












ORIGINAL

Postpartum Mothers' Views on Health Services in Reducing Maternal Mortality: Insights from South Konawe, Southeast Sulawesi, Indonesia

Percepciones de las madres posparto sobre los servicios de salud en la reducción de la mortalidad materna: evidencias desde South Konawe, Sulawesi Sudoriental, Indonesia

Gurendro Putro¹ , Sija Tiku², Erwin², Ristrini¹ , Noer Endah Pracoyo¹ , Nita Rahayu¹ , Muhammad Nirwan¹ , Yunita Amraeni³ , Mieska Despitasi⁴ , Made Ayu Lely Suratri¹ , Paisal Paisal⁴, Dea Anita Ariani Kurniasih¹ , Lusy Noviani⁵ , Rustika^{1,6} 

¹Research Center for Public Health dan Nutrition, National Research and Innovation Agency, Indonesia.

²The Provincial Health Office of Southeast Sulawesi, Indonesia.

³Universitas Pembangunan Nasional "Veteran" Jakarta, Indonesia.

⁴Research Center for Preclinical and Clinical Medicine, National Research and Innovation Agency, Jakarta, Indonesia.

⁵Department of Pharmacy, School of Medicine and Health Sciences Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia.

⁶Universitas Mitra Indonesia.

Cite as: Putro G, Tiku S, Erwin, Ristrini, Pracoyo NE, Rahayu N, et al. Postpartum Mothers' Views on Health Services in Reducing Maternal Mortality: Insights from South Konawe, Southeast Sulawesi, Indonesia. *Salud, Ciencia y Tecnología*. 2025; 5:2368. <https://doi.org/10.56294/saludcyt20252368>

Submitted: 18-06-2025

Revised: 22-08-2025

Accepted: 02-11-2025

Published: 03-11-2025

Editor: Prof. Dr. William Castillo-González 

Corresponding author: Gurendro Putro 

ABSTRACT

Introduction: despite efforts to improve the affordability of maternal health care, the persistently high maternal mortality rate suggests that other critical factors, such as accessibility, acceptability, accommodation, and availability of health workers and facilities, may hinder progress. This study aims to assess mothers' perceptions of healthcare providers and facilities to inform strategies for improving maternal health services.

Method: this cross-sectional study included 341 mothers who gave birth between February and June 2020 in South Konawe Regency, Southeast Sulawesi Province, Indonesia, and were selected through purposive random sampling from a population of 2,778. The study examined the relationships between mothers' perceptions (dependent variable) and the availability, accessibility, accommodation, affordability, and acceptability (independent variables) of maternal healthcare services. The data were analyzed via univariate, bivariate, and multivariate statistical methods.

Results: a majority of participants (58,1 %) reported positive perceptions of access to health worker services and facilities. Factors influencing these perceptions included availability (OR = 324,996; 95 % CI: 34,992–3018,470), accessibility (OR = 74,258; 95 % CI: 24,602–224,136), accommodation (OR = 25,616; 95 % CI: 10,252–64,002), affordability (OR = 3,768; 95 % CI: 1,742–8,148), and acceptability (OR = 116,044; 95 % CI: 30,090–447,528). All the factors were significantly associated with maternal perceptions.

Conclusion: the availability, accessibility, accommodation, affordability, and acceptability of health worker services and facilities significantly influence mothers' perceptions of these services. These findings underscore the importance of addressing these factors to enhance maternal health outcomes.

Keywords: Maternal Perception; Postpartum Care; Maternal Mortality; Healthcare Access; Health Services Utilization.

RESUMEN

Introducción: a pesar de los esfuerzos por mejorar la asequibilidad de la atención materna, la persistencia de una alta tasa de mortalidad materna sugiere que otros factores críticos como la accesibilidad, la aceptabilidad, la adecuación y la disponibilidad de personal y servicios de salud, pueden obstaculizar el progreso. Este estudio tiene como objetivo comprender las percepciones de las madres sobre los proveedores y establecimientos de salud, con el fin de orientar estrategias para mejorar los servicios de salud materna.

Método: este estudio transversal incluyó a 341 madres que dieron a luz entre febrero y junio de 2020 en el distrito de South Konawe, provincia de Sulawesi Sudoriental, Indonesia, seleccionadas mediante muestreo aleatorio intencional de una población de 2 778. El estudio examinó las relaciones entre las percepciones maternas (variable dependiente) y la disponibilidad, accesibilidad, adecuación, asequibilidad y aceptabilidad (variables independientes) de los servicios de salud materna. Los datos fueron analizados mediante métodos estadísticos univariados, bivariados y multivariados.

Resultados: la mayoría de las participantes (58,1 %) reportaron percepciones positivas respecto al acceso a los servicios de salud y al personal sanitario. Los factores que influyeron en estas percepciones incluyeron la disponibilidad (OR = 324,996; IC 95 %: 34,992-3018,470), accesibilidad (OR = 74,258; IC 95 %: 24,602-224,136), adecuación (OR = 25,616; IC 95 %: 10,252-64,002), asequibilidad (OR = 3,768; IC 95 %: 1,742-8,148) y aceptabilidad (OR = 116,044; IC 95 %: 30,090-447,528). Todos los factores mostraron asociaciones significativas con las percepciones maternas.

