The Correlation Between Maternal Mortality in Indonesia and Accessibility to Services and Opportunities

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ARTICLE INFO	ABSTRACT
	Maternal and child health is a multifaceted and persistent global challenge recognized in the United Nations Sustainable Development Goals (SDGs). The SDG Goal 3 Target 3.1 aims to enhance this by establishing a more aspirational objective of reducing maternal mortality to 70 per 100,000 live births by 2030. Despite substantial progress, numerous nations, like Indonesia continue to face challenges in achieving this ambitious objective. Access to healthcare is crucial in mitigating maternal death rates. A primary factor is the substantial differences in access to medical treatment that exist between urban and rural residents. Furthermore, variables like distance, cost service, and social norms serve as the primary reasons for this phenomenon. This study will utilize the Three Phases of Delay model to evaluate the correlation between women's access to maternity healthcare and maternal health outcomes in rural Indonesia by a secondary data analysis of the Indonesia Demographic Health Survey (IDHS). **Keywords:** Accessibility, Demographic Health Survey, Maternal Health, SDG.

INTRODUCTION

The health of mothers and children is a multifaceted and continuous worldwide concern that has been incorporated into the Sustainable Development Goals (SDGs) of the United Nations. The concern persists unaddressed and is a significant worldwide apprehension, although considerable progress achieved in the past decade. Research indicates that as much as 99% of maternal deaths are concentrated in underdeveloped countries. [1]. SDG Goal 3 Target 3.1 aims to enhance this by setting a more determined target of reducing maternal mortality to 70 per 100,000 live births by 2030. Notwithstanding significant progress, Indonesia persists in facing a high mortality rate, with 189 fatalities occurring for every 100,000 live births. Meanwhile, developed nations such as the UK have an average of 13.41 deaths for every 100,000 live births being recorded [2]. The World Health Organization (WHO) recommends that it is essential to attend a minimum of antenatal care appointments during pregnancy to lower the risk of complications and enable the timely detection of applicable medications.

Access to healthcare facilities is crucial in mitigating maternal death rates. A primary cause is the substantial inequality in healthcare availability between rural and urban areas [3]. Additionally, elements such as restricted access to excellent healthcare, poor transportation, inadequate understanding about maternal health, and traditional attitudes and behaviors might influence to the elevated maternal death rate in Indonesia. One of the most important areas of attention in the fields of health science and transportation research is the connection between the availability of healthcare and the rate of maternal mortality.

Through a secondary data analysis of the Indonesia Demographic Health Survey (IDHS), a regression model will be constructed to investigate the quantitative relationship between women's possible obstacles to accessing maternity health services and the number of times of prenatal appointments with healthcare providers during pregnancy. This paper presents new indicators relating to socioeconomic, regional, demographic, healthcare aspects, as well as

ownership of infrastructure and assets. Moreover, an enhanced comprehension of the relationship between accessibility determinants and those contributing to maternal mortality in Indonesia is anticipated.

LITERATURE REVIEW

Access to healthcare services is crucial in mitigating maternal mortality rates. A primary factor is the substantial discrimination in terms of access to medical treatment between urban and rural regions. Furthermore, variables such as journey duration, distance, and cost serve are believed to be the primary reasons for this phenomenon. This study will apply the three phases of delay model, created by Thaddeus and Maine [4] in 1994 to evaluate how transportation affects the availability of maternity healthcare services. Myers et al. in 2015 [1] conducted a prior study in Indonesia employing the three-phase delay model to investigate the concept of inaccessibility from emergency obstetric treatment in developing countries, focusing on topographical accessibility and other factors that impede access to prenatal medical care.

