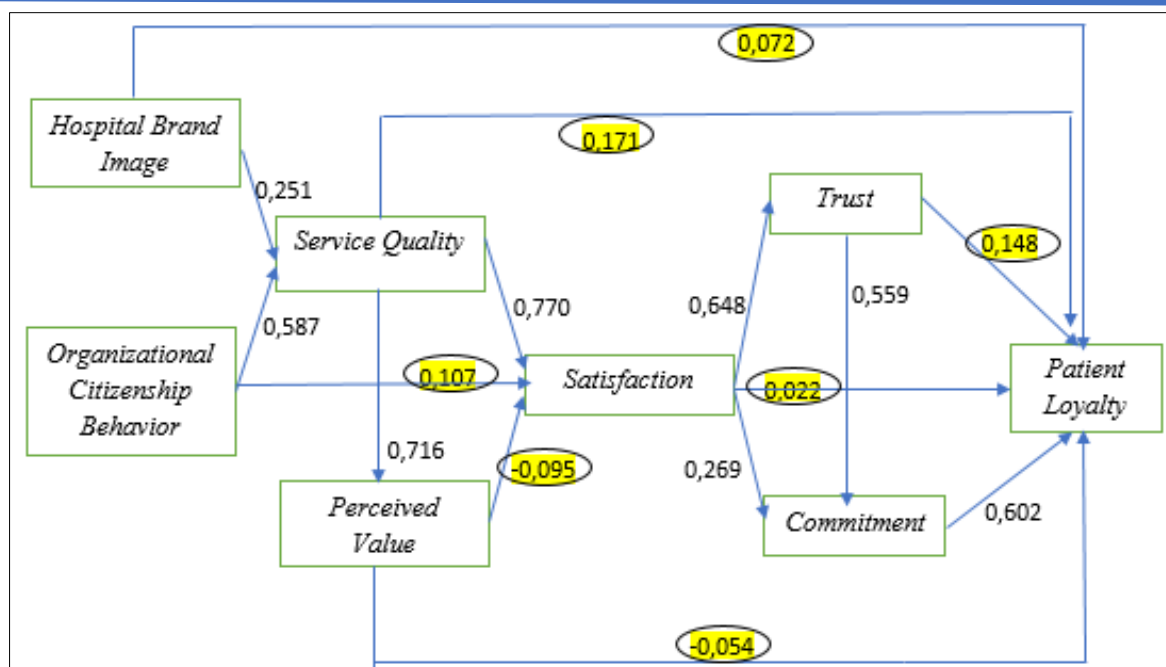
This study reveals that there is a significant and positive influence between hospital brand image and loyalty. Through a good brand image, customers are expected to get satisfactory service quality so as to increase the degree of customer satisfaction which in the end the customer becomes loyal.(21) This is consistent with research which states that brand image increases patient satisfaction through improving perceived service quality, which in turn increases intention to return.(22) The results of other studies state that the brand image of hospital is capable of being a significant intervening variable on marketing mix variables and patient loyalty.(16) Other studies also state that high hospital image is significantly related to patient loyalty.(23–26)

### **Variable Perceived Value to Loyalty**

This study reveals that there is a significant and positive influence between perceived value on loyalty. Perceived value is the comparison between the benefits received by the customer and the sacrifices that must be made when using the service.(8,27) This result is also in line with another study stating that patients' perceived value is related to patient loyalty, both directly and indirectly, through customer satisfaction.(28) Another study was conducted on 165 patients in educational hospitals in Indonesia and concluded that perceived value is related to patient loyalty.(29)

## **Executive Patient Loyalty Determinant Path Analysis**

Based on statistical results, found several exogenous variables that are not related to endogenous variables, it is necessary to repeat the regression analysis for models that are not significant.



**Figure 2.** Initial Regression Result Diagram

From the results of statistical testing, the path diagram changed and then bivariate correlation

analysis was performed. The results of the analysis are:



**Figure 3.** Fit Path Diagram Model

With reference to the results of the path analysis above, the implications found to answer the problem formulation of this study are as follows:

**Only the commitment variable can explain patient loyalty.**

Only the commitment variable has a direct influence on loyalty. Of the various statements contained in the commitment variable, the patient's emotional

relationship with nurses and staff at the executive clinic is the main reason patients continue to use their services, which is the item with the lowest mean value. Based on this, management can help improve the patient's emotional relationship with nurses and staff at the executive clinic, especially during the COVID-19 pandemic which requires care, interpersonal communication skills, and proactivity from officers.