Conclusiones: la disponibilidad, accesibilidad, adecuación, asequibilidad y aceptabilidad de los servicios y del personal de salud influyen de manera significativa en las percepciones de las madres sobre dichos servicios. Estos hallazgos subrayan la importancia de abordar estos factores para mejorar los resultados en salud materna.

Palabras clave: Percepción Materna; Atención Posparto; Mortalidad Materna; Acceso a la Atención Sanitaria; Utilización de Servicios de Salud.

INTRODUCTION

Health services include personnel and facilities that provide promotive, preventive, curative, and rehabilitative care, delivered by the central government, local governments, and the community.⁽¹⁾ Mothers' perceptions are crucial for increasing maternal visits to health facilities. Encouraging more mothers to seek care strengthens their connection to essential services, while health workers must provide care that meets established standards.

In Eastern Saudi Arabia, 87,4 % of patients were satisfied with immunization services in primary health care, with a positive correlation between perceptions and service satisfaction ($p < 0,001$).⁽²⁾ This highlights the need to socialize maternal vaccination programs and regularly assess satisfaction to improve services. Postnatal care for Aboriginal mothers also underscores the importance of policy socialization to improve maternal and infant health.⁽³⁾ In rural southern Ethiopia, 50 % of mothers had a positive attitude toward using health services, but many lacked knowledge about midwifery dangers, service benefits, and pregnancy risks.⁽⁴⁾

In Zambia, postpartum service quality improved with effective staff-patient communication, respect, emotional support, adequate medicines, short waiting times, and strong referral systems.⁽⁵⁾ Health workers defined as trained individuals authorized to perform health efforts, are central to service delivery.⁽⁶⁾ High-quality postpartum care positively influences maternal perceptions,⁽⁷⁾ and positive perceptions support well-being during pregnancy, menstruation, and the postnatal period.⁽⁸⁾ Improved services can increase facility-based childbirth and reduce maternal mortality,⁽⁹⁾ while pregnancy risk perception and parity are also influenced by service quality.⁽⁴⁾

The availability of health facilities improves utilization, enhances quality of life, and emphasizes the government's responsibility to provide innovative and accessible health services⁽¹⁰⁾

The availability of health services plays a crucial role in improving community health outcomes. Services located close to the community make antenatal care (ANC) more accessible⁽¹²⁾ and should be adapted to meet local needs.⁽¹³⁾ Local governments have a responsibility to ensure the provision of quality health services,⁽¹⁴⁾ as service availability directly influences maternal care utilization⁽¹⁶⁾ and shapes maternal perceptions, particularly in postpartum services.⁽⁷⁾ High-quality health care is especially vital in rural areas, where access is often limited.⁽¹⁷⁾ Furthermore, a well-functioning referral system is essential to ensure continuity of care and timely management of complications.⁽¹⁸⁾ In addition, the integration of online health services can further enhance accessibility and service delivery,⁽¹¹⁾ complementing physical service availability and strengthening overall health system performance.⁽¹⁵⁾

Access to health services depends on affordability, distance, transportation, and travel time. In North Tajikistan, traditional communities often receive care late, highlighting the need to strengthen health systems through community education and family support.⁽¹⁹⁾ In Ethiopia, inequities in maternal and child health services occur in poor, low-education communities with limited access, leading to lower service quality.⁽²⁰⁾ Mothers' positive perceptions can facilitate care-seeking,⁽²¹⁾ and transportation facilities are essential for timely Access.⁽²²⁾ Communities highly value proximity and easy access to services,⁽²³⁾ and patients often consider these factors when seeking treatment.⁽²⁴⁾ Governments must ensure health services are accessible,⁽¹²⁾ as socioeconomic conditions affect utilization,⁽²⁵⁾ and community participation depends largely on ease of Access.⁽²⁶⁾ Overall, access is shaped by three key components: availability, affordability, and acceptability.⁽²⁷⁾

In health services, accommodation is essential, ensuring easy communication, home care, and home visits by health workers. Such visits can strengthen the mother-child relationship.⁽²⁸⁾ Conversely, inadequate accommodations, poor facilities, lack of referral transport, and untrained staff can hinder service delivery.⁽²⁹⁾ Health services rest on five pillars: proximity, acceptability, availability, accommodation, affordability, and suitability.⁽³⁰⁾ Effective case management requires both availability and accommodation,⁽³¹⁾ supported by sufficient health workers and reliable referral transport.⁽²⁹⁾ Women with hearing impairments may require additional accommodations.⁽¹⁵⁾

Financial affordability is another key factor, including the use of health insurance and ease of access during childbirth. Perceptions of affordability are shaped by socio-demographic factors,⁽¹⁰⁾ while high costs remain a significant barrier.⁽³²⁾ Quality maternity care depends on empathy, service adequacy, affordability, and the competence of health workers.⁽⁹⁾ Affordability and accessibility together influence service utilization.⁽²⁵⁾ Cost considerations are critical for healthcare use,⁽³³⁾ facility admissions,⁽³⁴⁾ and birth preparedness,⁽³⁶⁾ while also affecting nutritional services.⁽³⁵⁾ Barriers such as cost, access difficulty, inadequate care, and limited financial resources persist.⁽³⁷⁾