Pregnancy and delivery may cause difficulties that might result in maternal mortality. The WHO states that these problems frequently occur during pregnancy and are generally avoidable or curable [5]. Furthermore, the probability that a female of 15 years old would eventually pass away due to maternal reasons is referred as the lifetime risk of maternal mortality for a woman. The Ministry of Health of the Republic of Indonesia supports the recommendation made by the World Health Organization (WHO), which states that prenatal care should be least four times throughout the whole pregnant period. [6]. This comprises one appointment during the first trimester, 1 appointment during the second trimester, and 2 appointments during the third trimester. Consequently, antenatal care attendance is regarded as the appropriate metric for evaluating a mother's health. Reduced antenatal care visits are associated with an increased risk of complications during pregnancy.

Prior research has utilized the Demographic Health Survey to examine maternal health outcomes and its relation to various indicators [7], [8], [9], [10], [11], and [12] inspired this study to employ similar data sourcing. The DHS may not directly record maternal fatalities. This may result from the challenges associated in quantifying such events in surveys. However, information on antenatal care can serve as surrogate indication for mother health outcomes therefore inspires this study to make-use the DHS as measuring data.

A research in Indonesia indicated that the probability of women utilizing maternity healthcare services diminishes as the distance to the nearest healthare facility rises [12]. When seen from a more holistic viewpoint, the term healthcare access encompasses the elements of availability, acceptability, and cost [3]. Furthermore, the research conducted in South Central Timor district of Indonesia revealed that the overall travel time to receive care included both the time needed to walk to a village midwife and the length for the midwife to reach the patient's residence by motorcycle. Verifying that journey time significantly influences accessibility in rural locations.

METHODOLOGY

To generate a forecast or scientific conjecture by statistical investigation, a hypothesis is constructed in the following manner:

H0: there is no correlation between women's access to prenatal healthcare services and the frequency of prenatal care appointments throughout antenatal period.

H1: a correlation exists between women's access to prenatal health care services and the frequency of prenatal care appointments throughout antenatal period.

A preliminary statistical investigation, encompassing descriptive statistics and correlation test was performed to elucidate the properties of the data samples. The frequency of prenatal care visits will serve as the dependent variable or predictor in this study. The frequency of prenatal visits throughout maternity is designated as the dependent variable due to the belief that regular check-ups might facilitate the detection of difficulties and enable preventive measures to mitigate the hazard of prenatal mortality. The independent variables or illustrative factors for this research that will be utilized for prediction purposes include demographic characteristics, women's travel autonomy, planned preparedness, location, asset ownership, and possession of transport. Distinct evaluations of urban and rural respondents' data were conducted before analyzing the data of rural-only respondents. Further analysis of negative binomial regression is enforced to explore the optimal model fit in understanding the transport-related factors associated to antenatal care visit frequency.

This study will utilize secondary data from the Demographic Health Survey, namely the 2017 Indonesia DHS datasets, as the primary data source. This technique was devised to examine the distinctive characteristics of women within the rural population of Indonesia.

RESULTS

Descriptive Analysis

A Total of 28 chosen variables or indicators from the individual and household surveys are being evaluated concurrently. The respondent's answers exhibit dynamics. The typical number of prenatal visits during pregnancy, as the dependent variable, is 8.3 appointments attended with a standard deviation of 7.384, based on 15,351 respondents (Figure 1) indicating that the average attendance of women at prenatal care exceeds the WHO's as well as the Ministry of Health's minimum standard. Nonetheless, the findings indicate that a minimum of 11% of the respondents attended fewer than 4 prenatal consultations. Furthermore, it was unexpectedly discovered that 504 respondents acknowledged that they did not attend antenatal prenatal checkups at all. These group of women is regarded to have elevated risks for their maternity health outcomes.
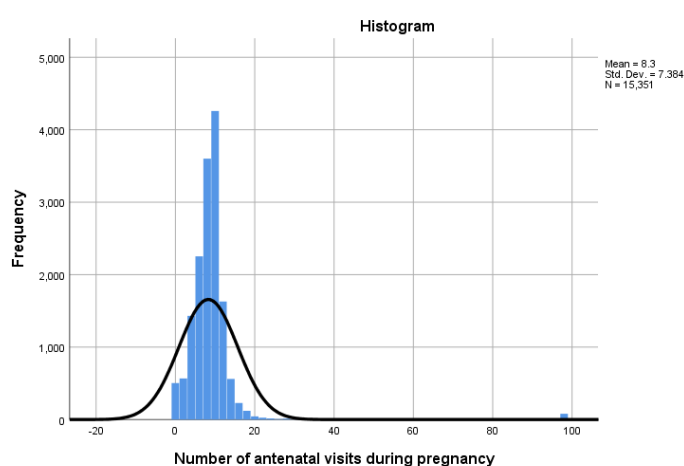

