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Mapping Socioeconomic Vulnerability in Maternal Health Through a Community Survey to Inform Equitable Public Policy

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ABSTRACT

Socioeconomic disadvantage can restrict women's access to maternal health care, making equitable service provision an important public policy concern. This study describes socioeconomic vulnerability among women in marginalized communities in Makassar and discusses its implications for maternal health policy. A quantitative descriptive survey was conducted in Panakkukang, Tallo, and Tamalate from October to December 2022. Of 765 questionnaires distributed, 560 were completed, representing a completion proportion of 73.2%. Data were analysed using frequency distributions, supported by field observations and documentary material. A total of 400 respondents (71.4%) reported monthly household income below Rp1,100,000. Limited household resources and educational disadvantage emerged as concerns relevant to pregnancy-related needs and access to care. These findings highlight the importance of integrating maternal health services with social support. Policy priorities include assistance with health insurance access, support for indirect care costs, understandable health information, and continuity of primary and referral care. As a descriptive study, the research provides a local basis for identifying socioeconomic vulnerability and developing equitable service responses; it does not estimate causal relationships with maternal health outcomes.

Keywords: maternal health; socioeconomic vulnerability; public policy; equity

INTRODUCTION

Maternal health policy must address the conditions that enable women to obtain care throughout pregnancy, childbirth, and the postnatal period. A service may be available in a city while remaining difficult to use for households with unstable income, limited information, or competing responsibilities. The World Health Organization (2025b) locates health inequities within the distribution of resources and opportunities across society. Its maternal mortality estimates also demonstrate the continuing importance of preventing avoidable deaths through effective services and sustained investment (World Health Organization, 2025a). These perspectives make socioeconomic vulnerability relevant to public administration, particularly where health financing, social assistance, and local service delivery operate through different institutions.

Income can influence care seeking through more than the price of a consultation. Travel, food, childcare, and time away from paid work may remain difficult to finance even when treatment is covered. Household resources also affect access to adequate nutrition and a living environment that supports recovery. Abdi, Jayamohan, and Adem (2025) examined economic inequalities in nutritional status and maternal mortality in Somaliland, while Janaki and Prabakar (2025) discussed pathways connecting poverty with adverse pregnancy outcomes.

Their findings provide comparative context rather than estimates for Makassar. The important analytical question is which constraints local households face, and which institutions have the capacity to reduce them.

Education and decision-making opportunities can further shape the ability to recognize health needs and navigate services. Ahmed, Creanga, Gillespie, and Tsui (2010) examined economic status, education, and empowerment in maternal service use across developing countries. Amwonya, Kigosa, and Kizza (2022) investigated female education and maternal health care utilization in Uganda. These studies suggest that financial resources and information should be considered together. However, educational disadvantage should not be interpreted as a personal failure. Public services have a responsibility to explain procedures clearly, offer support suited to different literacy levels, and ensure that women can participate in decisions about their care.

Andersen's (1995) behavioural model offers a useful distinction between predisposing characteristics, enabling resources, and health needs. Applied here, education and age describe aspects of the social context, while income, insurance, transport, and service availability concern the resources that make access possible. The three delays framework separates difficulties deciding to seek care, reaching a facility, and receiving appropriate treatment (Thaddeus & Maine, 1994). These frameworks guide the interpretation of socioeconomic circumstances relevant to maternal care. They also explain why expanding information alone may be insufficient when households lack transport or facilities cannot provide timely assistance.

Indonesia's national health insurance programme, Jaminan Kesehatan Nasional, is directly relevant to these enabling conditions. Anindya et al. (2020) associated enrolment with improved maternal service access while identifying persistent socioeconomic and geographical inequalities. Rahmawati and Hsieh (2024) examined maternal service utilization before and after programme implementation, and Rahmawati, Hsieh, and Liang (2024) assessed inequalities in women's insurance coverage. Together, these studies distinguish wider formal coverage from equitable access. Adnan and Ekasari (2025) likewise examined socioeconomic differences in hospital childbirth utilization using Indonesian national data. Local policy therefore needs to consider whether women can activate coverage and obtain appropriate services when they need them.

Continuity across stages of care is another concern. Andriani, Rachmadani, Natasha, and Saptari (2022) investigated the maternal, newborn, and child health continuum in Indonesia. Andriani, Rahmawati, Fauzia, and Kosasih (2022) extended this perspective across lower-middle-income Southeast Asian countries. Evidence on antenatal non-use in eastern Indonesia further emphasizes the relevance of household and maternal circumstances (Titaley et al., 2025). A multicountry analysis by Tamir et al. (2025) similarly examined the distribution and determinants of antenatal non-utilization. These studies support assessment of care at successive stages, rather than assuming that one contact indicates adequate access throughout pregnancy and recovery.