Acceptability involves patient-friendly attitudes—listening to complaints, providing attention, responding promptly, showing patience, smiling, and explaining procedures. Services must also be socially and religiously acceptable.⁽³³⁾ In Negeri, women's health services remain inadequate due to limited funds, untrained staff, poor reception, and low affordability.⁽¹⁶⁾ Community acceptance is essential,⁽³⁴⁾ and leadership support can increase the acceptance of midwifery services.⁽³⁵⁾

Despite persistently high maternal mortality rates nationally, even impacting national health insurance policy implementation, it remains crucial to strengthen the availability, accessibility, accommodation, and acceptability of services, along with the capacity of health workers and facilities.⁽³⁶⁾ This study draws on the theory of access, which encompasses availability (personnel and service readiness), accessibility (affordable distance and transport), accommodation (call center, home care, home visits), affordability (health insurance use), and acceptability (staff attitudes). The aim is to assess mothers' perceptions of health services to guide improvements in South Konawe District, Southeast Sulawesi Province, Indonesia.

METHOD

Study design

This study is an analytical observational with a cross-sectional design conducted in South Konawe District, Southeast Sulawesi Province, Indonesia, with a population of 2 778 women who gave birth from February to June 2020.

Population and Sample

The sample in this study consisted of 341 individuals selected from the population via purposive random sampling, determined using following formula:

$$n = \frac{Z^2 1-\alpha/2 \cdot P(1-P) \cdot N}{d^2(N-1) + Z^2 1-\alpha/2 \cdot P(1-P)}$$

Based on this calculation, the minimum sample size was 338 participants. The final study sample included 341 postpartum mothers, as a few additional respondents meeting the eligibility criteria were available and willing to participate.

Eligibility criteria included women who had given birth within the specified period, were residents of South Konawe District, and were willing to participate in the study. Exclusion criteria included women who had incomplete data records, were not available during the data collection period, or declined to provide informed consent.

Data collection

Data collection was conducted through structured, face-to-face interviews using a pre-tested and validated

maternal health services perception questionnaire. The questionnaire consisted of sections on demographic characteristics, income, access to health facilities, perceptions of availability, accessibility, accommodation, affordability, and acceptability of services. Content validity was confirmed by a panel of three public health experts, and internal consistency was measured using Cronbach's alpha ($\alpha = 0,87$), indicating good reliability.

Data analysis

Data analysis was performed using SPSS version 30 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize participant characteristics. Bivariate analysis was conducted using the Chi-square test to examine associations between maternal perceptions and demographic variables. Variables with $p < 0,25$ were included in multivariate logistic regression models to determine independent predictors, with statistical significance set at $p < 0,05$.

RESULTS

Table 1 shows that a total of 341 research samples were analyzed descriptively. The results indicated that 0,9 % of the respondents had no formal education, whereas 19,1 % had completed college. Among the respondents, 297 (87,7 %) owned health insurance, whereas 44 (12,9 %) did not. Maternal perceptions of health service quality were positive for 198 individuals (58,1 %), whereas 143 (41,9 %) expressed less satisfaction.

Over half (52,2 %) of the household heads were engaged in entrepreneurial endeavors. Employment in other occupations constituted the lowest percentage at 8,8 %. Household head income was categorized into two groups: below and at or above the 2020 regional minimum salary. The study revealed that 72,1 % of household heads earned less than the Southeast Sulawesi provincial minimum wage did, whereas 27,9 % earned more.

The 31-35 years age group comprised the highest percentage (27,3 %) of mothers, whereas the youngest age group, 20 years or younger, constituted the lowest percentage (10,9 %). The majority of mothers (31,4 %) had two-month-old children, whereas the smallest proportion (14,7 %) had four-month-old children. Of the 341 children followed, 340 (99,7 %) were live births, and one (0,3 %) was a stillbirth.

Variables	Frequency (n=341)	Percentage
Mother's Education		
No formal education	3	0,9
Elementary School	51	14,9
Junior High School	81	23,8
Senior High School	141	41,3
Bachelor/College	65	19,1
Health insurance ownership		
Have	297	87,1
Does not have	44	12,9
Mother's Perception of Health Services		
Good	198	58,1
Not Good	143	41,9
The job of the Head of the Family		
Civil State Officer/Army/Police	24	7,0
Farmer	106	31,1
Fishermen	2	0,6
State-Owned Enterprises (BUMN)	1	0,3
Others	30	8,8
Household Income		
< Regional Minimal Salary (< IDR2 552 014)	246	72,1
≥ Regional Minimal Salary (≥ IDR2 552 014)	95	27,9
Mother's Age (years)		
≤20	37	10,9
21-25	71	20,8

26-30	79	23,2
31-35	93	27,3
≥36	61	17,9
Child's Age (month)		
2	107	31,4
3	61	17,9
4	50	14,7
5	61	17,9
6	62	18,2
Child Birth Status		
Born alive	340	99,7
Stillbirth	1	0,3

The correlations of availability, accessibility, accommodation, affordability, and acceptability factors with mothers' perceptions of health services are shown in table 2. A total of 314 respondents indicated that the presence of health workers was sufficient. Among these, 197 (62,7 %) reported positive perceptions of maternal experience, whereas 117 (37,3 %) reported negative perceptions. The results of the statistical tests yielded a *p* value of 0,000, indicating a statistically significant difference in the proportion of mothers with positive versus negative perceptions among those who perceived sufficient health worker presence. Mothers who perceived a sufficient health worker presence were 43,778 times more likely to have a positive perception, with a 95 % confidence interval.

