# 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

Gabriela Bianca[1]*, Kurnia Sari[2], Purnawan Junadi[2]

[1]Public Health Bachelor Program, Department of Health Policy and Administration, Faculty of Public Health, Universitas Indonesia, Kampus Baru UI Depok, Depok, Jawa Barat 16424, Indonesia

[2]Department of Health Policy and Administration, Faculty of Public Health, Universitas Indonesia, Kampus Baru UI Depok, Depok, Jawab Barat 16424, Indonesia

*Correspondence: Gabriela Bianca, Department of Health Policy and Administration, Faculty of Public Health, Universitas Indonesia, Kampus Baru UI Depok, Depok, Jawa Barat 16424, Indonesia
xavieragabriela@gmail.com

**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 (R2), Cross-validated Redundancy (Q2), 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 (R2) value is a value that explains how much the latent variable can explain the constructed variable. In this study, the R2 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 (Q2) 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 Q2 value of this study is 0.698 or ≥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* |

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

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
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/analisisdata/6152932c14921/hambatan-pedulilindungi-menjadi-superapps-di-masa-normal-baru
11. Anglemyer 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.