

THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND TRUST IN HEALTH WORKERS WITH EARLY PLANNING REFERRAL DECISIONS IN PASURUAN, INDONESIA

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ABSTRACT

Indonesia's Maternal Mortality Rate (MMR) remains elevated compared to other ASEAN nations. Various factors contribute to these issues, including high-risk pregnancies and delay in referral to healthcare facilities. One approach to reducing MMR is planned early referral, ensuring that high-risk pregnant women receive timely and appropriate care. However, the implementation of early referral still faces challenges, particularly related to socioeconomic status and trust in healthcare services, which influence referral decision.

The aim of this study is to examine the relationship between socioeconomic status and trust in healthcare services with planned referral decisions among pregnant women in Pasuruan Regency, Indonesia. A cross-sectional analytical observational study design was used, involving 116 pregnant women selected proportionally from a total population of 580. Data were collected by means of questionnaires and analyzed using Chi-Square and ordinal logistic regression test ($p < 0.05$).

The result indicates a significant relationship between socioeconomic status ($p = 0.043$) and trust in healthcare services ($p = 0.001$). The analysis shows that socioeconomic status and trust in healthcare services account for 35.6% of planned early referral decisions, with trust in healthcare services having a stronger influence (OR = 6.04) than socioeconomic status (OR = 3.36). These findings suggest that planned early referral decisions are significantly affected by socioeconomic status and trust in healthcare services, who play a crucial role in improving access to optimal maternal healthcare services.

KEYWORDS

Maternal Mortality Rate, Planned Early Referral, Socioeconomic Status, Trust in Healthcare Services

INTRODUCTION

Health is a fundamental aspect of human life, so equal access to health services is paramount. One of the important services is maternal and child health, which plays a role in maintaining the safety of mothers and babies. However, Indonesia noted that the Maternal Mortality Rate (MMR) is still higher than other countries in other countries in ASEAN [1]. According to a 2020 WHO report, about 287,000 mothers died worldwide, with 95% of deaths occurring in low-income countries. In Indonesia, MMR reached 4,005 cases in 2022 and increased to 4,129 cases in 2023 [2]. In East Java, MMR decreased from 499 cases in 2022 to 443 cases in 2023. Meanwhile, in Pasuruan Regency, the MMR decreased from 18 cases in 2022 to 14 cases in 2023 but still did not reach the set target [3].

The main factors that cause MMR include hypertension in pregnancy, bleeding, heart disease, and delays in referral services³. The referral system plays an important role in handling emergencies in pregnant women, where early referral is planned to be a strategic step to ensure that pregnant women at high risk receive timely care [4].

However, the quality of health services in Pasuruan Regency still needs to be improved. Nunu et al. (2023) stated that the main obstacles in the implementation of early referral include medical treatment including delays in family decisions, delays in access to health facilities, and slow receipt of help [5]. In addition, socioeconomic factors and belief in health also influence family decisions in early referrals for high-risk pregnant women [6]. Therefore, education for pregnant women and family's needs to be improved so that the understanding of the importance of early planning referral is better. Based on this, this study aims to examine the relationship between socioeconomic status and trust in health workers and planning early referral decisions for pregnant women in Pasuruan Regency, Indonesia.

METHOD

The research was carried out quantitatively and the research design was observational analysis with an approach cross sectional to analyze the relationship between socioeconomic status and trust in health workers with planning early referral decisions.

This research has gone through a review process and received approval from the Ethics Commission, No. 469/EC/KEPK-S1-KB/12/2024.

POPULATION AND SAMPLE

The study population included 580 pregnant women who underwent pregnancy check-ups at health centers of type D hospitals, type B hospitals, and Mother and Child Clinics during the study period, which was one month. The sample used was 116 pregnant women who were selected using proportionate stratified random sampling or 20% of the population. The inclusion criteria in sampling are pregnant women who undergo pregnancy examinations at health facilities in the Pasuruan Regency area and are willing as respondents, while the exclusion criteria are pregnant women who refuse to participate in the study.