Table 2. The correlations of availability, accessibility, accommodation, affordability, and acceptability factors with mothers' perceptions of health services

Variables	Mother's Perception (n=341)				Total		p value	OR	CI (95 %)
	Poor		Good		n	%			
	n	%	n	%					
Availability									
Inadequate	26	96,3	1	3,7	27	100	0,000	43,778	5,864-326,844
Adequate	117	37,3	197	62,7	314	100			
Accessibility									
Inaccessible	59	88,1	8	11,9	67	100	0,000	16,682	7,633-36,457
Accessible	84	30,7	190	69,3	274	100			
Accommodation									
Dislike	73	70,9	30	29,1	103	100	0,000	5,840	3,513-9,709
Like	70	29,4	168	70,6	238	100			
Affordability									
Unsatisfying	67	59,8	45	40,2	112	100	0,000	2,997	1,878-4,783
Satisfying	76	33,2	153	66,8	229	100			
Acceptability									
Poor	44	91,7	4	8,3	48	100	0,000	21,556	7,530-61,709
Good	99	33,8	194	66,2	293	100			

Among the 274 respondents with affordable access to health facilities, 190 (69,3 %) reported positive maternal perceptions, whereas 84 (30,7 %) reported negative perceptions. The results of the statistical tests yielded a *p* value of 0,000, indicating a significant difference in the proportion of mothers with positive versus negative perceptions among those with affordable access. Mothers with affordable access were 16,682 times more likely to have a positive perception, with a 95 % confidence interval.

Among the 238 respondents who expressed satisfaction with communication services in health facilities, 168 (70,6 %) reported positive maternal perceptions, whereas 70 (29,4 %) reported negative perceptions. The results of the statistical tests yielded a *p* value of 0,000, indicating a significant difference in the proportion of

mothers with positive versus negative perceptions among those who expressed satisfaction with communication services. Mothers who expressed satisfaction with communication services were 5,840 times more likely to have positive perceptions, with a 95 % confidence interval.

Among the participants who expressed satisfaction with the utilization of health insurance in health facilities, 153 (66,8 %) reported positive maternal perceptions, whereas 76 (33,2 %) reported negative perceptions. The results of the statistical tests yielded a p value of 0,000, indicating a significant difference in the proportion of mothers with positive versus negative perceptions among those who expressed satisfaction with insurance use. Mothers who were satisfied with the use of insurance were 2,997 times more likely to have a positive perception, with a 95 % confidence interval.

A positive experience with healthcare professionals in a healthcare facility was reported by 293 respondents. Of these, 66,2 % (n = 194) reported positive maternal perceptions, whereas 33,8 % (n = 99) reported negative perceptions. The results of the statistical tests yielded a p value of 0,000, indicating a significant difference in the proportion of mothers with positive versus negative perceptions among those with positive experiences with health workers. Mothers with positive experiences with health workers were 21,556 times more likely to have positive perceptions, with a 95 % confidence interval.

Results of multivariate analysis with logistic regression using the enter method for all the variables are presented in table 3. The odds ratio (OR) values from the multivariate analysis of the five variables are as follows: availability (OR=324,996), accessibility (OR=74,258), accommodation (OR=25,616), affordability (OR=3,768), and acceptability (OR=116,044). From the perspective of the level of influence of the independent variable on the dependent variable, the availability factor (p = 0,000) is the most dominant factor influencing mothers' perceptions of access to health workers' services and health facilities, as evidenced by the highest OR value. It can thus be concluded that mothers who perceive the presence of health workers to be sufficient are 324,996 times more likely to have a positive perception of healthcare facilities than those who perceive the existence of health workers to be insufficient.

Mothers who have a positive perception of the reception of health workers in healthcare facilities have an odds ratio of 116,044, indicating that they are 116,044 times more likely to have a positive perception than a less favorable one. Mothers with affordable access to health facilities are 74,258 times more likely to have positive perceptions than mothers with affordable access to health facilities, who have negative perceptions. Mothers who found the communication services available at health facilities to be accessible and convenient were 25,616 times more likely to have positive perceptions than negative perceptions. Mothers who were satisfied with the utilization of health insurance for health checks and childbirth were 3,768 times more likely to have positive perceptions than negative perceptions.

The findings indicate that higher odds of positive maternal perceptions are strongly associated with key service access dimensions, availability, acceptability, accessibility, accommodation, and affordability. These dimensions are critical in ensuring timely use of postpartum care, which is essential for the prevention and management of leading maternal mortality causes, including postpartum hemorrhage and infection.

Table 3. Results of Multivariate Analysis with Logistic Regression Using Enter Method.