Marginalization may also involve exclusion from respectful, responsive services. Hailu, Maddali, Snowden, Carmichael, and Mujahid (2022) reviewed structural racism and adverse maternal outcomes in the United States. Brailey and Slatton (2024) explored Black women's experiences of maternal healthcare. These studies highlight the importance of institutional treatment and women's experiences in socioeconomic analysis. International guidance also places quality and wellbeing within maternal and newborn care (World Health Organization, 2022, 2023). For public institutions, equity concerns the quality of assistance received as well as the number of people formally served.

This study describes socioeconomic circumstances among women in marginalized communities in Panakkukang, Tallo, and Tamalate, Makassar, and examines their implications for equitable maternal health policy. It focuses on household resources and the practical conditions that support access to care. The analysis relates local descriptive findings to research on maternal healthcare inequalities in Indonesia (Wahyuningsih et al., 2025) and guidance on monitoring social determinants of health (World Health Organization, 2024). Its contribution is to inform locally relevant priorities for financing, health communication, and continuity of care.

METHODS

The study employed a quantitative descriptive approach and was conducted in three districts of Makassar City: Panakkukang, Tallo, and Tamalate. Data collection took place from October to December 2022. The study focused on women in marginalized communities within these districts and described socioeconomic circumstances relevant to maternal health care.

Questionnaires were distributed to women in the participating communities. Of the 765 questionnaires distributed, 560 were completed and included in the descriptive analysis. Primary data were obtained through questionnaires and field observations. Institutional documents, books, and research publications provided contextual material for interpreting the findings.

The analysis focused on socioeconomic circumstances relevant to maternal care, particularly monthly household income, alongside contextual information on education, age, work, and pregnancy-related needs. Monthly household income below Rp1,100,000 was used as an operational category for describing respondents' economic circumstances. This threshold was a study-specific criterion rather than an official poverty-line measure. Field observations complemented the quantitative description by providing context on household needs and access to care.

Data were analysed using frequency distributions in IBM SPSS Statistics version 25. Percentages were calculated using the 560 completed questionnaires as the denominator for respondent characteristics and the 765 distributed questionnaires for the completion proportion. The analysis described the sample without inferential statistical testing. Findings were discussed in relation to maternal health literature and public policy frameworks to identify priorities for equitable service provision.

To distinguish evidence sources, questionnaire frequencies were treated as direct survey findings, while field observations provided qualitative contextual information without quantified prevalence estimates. Explanations drawn from prior studies and policy frameworks were used to formulate possible policy responses, not to infer unmeasured outcomes among respondents. The survey represents conditions documented during October–December 2022; later publications inform interpretation but do not update the underlying field data.

RESULT AND DISCUSSION

The study included 560 women from Panakkukang, Tallo, and Tamalate. Of the 765 questionnaires distributed, 560 were completed, yielding a completion proportion of 73.2%. Table 1 summarizes the study setting and questionnaire completion.

Table 1: Survey Scope and Questionnaire Completion

Measure	Study information
Study districts	Panakkukang, Tallo, and Tamalate
Fieldwork period	October–December 2022
Questionnaires distributed	765
Complete questionnaires	560
Completion proportion	73.2%

Source: Study data.

Monthly household income was used to describe respondents' socioeconomic circumstances. Of the 560 respondents, 400 (71.4%) reported a monthly household income below Rp1,100,000. This finding indicates that a substantial proportion of the sample lived in households with limited economic resources. Table 2 presents the reported low-income count in relation to the total sample.

Table 2: Monthly Household Income of Respondents

Monthly household income	Frequency (n)	Percentage (%)
Below Rp1,100,000	400	71.4
Total respondents	560	100.0

Note: The Rp1,100,000 monthly household income threshold is an operational criterion used in this study, rather than an official poverty-line threshold. The table presents the reported low-income count and the total sample, rather than a complete distribution of income categories.

Field observations and contextual descriptions highlighted difficulties meeting pregnancy-related needs, alongside concerns about educational disadvantage and understanding health information. Maternal age and demanding work were also discussed as circumstances relevant to maternal wellbeing. These observations complement the income findings by identifying practical issues that maternal health services and social assistance programmes can address.

The income count is a directly measured questionnaire result. In contrast, references to educational disadvantage, maternal age, occupational demands, and pregnancy-related difficulties are contextual observations and considerations described in the field material; the present analysis does not report their frequencies or test associations with healthcare use. Accordingly, these considerations should not be interpreted as quantified patterns across all 560 respondents.