Figure 1. Frequency of Antenatal Care Visits

The descriptive analysis also confirms the mean value of 1.9 and standard deviation of 0.703 for the highest level of education attained indicates that 49,627 women respondent's highest level of education attained is over primary school level. In the 'type of place of residence indicator's mean value of 1.49 and standard deviation of 0.5 signals that around 47,963 respondents are residing in the urban realms while the rest are residing in rural areas. This group of people will become the focus of this study since accessibility in rural areas is believed to be more scarce than urban realms.

Correlation Analysis

The correlation analysis was aimed at determining if a relationship existed between the selected variables. The correlation analysis was conducted only using data from respondents residing in rural regions to examine the relationship pertinent to rural surroundings. Remarkably, at both the 99% and 95% confidence levels, only 16 out of 28 independent variable indicators exhibit a meaningful association with the dependent variable (Table 1).

The greatest level of education attained by women in rural region is shown to be strongly linked with the frequency of ANC visits. Furthermore, all inquiries pertaining to women's travel autonomy, as well as planning and preparation, exhibit a strong correlation with the number of prenatal checks ups. In terms of asset ownership, only for measures demonstrate substantial relationship: power, television, watch, and fan. Unexpectedly, possessing a watch correlate negatively with the frequency of antenatal visits. Of the variables related to transport ownership, only inquiry regarding motorbike or scooter possession demonstrates a significant link with the frequency of prenatal visits during pregnancy. The indicators demonstrating significant correlations will be utilized in the forthcoming regression analysis.

Table 1: Correlation Analysis (source: own work)

Variables	Significance
1. **Number of antenatal visits during pregnancy**	1
2. **Highest educational level**	.045**
3. **Getting medical help for self: getting permission to go**	.044**
4. **Getting medical help for self: getting money needed for treatment**	.050**
5. **Getting medical help for self: distance to health facility**	.051**
6. **Getting medical help for self: not wanting to go alone**	.030*
7. **During pregnancy discussion: place to deliver**	.056**
8. **During pregnancy discussion: transportation to place to deliver**	.060**
9. **During pregnancy discussion: person to assist delivery**	.038**
10. **During pregnancy discussion: payment for the delivery**	.043**
11. **During pregnancy discussion: identifying blood donor**	.057**
12. **During pregnancy discussion: post-partum family planning**	.064**
13. **Has electricity**	.029*
14. **Has a radio**	0.021
15. **Has a television**	.038**
16. **Has a refrigerator**	0.011
17. **Has a landline telephone**	-0.005
18. **Has a mobile telephone**	0.006
19. **Has a watch**	-.024*
20. **Has a computer**	-0.007
21. **Has a fan**	.024*
22. **Has a washing machine**	0.001
23. **Has an air conditioner**	-0.002
24. **Has a bicycle**	0.010
25. **Has a motorcycle/scooter**	.035**
26. **Has a car/truck**	0.012
27. **Has an animal-drawn cart**	-0.013
28. **Has a motorized boat**	-0.015
**. Correlation is significant at the 0.01 level (2-tailed).	
*. Correlation is significant at the 0.05 level (2-tailed).	

Negative Binomial Regression

Negative binomial regression was used as the primary method to analyze factors influencing the frequency of prenatal care visits among women residing in rural Indonesia. A regression model was constructed using rural-only information to examine the correspondence among the frequency of prenatal care appointments and 16 distinct ease of access criteria for women residing in rural areas.