Variable	B	Wald	df	Sig.	OR	95 % CI	
						Lower	Upper
Availability (1)	5,784	25,872	1	0,000*	324,996	34,992	3018,470
Accessibility (1)	4,308	58,406	1	0,000*	74,258	24,602	224,136
Accommodation (1)	3,243	48,188	1	0,000*	25,616	10,252	64,002
Affordability (1)	1,327	11,364	1	0,001*	3,768	1,742	8,148
Acceptability (1)	4,754	47,653	1	0,000*	116,044	30,090	447,528
Constant	-15,767	74,759	1	0,000*	0,000		

DISCUSSION

This study revealed that most mothers in South Konawe District had good perceptions of health services, with 58,1 % reporting positive views and 41,9 % reporting less favorable views. This result is comparable to findings from Eastern Saudi Arabia, where 87,4 % of patients were satisfied with immunization services in primary health facilities.⁽²⁾ A positive correlation between perceptions and service satisfaction (p<0,001) highlights the importance of health program socialization, particularly regarding vaccination, and the continuous assessment of maternal satisfaction to maintain and improve service quality.⁽²⁾ Similarly, postnatal care in rural southern Ethiopia, 50 % of mothers reported positive attitudes toward health service utilization, but many lacked knowledge of pregnancy risks and the dangers of midwifery practices.⁽⁴⁾

Low socioeconomic status was evident in this study, with 72,1 % of participants reporting earnings below

the Regional Minimum Wage of IDR 2 555 014. Despite financial disadvantages, many mothers still expressed positive perceptions of services. This finding aligns with postpartum maternal services research in Zambia, which emphasized that service quality is strongly influenced by effective communication, respect, emotional support, and the presence of essential medicines, short waiting times, and efficient referral systems.⁽⁵⁾ The age distribution of mothers, most commonly 26-30 years (23,2 %), reflects a productive age group, with 31,4 % of mothers having children aged two months, and 99,7 % of children born alive.

The availability of health personnel was a significant factor shaping maternal perceptions in South Konawe. Mothers acknowledged the presence of midwives at health centers and auxiliary health facilities, with staff available to provide care when needed. Service availability near communities increases the likelihood of antenatal care (ANC) utilization.⁽¹²⁾ Previous studies have consistently shown that health services should be responsive to community needs,⁽¹³⁾ supported by local governments,⁽¹⁴⁾ and recognized as essential for community well-being.⁽¹⁵⁾ Availability strongly influences maternal health services,⁽¹⁶⁾ quality postpartum services,⁽⁷⁾ and is particularly crucial in rural areas.⁽¹⁷⁾ Moreover, an effective referral system is an integral part of quality service provision.⁽¹⁸⁾

Accessibility was also reported positively. Mothers generally found services affordable, within short distances, and easily reachable, with nearly all reporting less than 30 minutes of travel time to health facilities. These findings suggest that strengthening service structures through community education and family support will further enhance access.⁽¹⁹⁾ However, inequities remain a global concern. In Ethiopia, maternal and child health services were often inequitable in poor, low-education communities with poor access.⁽²⁰⁾ Perceptions of accessibility are closely linked to care-seeking,⁽²¹⁾ while transportation facilities,⁽²²⁾ proximity,⁽²³⁾ and government responsibility for ensuring accessible services have been recognized as critical determinants.⁽¹²⁾ Socioeconomic status also affects access,⁽²⁵⁾ and community participation in health services depends heavily on ease of access.⁽²⁶⁾ Accessibility, affordability, and acceptability are widely recognized as the three key components of equitable access.⁽²⁷⁾

Accommodation was another important factor, reflected in positive maternal perceptions of good communication, home visits, and postpartum follow-up. Such home visits are associated with improved maternal-infant relationships.⁽²⁸⁾ However, poor facilities, limited transport for referrals, and untrained staff can negatively affect perceptions.⁽²⁹⁾ Health service frameworks identify proximity, acceptability, availability, accommodation, affordability, and suitability as the five key pillars.⁽³⁰⁾ Evidence further suggests that availability and accommodation are critical in case management,⁽³¹⁾ with adequate transport and trained staff being indispensable.⁽²⁹⁾ Women with special needs, such as those with hearing impairments, may require additional accommodation.⁽¹⁵⁾

Affordability was reported with mixed perceptions. While many mothers found costs manageable, challenges were noted in health insurance procedures, which were considered complicated despite simplified systems. This indicates that administrative processes may influence perceptions as much as financial cost. Socio-demographics are known to shape affordability perceptions,⁽¹⁰⁾ and cost barriers remain a significant issue in health care utilization.⁽³²⁾ High-quality maternity services must therefore integrate empathy, adequacy, affordability, and professional experience.⁽⁹⁾ Affordability and accessibility together strongly influence utilization,⁽²⁵⁾ with cost affordability being central to admissions,⁽³³⁾ birth readiness,⁽³⁶⁾ and healthcare utilization.⁽³⁹⁾ In maternal and child nutrition services, both comfort and affordability are essential.⁽³⁵⁾ Affordability-related barriers such as high costs, limited access, and inadequate financial resources have been reported elsewhere.⁽⁴⁰⁾