The finding that 400 respondents reported monthly household income below Rp1,100,000 highlights the relevance of financial resources to maternal service planning. Household income shapes the resources available for nutrition, travel, and other pregnancy-related needs. Abdi et al. (2025) examined inequalities in nutrition and maternal mortality, while Janaki and Prabakar (2025) discussed pathways connecting poverty with adverse pregnancy outcomes. These studies provide a basis for interpreting economic vulnerability as a policy concern. In Makassar, assistance should respond to households' specific needs and be accompanied by assessment of access to care.

The survey directly documents the proportion of respondents in the study-defined lower-income category. It does not establish whether particular respondents delayed care,

experienced adverse pregnancy outcomes, or lacked insurance. The pathways between limited resources and maternal healthcare described here are therefore interpretations informed by the cited literature, rather than additional survey results.

Insurance assistance is a plausible response to direct financial barriers. Indonesian evidence associates national health insurance with better maternal service utilization while showing that inequalities remain (Anindya et al., 2020; Rahmawati & Hsieh, 2024). Inequalities in coverage also vary with socioeconomic circumstances (Rahmawati et al., 2024). A local programme could help eligible women check membership, resolve administrative difficulties, and understand referral arrangements. Insurance needs should be assessed at the household level. Eligibility screening and service records would be needed to avoid assuming that every low-income household faces the same insurance problem.

Indirect costs require separate assessment. Women may need money for travel or help arranging childcare, and a visit may interrupt daily earnings. Andersen's (1995) model places these practical resources within the conditions enabling service use. The three delays framework further explains how difficulties reaching care differ from difficulties receiving care after arrival (Thaddeus & Maine, 1994). For Makassar, proposed responses include transport assistance and appointment arrangements compatible with work and family responsibilities. Local needs assessment can guide the design and evaluation of these measures. They should be coordinated with facilities able to receive and refer women promptly.

Health information should accompany practical assistance. Ahmed et al. (2010) and Amwonya et al. (2022) link educational and social resources with maternal service use. For primary care centres, or puskesmas, this supports counselling in understandable language, opportunities to ask questions, and clear explanations of where to seek help. The report recommends outreach adapted to marginalized communities, which is consistent with this approach. Yet counselling cannot be evaluated simply by counting sessions. Follow-up should examine whether women understood the advice, could act on it, and obtained the intended service.

Education-related barriers should likewise be interpreted cautiously: the field material raised concerns about understanding health information, but the study does not provide a numerical distribution of educational attainment or demonstrate that education predicted service use. Similarly, maternal age and work responsibilities are relevant contextual considerations rather than tested explanatory factors in this descriptive dataset.

Service continuity provides a more informative policy outcome than one isolated contact. Indonesian and regional analyses identify socioeconomic differences across the maternal and child care continuum (Andriani, Rachmadani, et al., 2022; Andriani, Rahmawati, et al., 2022). Research on antenatal non-use also supports attention to differences in household circumstances and health service access (Tamir et al., 2025; Titaley et al., 2025). Local monitoring could follow care from pregnancy registration through delivery and postnatal contact, recording interruptions and their reported reasons. Postnatal provision should include maternal wellbeing as well as newborn needs, in line with international guidance (World Health Organization, 2022).

Continuity of antenatal, delivery, and postnatal care is proposed here as a literature-informed policy objective. The survey did not collect quantitative indicators of attendance, delivery location, postnatal visits, or interrupted referrals. Consequently, no conclusion about actual continuity of maternal healthcare among the respondents can be drawn from these data.

Institutional quality also matters. Adnan and Ekasari (2025) found socioeconomic differences in hospital childbirth utilization in Indonesia. Wider research on structural exclusion and women's healthcare experiences illustrates why formal access may coexist with

unequal treatment (Brailey & Slatton, 2024; Hailu et al., 2022). This literature supports respectful communication and accessible complaints procedures as policy considerations. Future work should ask women directly about costs, waiting, information, referral problems, and treatment by staff. Such evidence would help distinguish household constraints from problems within public service delivery.

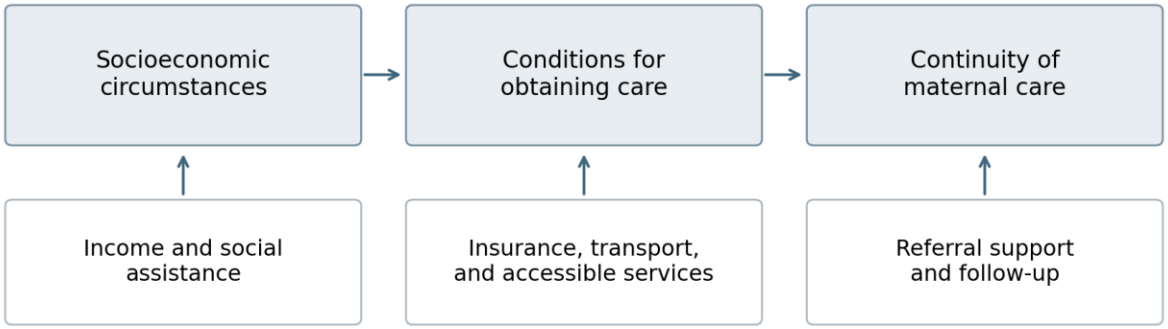


Figure 1. Conceptual Framework for Public Policy Interpretation

Source: Conceptual framework adapted from Andersen (1995), Thaddeus and Maine (1994), and World Health Organization (2025b).