According to the Omnibus Test displayed in Table 2 it was determined that the entire model possessed statistically significant results (Model X2(16) = 216.53, p = <.001) giving the impression that there is a strong relationship between at least one of the independent variables with the number of antenatal care visits. The calculated variance is 48,406, exceeding the mean score, which signifies an overdispersion in the data. Moreover, the skewness (9,682) and the kurtosis (122,313) are exceeding than one meaning the data is not normally distributed. Based on the properties of the data, it is evident that a negative binomial regression technique is the most suitable method for analysis.

The intercept is defined as the anticipated log count of the dependent variable when all independent variables are zero. Overall, 10 factors have been identified as having link with the number of antenatal visits throughout pregnancy, with some indicators demonstrating a substantial association.

Table 2: Negative Binomial Regression Model

Statistics - Number of antenatal visits during pregnancy		
N	Valid	7401
	Missing	16002
Mean		8.01
Std. Deviation		6.957
Variance		48.406
Skewness		9.682
Std. Error of Skewness		.028
Kurtosis		122.313
Std. Error of Kurtosis		.057
Omnibus Test		
Likelihood Ratio Chi-Square		216.528
Df		16
Sig.		.000

The anticipated logarithmic count of prenatal visits is found to be 1.474 when all predictors are set to zero. The demographic impact of women's greatest education (IRR = 1.008, 95% CI = .989 to 1.027, P = .405) shown to be insignificant in the connection to the frequency of ANC visits. Related to women's travel authorization, the issue of getting medical help for self: getting permission to go (IRR = 1.054, 95% CI = 1.036 to 1.097, P = .002) is found to be relevant for adult female's travel autonomy. Women with fewer obstacles in gaining approval for medical treatment experienced a greater frequency of prenatal care visits. The inquiry of Getting medical help for self: getting money needed for treatment (IRR = 1.101, 95% CI = 1.036 to 1.170, P = .01) demonstrates a substantial correlation with the frequency of ANC visits, indicating that women who encounters fewer financial obstacles are more likely to attend prenatal appointments regularly. The issue of getting medical help for self: distance to health facility (IRR = 1.055, 95% CI = 1.008 to 1.105, P = .022) is substantially associated with the frequency of prenatal visits, indicating that women residing nearer to healthcare facilities attend more antenatal checkups during pregnancy. Meanwhile, the query about getting medical help for self: not wanting to go alone (IRR = 1.014, 95% CI = .981 to 1.049, P = .402) does not show significant association with the frequency of prenatal visits throughout female's pregnancy time.

In terms of planning and preparedness, discussion about the place to deliver (IRR = 1.072, 95% CI = 1.021 to 1.125, P = .005) correlated meaningfully with the frequency of prenatal appointments, indicating that women who deliberated on the choice of health facility for childbirth attended a greater number of antenatal visits. Discussion about transportation to birth facility (IRR = 1.047, 95% CI = 1.012 to 1.082, P = .008) is also shown to be strongly correlated with the frequency of ANC visits during pregnancy. Observing that women who engage in discussions on travel plans for delivery attended prenatal appointments with greater frequency. Moreover, the analysis also revealed a significant association between discussion on identifying blood donors (IRR = 1.054, 95% CI = 1.021 to 1.088, P = .001) and post-partum planning (IRR = 1.069, 95% CI = 1.041 to 1.099, P = <0.001) and the frequency of prenatal visits. Indicating that health planning contributes to the rise in the frequency of antenatal care visits throughout pregnancy. Surprisingly, discussions regarding the individual assisting with the delivery (IRR = .973, 95% CI = .928 to 1.021, P = .268) and payment for the delivery (IRR = 1.006, 95% CI = .966 to 1.048, P = .766) determined to be insignificant factors concerning the frequency of prenatal appointments attended.