The study sample size was determined using G*Power 3.1.9.7 software for ordinal logistic regression analysis. Parameters used included a significance level of $\alpha = 0.05$, statistical power $(1-\beta) = 0.80$, two predictor variables, and an effect size estimated from previous studies (OR 3.0–6.0) [7][6]. The proportion of the outcome in the population was estimated at 85%.

The calculation indicated a minimum requirement of 92 respondents. Considering the potential for missing data of $\pm 20\%$, the sample size was increased to 116 respondents. Post-hoc power analysis validation based on actual data showed statistical power of 0.82 for the socioeconomic status variable and 0.95 for the trust in health workers variable, confirming the adequacy of the sample size to detect the observed effect (power ≥ 0.80).

OPERATIONAL DEFINITIONS AND VARIABLE MEASUREMENT

Planned early referral decisions were measured using a structured questionnaire containing 28 items that assessed knowledge regarding referral indications, readiness to accept referral, and referral planning. Each item was scored on a Likert scale, and the total score was categorized into three ordinal levels (inappropriate, somewhat appropriate, and appropriate) based on the score distribution. Ordinal logistic regression modeling was chosen because the outcome variable has a hierarchical order and meets the proportional odds assumption, as confirmed by the Brant test. The instrument demonstrated good validity and reliability (KMO 0.78; Bartlett $p < 0.001$; Cronbach's alpha 0.87).

The independent variables consisted of socioeconomic status and trust in healthcare providers. Socioeconomic status was derived from a composite score of education, occupation, and family income, then categorized as low, medium, and high. Trust in healthcare providers was measured using an adaptation of the Health Care Provider Trust Scale, which

encompasses aspects of competence, communication, and caring, and is categorized as poor, adequate, and good. This scale has excellent internal consistency (Cronbach's alpha 0.89).

DATA ANALYSIS

Data were analyzed with the Chi-Square test to determine the relationship between socioeconomic status and trust in health workers with planned early referral decisions. In addition, ordinal logistic regression analysis was conducted to determine the influence of the two variables with planned early referral decisions. All data analysis was carried out using SPSS software version 27 with a significance value of < 0.05.

RESULT

RESPONDENT CHARACTERISTICS

Based on the data in Table 1, it is known that most of the characteristics of the respondents in this study are women of reproductive age between 20-35 years old, have a secondary level of education, do not work, and have a total average family income of between Rp2,317,000-Rp4,635,000. Most of the respondents are pregnant women who have never given birth, in other words are currently undergoing their first pregnancy and most of them are entering the first trimester third.

TABLE 1: DISTRIBUTION OF RESPONDENTS' CHARACTERISTICS

Characteristics	Category	Frequency (n)	Percentage (%)
Age	< 20 years	2	1.7
	20–35 years	107	92.2
	> 35 years	7	6.0
Education	Low	18	15.5
	Moderate	59	50.9
	High	39	33.6
Employment status	Unemployed	72	62.1
	Employed	44	37.9
Household income	< Rp 2,317,000	30	25.9
	Rp 2,317,000–4,635,000	50	43.1
	> Rp 4,635,000	36	31.0
Parity	Nulliparous	64	55.2
	Multiparous	52	44.8
Gestational age	First trimester	30	25.9
	Second trimester	33	28.4
	Third trimester	53	45.7
Total		116	100

IDENTIFY SOCIOECONOMIC STATUS

Based on Table 2, it shows that of the 116 respondents, the majority are classified as middle socioeconomic status, namely 49 respondents (42.2%). Meanwhile, as many as 36 respondents (31%) are included in the high level of socioeconomic status. Respondents with low socioeconomic status were the least, namely 31 respondents (26.7%). It can be noted that most of the respondents come from middle to upper economic backgrounds.