**Customer satisfaction, service quality, trust, hospital brand image, and OCB has an indirect effect on patient loyalty.**

Based on the results of statistical tests, patient satisfaction with the speed of service at the executive clinic is the lowest satisfaction in customer satisfaction. Doctor's appointment on time is an item that is considered to have the lowest service quality in service quality. The average respondent said that their visit was not the first visit to the trust variable. Siloam TB Simatupang has a good image and reputation is the item with the lowest mean value in the hospital brand image. And patients also feel that all officers at the executive clinic are not on time in the OCB variable.

Based on the results above, it can be seen that the average patient who visits the executive clinic is an old patient and complains about the speed of service, the doctor's schedule, and the punctuality at the executive clinic. In addition, Siloam TB Simatupang also needs to improve its image and reputation, especially for executive clinic services. Moreover, the hope is that the executive clinic can become a one-stop service for patients who want excellent and comfortable treatment services, especially during the COVID-19 pandemic. Due to this pandemic, many people are reluctant to go to the hospital and prefer to use telematic-based health applications. Therefore, Siloam Hospitals TB Simatupang needs to implement a new normal policy in treating patients, namely through the image of a clean and safe hospital.

**The results also show that commitment (0.865) is the variable with the largest total effect of all variables.**

This means that commitment is the most influential variable on patient loyalty. Furthermore, the variables customer satisfaction (0.541), trust (0.484), service quality (0.425), OCB (0.249), hospital brand image (0.107) respectively also have a degree of influence on patient loyalty.

## CONCLUSION

Based on the research results, there are several conclusions, namely: Customer satisfaction, service quality, perceived value, trust, hospital brand image, and commitment have a significant and positive influence on patient loyalty executives at Siloam Hospitals TB Simatupang. Besides that, variable commitment has a direct influence on loyalty. Customer satisfaction, service quality, trust, hospital brand image, and OCB indirectly affect loyalty. And commitment (0.865) is the most influential variable on patient loyalty. Furthermore,

the variables customer satisfaction (0.541), trust (0.484), service quality (0.425), OCB (0.249), hospital brand image (0.107) respectively also has a degree of influence on patient loyalty.

## RECOMMENDATIONS

Hospital management in the future must always prioritize increasing patient commitment, as well as customer satisfaction, trust, service quality, OCB, hospital brand image to achieve patient loyalty. Several things that can be done are to improve the patient's emotional relationship with nurses and staff at the executive clinic, especially during the COVID-19 pandemic which requires caring, interpersonal communication skills, and proactivity from officers. It is hoped that the executive clinic can also become a one-stop service for patients who want excellent and comfortable treatment services, especially during the COVID-19 pandemic. In addition, it is necessary to routinely evaluate the customer feedback forms in outpatient installations, especially executive clinics so that the services received by patients meet their expectations.

Besides that, dealing with this pandemic, many people are reluctant to go to the hospital and prefer to use telematic-based health applications. Therefore, a new normal policy is needed in handling patients, namely through a clean and safe hospital image, as well as policies related to guidelines for using telematic-based health applications.

## REFERENCES

1. Trisnantoro L, Listyani E. Jumlah RS di Indonesia Pertumbuhan RS Publik. Perhimpunan Rumah Sakit Indonesia. 2018. p. <http://sirs.yankes.kemkes.go.id/rsonline/report>
2. Zhou W, Wan Q, Liu C, Feng X. Determinants of patient loyalty to healthcare providers : An integrative review. 2017;29(May):442–9.
3. Chang C, Tseng T-H, Woodside AG. Configural algorithms of patient satisfaction , participation in diagnostics , and treatment decisions' influences on hospital loyalty. J Serv Mark. 2013;2:91–103.
4. Reichheld F. The Ultimate Question 2.0 (Revised and Expanded Edition): How Net Promoter Companies Thrive in a Customer-Driven World. Cambridge: Harvard Business Review Press; 2011.