Regarding the ownership of assets, families having electricity (IRR = 1.073, 95% CI = 1.018 to 1.131, P = .008) have a strong association with the frequency of prenatal visits. Women residing in households with electricity tend to participate in ANC visits more consistently. Furthermore, families possessing mobile phone (IRR = .962, 95% CI = .926 to .999, P = .042) exhibit a strong correlation with the frequency of prenatal care visits during pregnancy, indicating that women with mobile phone access attend more antenatal sessions. Simultaneously, possession of radio (IRR = 1.034, 95% CI = .997, 1.072, P = .07) and computer (IRR = .966, 95% CI = .931 to 1.003, P = .073) as family possessions does not exhibit a substantial association with the frequency of prenatal check-ups.

Concerning the ownership of vehicles within the home, ownership of motorbikes or scooter (IRR = 1.075, 95% CI = 1.042 to 1.108, P = <.001) is meaningfully related with the frequency of prenatal appointments, indicating that adult female with access to such transportation are more likely to attend a greater number of antenatal care appointments.

The model demonstrated substantial relationships between several accessibility parameters and the number of prenatal visits, suggesting that these factors are crucial in influencing the utilization of antenatal care. The negative binomial regression analysis indicates the rejection of the null hypothesis (H0: no association exists between women's access to maternal health care facilities and the frequency of prenatal care visits during pregnancy).

DISCUSSIONS

Demographic Health Survey Dataset Utilization

Consistent with previous research [7], [8], [10], and [12] the main data source for this study is the secondary data acquired from the Demographic Health Survey (DHS). Datasets from DHS were chosen due of their uniform approach, ensuring compatibility across many nations and time periods. Comparable difficulties across multiple nations may be examined utilizing analogous data sets from diverse countries. Moreover, it facilitates the examination of trends and patterns in health metrics and demographic attributes. The DHS permits the examination of a phenomenon by analyst, such as prenatal visits regularity that occurred throughout many years. Furthermore, the DHS survey encompasses a substantial sample size, hence enhancing the credibility of the results. The sample size of adult female participating in prenatal visits for this study is 15,351 individuals. The utilization of DHS database is perceived as time-intensive and economically efficient. The accessibility of a substantial amount of credible data online without subscription fees prompted this investigation to utilize the DHS database.

Conversely, there are several drawbacks associated with utilizing the DHS as a data source. Given that the responses are self-reported, participants may underreport sensitive information or furnish inaccurate data. This is evident from the extent of missing data in the database. Moreover, the availability of up-to-date data is also a barrier. Due to the incompletion of the 2023-2024 survey, this study employs the available latest dataset namely the 2017 IDHS which may not accurately reflect the current circumstances, particularly the Covid-19 post pandemic situation.

Frequency of Antenatal Care Visit

This research found that nearly 11% of adult female attend the prenatal consultations fewer than four instances throughout their pregnancy. Some do not attend the visits whatsoever. This practice does not meet the Indonesia Ministry of Health as well as the WHO's guideline requirements for prenatal appointments, which mandates a minimum of four visits throughout pregnancy. Consequently, Indonesia's elevated maternal mortality rate is not unexpected.

Comparable findings are observed in other underdeveloped nations, including Bangladesh [7], Ethiopia [8], and Cambodia [9] where segments of women fail to attend a minimum of four antenatal care visits during their pregnancy. Consequently, many nations continue to confront the dilemma of elevated maternal mortality rates.

The Importance of Transportation and Accessibility

This study employs negative binomial regression to explore variables associated with mobility and accessibility that affect women's attendance at prenatal sessions during pregnancy. This study's focus on women residing in rural regions aligns with the necessity for increased attention to the provision of healthcare services in rural regions as shown by earlier research [3]

A prior study by Hwang and Park (2019)[9] shown that proximity to health centers significantly influences women's attendance for antenatal care visits in Cambodia. A comparable discovery was also disclosed in Malawi [13]. Consistent with other research, this research revealed that women living in rural Indonesia was found to have her frequency of prenatal care visits affected by the distance to healthcare facilities. Additionally, during maternity, women tend to carefully consider the healthcare institution they will choose for childbirth. These two discoveries indicate that it is essential for women living in rural locations to have access to medical treatment that is geographically accessible. Corroborating the study by Silal et al. (2021) [14], which emphasizes the necessity of enhancing healthcare services in South Africa, particularly for Individuals residing far from medical facilities.