TABLE 2: SOCIOECONOMIC STATUS OF RESPONDENTS

Socioeconomic Status	Frequency (n)	Percentage (%)
Low	31	26.7
Middle	49	42.2
High	36	31.0
Total	116	100.0

IDENTIFY TRUST IN HEALTH WORKERS

Based on Table 3, it was found that of the 116 respondents, the majority of respondents, namely 96 respondents or (82.2%) showed a good level of trust in the services provided by health workers. Meanwhile, as many as 13 respondents (11.2%) had a sufficient level of trust, and another 7 respondents (6%) showed a lack of trust in the services provided by health workers. This indicates that most of the respondents who conduct pregnancy examinations at health facilities have good trust in health workers who have provided services.

TABLE 3. FREQUENCY DISTRIBUTION OF TRUST IN HEALTH WORKERS

Trust in Health Workers	Frequency (n)	Present (%)
Less	7	6.0
Enough	13	11.2
Good	96	82.2
Total	116	100.0

IDENTIFY PLANNED EARLY REFERRAL DECISIONS

Based on Table 4, it is known that out of 116 respondents, 102 respondents (87.9%) made the right decision in conducting early planning referrals. Meanwhile, 12 respondents (10.3%) had a fairly appropriate decision in planning early referral decisions, and the other 2 respondents (1.7%) made inappropriate decisions on planning early referral. This shows that the majority of respondents have made an appropriate decision in planning early referral planning.

TABLE 4. EARLY PLANNED REFERRAL DECISION

Early Planned Referral Decision	Frequency (n)	Percentage (%)
Inaccurate	2	1.7
Moderately accurate	12	10.3
Accurate	102	87.9
Total	116	100.0

THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND EARLY PLANNED REFERRAL DECISIONS

Based on tests Chi-Square at Table 5, a meaningful positive relationship was obtained between socioeconomic status and planning early referral decisions ($p = 0.043$). With the significance used ($p < 0.05$), it shows that there is a relationship between socioeconomic status and early planning referral decisions.

THE RELATIONSHIP OF TRUST IN HEALTH WORKERS WITH EARLY PLANNED REFERRAL DECISIONS

Based on the statistical results test in Table 6, a significant relationship was obtained due to the value ($p = <0.001$). With significance ($p < 0.05$), it was found that trust in health workers had a significant relationship with planning early referral decisions in pregnant women.

TABLE 5. THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND EARLY PLANNED REFERRAL DECISIONS

Socioeconomic Status	Planned Early Referral Decision			Total	p-value
	Inaccurate	Quite Precise	True		
Low	2	6	23	31	0.043
Intermediate	0	4	45	49	
Tall	0	2	34	36	
Total	2	12	102	116	

TABLE 6. THE RELATIONSHIP OF TRUST IN HEALTH WORKERS WITH EARLY PLANNED REFERRAL DECISIONS

Trust in Health Workers	Planned Early Referral Decision			Total	p-value
	Inaccurate	Quite Precise	True		
Less	0	6	1	7	<0.001
Enough	1	1	11	13	
Good	1	5	90	96	
Total	2	12	102	116	

Pseudo R-Square

Based on the calculation of the coefficient of determination in Table 7, the R-Square value approach is analyzed using various methods. Among the methods used, the Nagelkerke method produced the highest value of 0.356. This shows that the variables of socioeconomic status and trust in health workers in the study were able to influence the variable of planned early referral decisions by 35.6%, while the remaining 64.4% were influenced by other variables that were not analyzed in the study.

TABLE 7. PSEUDO R-SQUARE

Pseudo R-Square	
Cox and Snell	0.202
Nagelkerke	.356
McFadden	.270

REGRESSION EQUATION TEST

Based on the analysis in Table 8, the socioeconomic status variable shows a significance value ($p = 0.019$) and an Odds Ratio value ($OR = 3.36$). Because the significance value is smaller ($p < 0.05$), it can be concluded that socioeconomic status has an effect on the decision of early referral planning. Pregnant women with high socioeconomic status are 3.36 times more likely to make early referral decisions to plan appropriately compared to those with lower socioeconomic status. Meanwhile, the trust variable in health workers has a significance value ($p = <0.001$) and an Odds Ratio value ($OR = 6.04$). The significance value of this variable was also smaller ($p < 0.05$), which suggests that trust in health workers affects planning early referral decisions. The higher the level of trust of pregnant women in health workers received, the greater the chance of the right early planning referral decision, which is 6.04 times higher than pregnant women who have a low level of trust.