Acceptability, reflected in responsiveness, friendliness, patience, and attentiveness of health workers, was another factor influencing perceptions. Differences were noted between services provided by doctors and midwives, possibly due to the greater presence and accessibility of midwives. Service acceptability must also align with social and religious norms.⁽³³⁾ In some settings, women's health services remain inadequate due to funding shortages, unskilled staff, and low affordability.⁽¹⁶⁾ Community acceptance of health services is essential for effective utilization,⁽³⁴⁾ and leadership support has been shown to increase the acceptability of midwifery services.⁽³⁵⁾

Given that most maternal deaths occur in the postpartum period due to preventable causes such as hemorrhage and infection, positive maternal perceptions—when matched by actual service quality—can promote early care-seeking and adherence to postnatal visits, directly contributing to maternal mortality reduction.

Overall, these findings suggest that local health authorities in South Konawe District should prioritize sustaining and enhancing positive maternal perceptions. Key strategies include strengthening health worker communication, ensuring consistent staff availability, expanding outreach through home visits, simplifying health insurance systems, and improving affordability for low-income households. Reinforcing referral systems and transport, along with continuous monitoring of maternal satisfaction and health education campaigns, will help ensure that services remain accessible, acceptable, and responsive to community needs.

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits the ability to infer causal relationships between maternal perceptions and the various dimensions of health service quality, such as availability, accessibility, and affordability. Second, the data were

collected through self-reported questionnaires, which may be subject to recall bias and social desirability bias, potentially leading respondents to overstate positive experiences. Third, the study was conducted only in South Konawe District, which may limit the generalizability of the results to other regions with different socioeconomic, cultural, or health system characteristics. Additionally, the study did not include qualitative exploration to capture deeper insights into the reasons behind maternal perceptions. Future research should employ longitudinal or mixed-method designs to provide a more comprehensive understanding of the factors influencing maternal perceptions and satisfaction with health services.

CONCLUSIONS

Mothers in South Konawe District generally hold positive perceptions of health worker performance and health facility services. Key dimensions shaping these perceptions include availability, accessibility, accommodation, affordability, and acceptability. Among these, availability emerged as the strongest factor influencing maternal perceptions. Strengthening these service dimensions is essential for sustaining positive maternal experiences and ensuring equitable access to quality health care.

REFERENCES

1. Ministry of Health Republic of Indonesia. Regulation of the Minister of Health of the Republic of Indonesia Number 71 of 2021 concerning health services under the National Health Insurance. Jakarta (Indonesia): Ministry of Health; 2021. Available from: <https://peraturan.bpk.go.id/Home/Details/152506/permenkes-no-3-tahun-2020>
2. Thirunavukkarasu A, Alanazi MFA, Al-Hazmi A, Alruwaili BF, Alsaidan AA, Alruwaili TAM, Algaed MAM, et al. Maternal perception, hesitancy, and satisfaction toward childhood immunization in primary health centers, Hafr Al-Batin: A multicenter cross-sectional study from Eastern Saudi Arabia. *Risk Manag Healthc Policy*. 2023;16:2357-68. doi:10.2147/RMHP.S406933
3. Jones J, Durey A, Strobel N, McAuley K, Edmond K, Coffin J, McAullay D. Perspectives of health service providers in delivering best-practice care for Aboriginal mothers and their babies during the postnatal period. *BMC Pregnancy Childbirth*. 2023;23(1):8. doi:10.1186/s12884-022-05136-6
4. Sadore AA. Pregnancy risk perception, knowledge of obstetric danger signs and attitude toward skilled delivery service utilization among pregnant mothers in a rural setting. *Int J Womens Health*. 2023. doi:10.2147/IJWH.S432447
5. Sialubanje C, Kaiser JL, Ngoma T, Mwananyanda L, Fong RM, Hamer DH, Scott NA. Postnatal care services in rural Zambia: A qualitative exploration of user, provider, and community perspectives on quality of care. *BMC Pregnancy Childbirth*. 2023;23(1):39. doi:10.1186/s12884-023-05350-w
6. Minister of Law and Human Rights of the Republic of Indonesia. Law of the Republic of Indonesia Number 36 of 2014 concerning health workers. Jakarta (Indonesia): Minister of Law and Human Rights; 2014.
7. Ronniey OE, Ogutu J, Munyoki G, Wambugu M. Perceived quality of health care provided to mothers during immediate postpartum period at health facilities in Kakamega County, Kenya. *Texila Int J Public Health*. 2023;11(3):1-15. doi:10.21522/TIJPH.2013.11.03.Art011
8. Robb Y, McNery D, Hollins Martin CJ. Exploration of the experiences of young mothers seeking and accessing health services. *J Reprod Infant Psychol*. 2013;31(4):399-412. doi:10.1080/02646838.2013.832181
9. Baatiema L, Tanle A, Darteh EKM, Ameyaw EK. Is quality maternal healthcare all about successful childbirth? Views of mothers in the Wa Municipality, Ghana. *PLoS One*. 2021;16(9):e0257401. doi:10.1371/journal.pone.0257401
10. Acquah-Hagan G, Boateng D, Appiah-Brempong E, Twum P, Atta JA, Agyei-Baffour P. Availability and affordability of primary health care among vulnerable populations in urban Kumasi Metropolis: Family health perspective. *Health Equity*. 2022;6(1):345-55. doi:10.1089/heq.2021.0045
11. Osei E, Apiribu F, Kissi J, Asante LS, Ampon-Wireko S, Mashamba-Thompson TP. Healthcare workers' perspectives on the availability and use of mobile health technologies for disease diagnosis and treatment support in the Ashanti Region of Ghana. *PLoS One*. 2024;19(4):e0294802. doi:10.1371/journal.pone.0294802