5. Moorman C, Deshpande R, Zaltman G. Factors Affecting Trust in Market Research Relationships. *J Mark.* 1993;57(1):81–101.
6. Singh J, Sirdeshmukh D. Agency and Trust Mechanisms in Consumer Satisfaction and Loyalty Judgments. *J Acad Mark Sci.* 2000;28(1):150–67.
7. Keating NL, Green DC, Kao AC, Gazmararian JA, Wu VY, Cleary PD. How Are Patients' Specific Ambulatory Care Experiences Related to Trust, Satisfaction, and Considering Changing Physicians? *JGIM.* 2002;17:29–39.
8. Moliner MA. Loyalty , perceived value and relationship quality in healthcare services. *J Serv Manag.* 2009;20(1):76–97.
9. Morgan RM, Hunt SD. The Commitment-Trust Theory of Relationship Marketing. *J Mark.* 1994;58:20–38.
10. Patawayati, Zain D, Setiawan M, Rahayu M. Patient Satisfaction , Trust and Commitment : Mediator of Service Quality and Its Impact on Loyalty ( An Empirical Study in Southeast Sulawesi Public Hospitals ). *IOSR J Bus Manag.* 2013;7(6):1–14.
11. Dewi RR. Pengaruh kualitas pelayanan terhadap loyalitas pasien pengguna BPJS dengan kepuasan pasien sebagai variabel intervening. *J Ekon Manaj Sumber Daya.* 2016;18(2):146–56.
12. Fahmi AS. Faktor-Faktor Yang Berhubungan Dengan Loyalitas Pasien Poliklinik Rawat Jalan Eksekutif RSUD Kota Bekasi Tahun 2012. Fakultas Kesehatan Masyarakat. Universitas Indonesia; 2012.
13. Fitriyanti N, Rohman F, Kosewo M. Pengaruh Loyalitas terhadap Komitmen dan Keinginan Bertahan Berobat pada Pasien Rawat Jalan. *J Kedokt Brawijaya.* 2017;29(4):364–8.
14. Hoq M, Amin M. The Role of Customer Satisfaction to Enhance Customer Loyalty. *African J Bus Manag.* 2009;02.
15. Fitharti SP. STRATEGI PENINGKATAN LOYALITAS PELANGGAN KERETA API INDONESIA. UNIVERSITAS INDONESIA; 2017.
16. Ondang MM, Syah TYR. HOW HOSPITAL BRAND IMAGE INTERVENE THE IMPACT OF MARKETING MIX ON PATIENT LOYALTY. 2018;05(07):3959–63.
17. Fatima T, Malik SA, Shabbir A. Hospital healthcare service quality, patient satisfaction and loyalty. *Int J Qual Reliab Manag.* 2018 Jun;35(6):1195–214.
18. Mortazavi S, M Kazemi, A Shirazi, A Aziz-Abadi. The Relationships between Patient Satisfaction and Loyalty in The Private Hospital Industry. *Iran J Public Heal.* 2009;38(3):60–9.
19. Minar IP. Perancangan Perbaikan Loyalitas Pasien Rumah Sakit Umum Daerah. Universitas Indonesia; 2017.
20. Berry LL, Parasuraman A, Zeithaml VA. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *J Retail.* 1988;64(1):12–40.
21. Nguyen N, LeBlanc G. The mediating role of corporate image on customers' retention decisions: an investigation in financial services. *Int J Bank Mark.* 1998 Apr;16(2):52–65.
22. Wu C. The impact of hospital brand image on service quality , patient satisfaction and loyalty. *African J Bus Manag.* 2011;5(12):4873–82.
23. Ramli AH. Patient Satisfaction, Hospital Image and Patient Loyalty in West Sulawesi Province. *Bus Entrep Rev.* 2019 Jul;17(1):1.
24. Sumiyati C, Syah TYR. Kualitas Pelayanan Dan Citra Merek Terhadap Loyalitas Dengan Mediasi Kepuasan Pasien Di Rumah Sakit Swasta. In: Seminar Nasional "Tantangan Pengembangan Ilmu Akuntansi Inklusi Keuangan, dan Kontribusinya Terhadap Pembangunan Ekonomi Berkelanjutan. 2016. p. 196–209.
25. Setiyowati YD, Pasinringi SA, Irwandy. Pengaruh Brand Image Terhadap Minat Kembali Pasien Rawat Jalan Untuk Memanfaatkan Pelayanan Kesehatan Di Rs Universitas Hasanuddin Tahun 2013. FKM Unhas. 2013;1–14.
26. Risky E. Pengaruh Kualitas Pelayanan dan Citra Merek Terhadap Loyalitas Pasien RSIA Bunda Pekanbaru. *JOM FISIP.* 2018;5:1–14.
27. Spiteri JM, Dion PA. Customer value, overall satisfaction, end-user loyalty, and market performance in detail intensive industries. *Ind Mark Manag.* 2004 Nov;33(8):675–87.

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28. Özer L, Başgöze P, Karahan A. The association between perceived value and patient loyalty in public university hospitals in Turkey. *Total Qual Manag Bus Excell.* 2017 Jun;28(7–8):782–800.
  29. Sumaedi, Sik Bakti, I Gede Mahatma Yuda Rakhmawati, Tri Widiyanti, Nidya J. Astrini Tri Yarmen M. The empirical study on patient loyalty : The role of trust, perceived value, and satisfaction (a case study from Bekasi, Indonesia). *Clin Gov An Int J.* 2014;19(3):269–83.