The study identified motorbike or scooter ownership as a major factor influencing women's frequency of prenatal care attendance. This suggests that possessing a two-wheeled motorized vehicle enhances women's access to healthcare, especially in areas without public transportation and where automobile ownership is financially unfeasible. Motorcycles provide a practical and convenient mode of transportation, being significant more economical than four-wheeled automobiles, which results enabling women to access healthcare services with more

ease and frequency. This conclusion corresponds with the previous study by Hwang and Park (2019)[9], which indicated that motorcycles and tuk-tuks were preferred modes of transportation to access healthcare facilities in Cambodia. These findings underscore the need to factor in the possession of inexpensive and accessible transportation when analyzing healthcare access and usage. Despite the fact that having the means to fund travel was recognized as a significant factor, it is surprising that this study discovered the anxiety associated with receiving financial assistance to be an insignificant factor related to prenatal appointments.

Socioeconomic Factors Influencing Maternal Health Outcomes

The autonomy of women was identified in this study as an obstacle to attending prenatal checkups between women in rural regions of Indonesia. Likewise, Nepal et al. (2023)[11] examined autonomy of women in Nepal regarding the decision-making process around sexual and reproductive health and rights. Both studies exhibit commonalities in empowering women to make educated choices regarding their health and well-being. In traditional societies, married women must obtain consent from their husbands or family to travel, even for essential purposes such as seeking healthcare treatments. The findings suggest that facilitating women's access to healthcare facilities can increase prenatal care attendance, perhaps resulting in better maternal and child health outcomes.

The regression model has shown a link between discussions about finding blood donors and post-partum family programs during pregnancy and the frequency of ANC visits. These characteristics can be incorporated into the third phase of Thaddeus and Maine's (1994)[4] Three Phases of Delay Model. It comes as a surprise that the function of the individual who assists in the process of giving birth and the financial recompense for giving birth are not considered to be essential components in attending prenatal checkups, consistent with the second phase. The results suggest that meticulous trip preparation may enhance health outcomes.

This study excludes women and family income level, yet ownership of household assets serves as a measure of wealth, particularly in rural regions. The presence of electricity and ownership of mobile phones were identified as major characteristics influencing the attendance of pregnant women at prenatal care consultations in this study. The ownership of assets serves as a wealth indicator, correlating with the affordability of travel for healthcare purposes. The findings of this study suggest that people with increased asset ownership are more likely to possess sufficient financial resources to manage travelling to healthcare services. This finding is corroborated by Islam et al. (2020)[7] who identified there is a correlation between the wealth index and the number of prenatal care visits that are made in Bangladesh.

In contrast to the discovery by Islam et al. in 2020 [7] which indicated that varying levels of education influence the frequency of women's utilization of antenatal services, this study revealed that women's educational attainment was not a significant factor to antenatal service utilization in rural areas of Indonesia. It may be inferred that women's understanding of health and well-being may not only derive from formal schooling. This may be attributed to entrenched cultural norms, familial practices, and traditions that persist among women in rural Indonesia to this day.

Selection of Regression Model

The dependent variable was determined to be the number of prenatal care appointments that were scheduled over the duration of the pregnancy. For the purpose of calculation, in the regression analysis, up to sixteen indicators were used to represent six independent variables: demographics, geography, women's travel autonomy, planning and readiness, asset ownership, and transportation ownership.