12. Khan MN, Alam MB, Chowdhury AR, Kabir MA, Khan MMA. Availability and readiness of healthcare facilities and their effects on antenatal care services uptake in Bangladesh. *BMC Health Serv Res.* 2024;24(1):1-12. doi:10.1186/s12913-024-10824-4
13. Sundareswaran M, Martignetti L, Purkey E. Barriers to primary care among immigrants and refugees in Peterborough, Ontario: A qualitative study of provider perspectives. *BMC Prim Care.* 2024;25(1):199. doi:10.1186/s12875-024-02453-x
14. Tuladhar S, Paudel D, Rehfuess E, Siebeck M, Oberhauser C, Delius M. Changes in health facility readiness for obstetric and neonatal care services in Nepal: An analysis of cross-sectional health facility survey data in 2015 and 2021. *BMC Pregnancy Childbirth.* 2024;24(1):1-15. doi:10.1186/s12884-023-06138-8
15. Mprah WK, Duorinaah J, Opoku MP, Nketsia W, Amponteng M. Knowledge and attitudes of deaf persons toward safe abortion services in Ghana. *PLoS One.* 2023;18(4):e0281995. doi:10.1371/journal.pone.0281995
16. Izugbara CO, Wekesah F. What does quality maternity care mean in a context of medical pluralism? Perspectives of women in Nigeria. *Health Policy Plan.* 2018;33(1):1-8. doi:10.1093/heapol/czx131
17. Udenigwe O, Okonofua FE, Ntoimo LFC, Yaya S. Exploring underutilization of skilled maternal healthcare in rural Edo, Nigeria: A qualitative study. *PLoS One.* 2022;17(8):e0272523. doi:10.1371/journal.pone.0272523
18. Matolengwe A, Murray D, Okafor UB. The challenges of implementing a health referral system in South Africa: A qualitative study. *Risk Manag Healthc Policy.* 2024;17:855-64. doi:10.2147/RMHP.S450998
19. Nabieva J, Souares A. Factors influencing decision to seek health care: A qualitative study among labor-migrants' wives in Northern Tajikistan. *BMC Pregnancy Childbirth.* 2019;19(1):1-10. doi:10.1186/s12884-018-2166-6
20. Wuneh AD, Bezabih AM, Persson LÅ, Okwaraji YB, Medhanyie AA. "If I was educated, I would call the ambulance and give birth at the health facility"—A qualitative exploratory study of inequities in the utilization of maternal, newborn, and child health services in Northern Ethiopia. *Int J Environ Res Public Health.* 2022;19(18):11633. doi:10.3390/ijerph191811633
21. Jepsen N, Charania NA, Mooney S. Health care experiences of mothers of children with bronchiectasis in Counties Manukau, Auckland, New Zealand. *BMC Health Serv Res.* 2018;18(1):1-9.
22. Tikouk J, Ait Boubkr A. Transportation and access to healthcare in Morocco: An exploratory study of Guelmim-Oued Noun Region. *Ann Glob Health.* 2024;90(1):1-15. doi:10.5334/aogh.4063
23. Ibeneme GC, Nwaneri AC, Ibeneme SC, Ezenduka P, Strüver V, Fortwengel G, Okoye IJ. Mothers' perception of recovery and satisfaction with patent medicine dealers' treatment of childhood febrile conditions in rural communities. *Malar J.* 2016;15(1):1-9. doi:10.1186/s12936-016-1384-5
24. Chauhan A, Campbell C. Risk, trust and patients' strategic choices of healthcare practitioners. *Sociol Health Illn.* 2021;43(1):82-98. doi:10.1111/1467-9566.13198
25. Chiu IMC, Sy MP, Oruga MDP, Bonito SR. Children with special needs and their access to rehabilitation services in the Philippines: A Q methodology study on perceived barriers by family members. *Public Health Challenges.* 2023;2(2):e79. doi:10.1002/puh2.79
26. Rokicki S, Patel M, Suplee PD, D'Oria R. Racial and ethnic disparities in access to community-based perinatal mental health programs: Results from a cross-sectional survey. *BMC Public Health.* 2024;24(1):1-9. doi:10.1186/s12889-024-18517-7
27. Khound S. An analysis of access to primary health care services: A study in Jorhat District of Assam. *Indian J Public Health Res Dev.* 2019;10(9):435-40. doi:10.5958/0976-5506.2019.02466.5
28. Sawyer MG, Frost L, Bowering K, Lynch J. Effectiveness of nurse home-visiting for disadvantaged families: Results of a natural experiment. *BMJ Open.* 2013;3(4):e002720. doi:10.1136/bmjopen-2013-002720