An equitable policy response requires coordination between health administration and social assistance. Puskesmas could identify maternal care needs, while relevant local units assess eligibility for financial or practical support. Community participation would help identify obstacles that routine records miss. The World Health Organization (2025b) emphasizes action on the distribution of social resources, while its maternal and newborn progress report supports sustained investment in services (World Health Organization, 2023). Table 3 translates these principles into proposed responsibilities and indicators. The proposed responsibilities can guide coordination and programme planning.

In terms of immediate feasibility, the first priorities for puskesmas and local government are understandable counselling and assistance in checking insurance enrolment or resolving administrative access problems. These measures can be incorporated into existing patient-contact and community outreach routines and monitored through simple records of counselling comprehension and resolved coverage issues. Screening for transport or other indirect costs is a practical next step, but financial assistance would require eligibility verification, interagency coordination, and available funding. More comprehensive continuity-of-care and equity monitoring should follow once facilities agree on referral documentation, secure data sharing, and consistent indicators. This sequence is a feasibility-oriented policy proposal based on the descriptive evidence and institutional functions, not an intervention effectiveness ranking established by the survey.

Table 3. Proposed Policy Priorities and Monitoring Indicators

Priority	Proposed coordinating actors	Suggested indicator
Insurance access	Health administration and relevant insurance and assistance units	Eligible women with usable coverage
Indirect care costs	Social assistance units with puskesmas	Reported transport and income-related barriers
Understandable counselling	Puskesmas and community outreach teams	Understanding of advice and referral steps
Continuity and referral	Puskesmas and referral facilities	Care completion and interrupted referrals
Equity monitoring	District health office and local planning units	Coverage gaps by socioeconomic group

Source: Policy recommendations developed from the study findings and literature.

Evaluation should consider who benefits and who remains outside care. Wahyuningsih et al. (2025) examined drivers of unequal maternal healthcare utilization in Indonesia, supporting attention to differences concealed by average coverage. The World Health Organization (2024) recommends linking social determinant monitoring with policy action. Locally, indicators could be disaggregated by district, income category, insurance status, education, and age, provided confidentiality is protected. Programmes should record both coverage and unresolved access problems. Baseline and follow-up data are needed to evaluate changes in equitable access and maternal health outcomes.

The study has several limitations. Its descriptive design supports interpretation of socioeconomic circumstances within the participating communities but does not establish causal relationships or citywide prevalence. The income findings describe the reported low-income group rather than a complete distribution across income categories. Maternal service utilization and clinical outcomes were not measured quantitatively in the analysis. The findings reflect the 2022 study period. Further research should examine financial barriers, insurance status, continuity of care, and maternal outcomes using clearly defined indicators and longitudinal or comparative designs.

Although several references published in 2024–2025 are used to situate the findings within current scholarship, they should not be taken as evidence that the socioeconomic profile observed in 2022 remains unchanged. Updated local assessment is needed before applying the proposed priorities to present-day service planning.

CONCLUSION

This study describes socioeconomic vulnerability among 560 women in marginalized communities in Panakkukang, Tallo, and Tamalate, Makassar. A total of 400 respondents (71.4%) reported monthly household income below Rp1,100,000, highlighting limited household resources as a concern for maternal health policy. Contextual findings also drew attention to educational disadvantage and difficulties meeting pregnancy-related needs. These findings support coordinated responses that connect maternal health services with insurance assistance, support for indirect costs, understandable counselling, and continuity of care. Puskesmas, referral facilities, and social assistance units have complementary roles in addressing these needs. Monitoring access across socioeconomic groups can help local

institutions assess whether support reaches women facing the greatest barriers. Further research on service utilization and maternal outcomes is needed to evaluate the effectiveness of these policy responses.

The principal contribution is preliminary, place-specific evidence of economic vulnerability among the surveyed women, which can help local institutions identify groups for more targeted assessment of maternal healthcare needs. The recommended insurance, communication, indirect-cost, and referral measures are policy implications rather than observed effects or measured service-utilization patterns. Because data were collected in 2022, their present-day applicability should be assessed through updated community and facility information.

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