For the purpose of developing a model that illustrates the substantial association between women's accessibility and the frequency of antenatal care visits attended during pregnancy in rural Indonesia, this study utilized the negative binomial regression. This approach aligns with previous research [11], [8], and [9] which utilized similar regression methods to investigate various factors related to accessibility and health outcomes. Furthermore, previous research has demonstrated count data, which is the data characteristic of the dependent variable, is more accurately assessed by negative binomial regression modeling. This study's findings indicate that regional considerations, women's travel autonomy, planning and preparedness, asset ownership, and transit ownership contribute to increased attendance during prenatal visits. The negative binomial regression modelling successfully achieved the purpose of this research, leading to the conclusion that the null hypothesis is rejected.

CONCLUSIONS AND RECCOMENDATIONS

The Objective of the present study as to investigate potential factors influencing women's access to prenatal care sessions. The findings of this study underscore the importance of geographic accessibility and social variables in influencing health usage. This research indicated that women's education was not a major predictor. Nevertheless, factors like as vehicle ownership, discussions on delivery locations, and women's autonomy to seek medical care were identified as critical determinants in rural Indonesia.

The delivery of healthcare services in rural areas is sometimes hindered by factors such as insufficient financing, geographical isolation, and poor infrastructure. Ensuring healthcare accessibility is essential for the general well-being of rural populations. In rural areas, the ownership of a motorbike or scooter may be a highly beneficial asset for women since it provides and efficient and economical means of transportation, facilitating easier access to healthcare services. Investment in an all-weather road infrastructure enhancement including paving, widening, and the installation of road markings and safety signs, may facilitate improved and safer access to motorized two-wheeled vehicles in rural regions, therefore reducing road accidents and promoting safer motorbike travel.

Although motorcycles and scooters are widely popular and accessible as transportation in rural Indonesia, there are other public transit choices that might be enhanced for those who cannot afford them. Angkot, being a shared minibus service, may lack the flexibility of a privately owned motorcycle, yet it provides economical transport options over extended distances. It is recommended to expand the routes and provide a sufficient fleet size to facilitate access to this service. An alternative mode of transportation is utilizing ojek, the motorbike taxi services available nationwide. Although conventional ojek transactions persist, there is a recommendation to broaden the network for contemporary motorbike ride-hailing services such as Gojek, Grab, or Maxim. Ojek serves as a convenient and economical transportation solution for the first and last mile and last mile travel in Indonesia. The regulation and improvement paratransit networks might address the challenges posed by limited transportation funding and the difficulties associated with vehicle ownership.

It is necessary to take a comprehensive approach to the delivery of healthcare services in rural Indonesia in order to attain social health and well-being. This approach must take into account the difficulties that are specific to these areas. Combined with infrastructural enhancement, a pragmatic strategy to address this issue may involve the implementation of telemedicine. The Covid-19 pandemic has demonstrated that individuals may now contact and speak with physicians and specialists from the comfort of their homes, regardless of distance. Mobile applications like HaloDoc, Alodokter, or Apasakitku enable people to obtain diagnoses and medical prescriptions without the necessity of traveling extensive distances to clinics or hospitals. Besides cost savings for travel, telemedicine provides time efficiency in accessing healthcare professionals at flexible hours. Licensed, regulated, and controlled telemedicine by the Ministry of Health has the ability to overcome the gap between rural areas and healthcare practitioners. To ensure maternal health and obtain consultations, pregnant women can interact with specialist without the necessity of traveling vast distance, therefore conserving time and financial resources. Moreover, the telemedicine facilitates ongoing treatments for expectant mothers. Should the routine appointments are not attainable, consultations can be performed remotely to facilitate the early identifications of possible issues.

This study's findings have significant implications for future practice. Subsequent research with more current data might depict the contemporary scenario in Indonesia. Therefore, programs and legislative measures to assist women in accessing maternal healthcare services should enhance the usage of prenatal care. Ultimately, it is anticipated that the low frequency of antenatal care visits would be reduced, leading to a decrease in the overall maternal death rate in Indonesia.

Acknowledgements

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