29. Ogu UU, Ebenso B, Mirzoev T, Uguru N, Etiaba E, Uzochukwu B, Ezumah N, Onwujekwe O. Demand and supply analysis for maternal and child health services at the primary healthcare level in Nigeria. *BMC Health Serv Res.* 2023;23(1):1-9. doi:10.1186/s12913-023-10210-6
30. Swan LET, Auerbach SL, Ely GE, Agbemenu K, Mencia J, Araf NR. Family planning practices in Appalachia: Focus group perspectives on service needs in the context of regional substance abuse. *Int J Environ Res Public Health.* 2020;17(4):1198. doi:10.3390/ijerph17041198
31. Smithman MA, Descôteaux S, Dionne É, Richard L, Breton M, Khanassov V, Haggerty JL. Typology of organizational innovation components: Building blocks to improve access to primary healthcare for vulnerable populations. *Int J Equity Health.* 2020;19(1):1-17. doi:10.1186/s12939-020-01263-8
32. Ye J. Transforming and facilitating health care delivery through social networking platforms: Evidence and implications from WeChat. *JAMIA Open.* 2024;7(2). doi:10.1093/jamiaopen/ooae047
33. Asa GA, Fauk NK, Mwanri L, Ward PR. Understanding barriers to the access to healthcare and rehabilitation services: A qualitative study with mothers or female caregivers of children with a disability in Indonesia. *Int J Environ Res Public Health.* 2021;18(21):11546. doi:10.3390/ijerph182111546
34. Dedewanou FA, Allin S, Guyon A, Pawa J, Ammi M. Prioritization of public health financing, organization, and workforce transformation: A Delphi study in Canada. *BMC Public Health.* 2023;23(1):1-9. doi:10.1186/s12889-023-15373-9
35. Passey ME, Adams C, Paul C, Atkins L, Longman JM. Improving implementation of smoking cessation guidelines in pregnancy care: Development of an intervention to address system, maternity service leader and clinician factors. *Implement Sci Commun.* 2021;2(1):1-18. doi:10.1186/s43058-021-00235-5
36. Walls H, Pries A, Chotivichien S, Huynh P, Fahmida U, Blankenship J. Health first, convenience second: Caregiver perspectives of commercially produced complementary foods in five Southeast Asian capital cities. *Matern Child Nutr.* 2023;19(S2):e13600. doi:10.1111/mcn.13600
37. Boltana MT, Kebede AS, El-Khatib Z, Oppong Asamoah B, Boltana AT, Tyae H, et al. Male partners' participation in birth preparedness and complication readiness in low- and middle-income countries: A systematic review and meta-analysis. *BMC Pregnancy Childbirth.* 2021;21(1):1-22. doi:10.1186/s12884-021-03994-0
38. Penchansky R, Thomas JW. The concept of access. *Med Care.* 1981;19(2):127-40.
39. Burtcher D, Maukner AC, Piatti M, Verschuere J, Aruna TM, Em O, et al. "Where my pocket can afford is where I will take my child". The influence of structural factors on the health-seeking behavior of the population in Gorama Mende and Wandor Chiefdoms, Kenema District, Sierra Leone. *SSM Qual Res Health.* 2022;2:100067. doi:10.1016/j.ssmqr.2022.100067
40. El-Yousfi S, Jones K, White S, Marshman Z. A rapid review of barriers to oral healthcare for vulnerable people. *Br Dent J.* 2019;227(2):143-51. doi:10.1038/s41415-019-0529-7

ACKNOWLEDGMENTS

We would like to express our gratitude to the Ministry of Health of the Republic of Indonesia for providing the facilities, the Head of the Southeast Sulawesi Provincial Health Office for offering the opportunity to conduct this research, and the Head of the South Konawe District Health Office for providing support and ensuring the smooth implementation of this research project.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHORSHIP CONTRIBUTION

Conceptualization: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu.

Data curation: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan, Yunita Amraeni, Mieska Despitasi, Made Ayu Lely Suratri, Paisal, Dea Anita Ariani Kurniasih, Lusy Noviani, and Rustika.

Formal analysis: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Research: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan, Yunita Amraeni, Mieska Despitasi, Made Ayu Lely Suratni, Paisal, Dea Anita Ariani Kurniasih, Lusy Noviani, and Rustika.

Methodology: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Project management: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Resources: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Software: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Supervision: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan.

Validation: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan, Yunita Amraeni, Mieska Despitasi, Made Ayu Lely Suratni, Paisal, Dea Anita Ariani Kurniasih, Lusy Noviani, and Rustika.

Display: Gurendro Putro.

Drafting - original draft: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan, Yunita Amraeni, Mieska Despitasi, Made Ayu Lely Suratni, Paisal, Dea Anita Ariani Kurniasih, Lusy Noviani, and Rustika.

Writing - proofreading and editing: Gurendro Putro, Sija Tiku, Erwin, Ristrini, Noer Endah Pracoyo, Nita Rahayu, Muhammad Nirwan, Yunita Amraeni, Mieska Despitasi, Made Ayu Lely Suratni, Paisal, Dea Anita Ariani Kurniasih, Lusy Noviani, and Rustika.