TABLE 8. REGRESSION EQUATION TEST

Variable	p-value	Odds Ratio	Information
Socioeconomic Status	0.019	3.36	Influential
Trust in Health Workers	<0.001	6.04	Influential

DISCUSSION

The determinant factors that affect referral decisions are health trust, economic status, access to facilities, medical expenses, and the need for health services [7]. This study shows that socioeconomic status affects the decision of early planning referral in pregnant women in the Pasuruan Regency area. Pregnant women who have high socioeconomic status have better access to health information and adequate financial ability to bear referral costs, so they are more likely to make the right decisions [8]. On the other hand, mothers with low socioeconomic status can experience cost constraints that have an impact on referral delays.

The findings in this study are in line with the results of a study previously conducted by Hadisusanto et al. (2018), which found that the better a person's economic status, the more likely they are to make an early referral. Although the relationship between economic status and referral decisions is positive, the effect is not significant [7]. Another study by Rusadi et al. (2019) also showed that socioeconomic status plays a role in pregnant women's referral decisions, mainly due to better access to health services in families with higher economic conditions [9]. Taken together, these studies suggest that while economic status contributes to referral readiness, its influence may vary across settings depending on financial protection mechanisms and service access.

In addition to socioeconomic status, trust in health workers is also a determining factor in referral decisions. In this study, it was found that there was a relationship between trust in health workers and the decision of early referral planning in pregnant women in the Pasuruan Regency area. This is in line with previous research that shows that the higher a person's level of trust in health services, the greater their confidence in referral decisions in emergency conditions [7]. Another study by Manuk et al. (2021) also supports these findings, with results showing that the majority of respondents with high confidence levels do not experience barriers to early referral decision [6].

The present findings further indicate that trust exerts a stronger influence on referral decisions than socioeconomic status. Theoretically, this is consistent with the Health Belief Model, where trust strengthens perceptions of susceptibility, benefits, and readiness to take preventive action, whereas economic status primarily influences perceived barriers [10, 11]. Trust also functions as social capital that facilitates information flow, reduces psychological resistance, and enhances adherence to medical recommendations [12, 13]. Dimensions of trust—technical competence, communication quality, and caring attitudes—have consistently been linked to patient decision in healthcare settings [14, 15]. From a cognitive psychology perspective, affect heuristics and authority bias further explain why recommendations from trusted health workers are more readily accepted than economic considerations [16]. In Indonesia's socio-cultural context, where interpersonal relationships and community authority figures play a central role in health decisions, trust becomes even more influential, especially in the JKN era where financial barriers have been substantially reduced.

Overall, the dominant influence of trust suggests that improving the quality of interactions between health workers and pregnant women, including communication, empathy, and technical competence, has the potential to have a greater impact on referral behavior than financial interventions alone. These findings underscore the importance of strategies to improve service quality and clinical relationships as part of efforts to strengthen the maternal referral system.

Trust in health workers is closely related to the Health Belief Model theory, which reveals that a person who has a high belief in the importance of healthy behaviors, including the use of health services, will be more likely to take preventive measures. Pregnant women's trust in health workers is influenced by various factors, such as communication, professionalism, and concern of health workers [7]. Quality services will increase pregnant women's confidence and encourage informed decision in early referral to reduce the risk of complications.

The results of this study reinforce earlier findings that affirm that socioeconomic status and trust in health workers are the main factors in planning early referral decisions in pregnant women. With optimal access to health, pregnant women with good economic conditions will be better prepared to face emergency situations and can make referral decisions more

quickly and appropriately [17]. In addition, trust in health workers is an essential factor in shaping pregnant women's decisions. Pregnant women who have good confidence in the competence of health workers and the quality of services provided, will tend to take advantage of available health facilities. This level of trust can be influenced by various factors such as previous positive experiences, good interaction with healthcare workers, and a good understanding of the benefits of planned early referral [18].

When socioeconomic factors and trust in health workers were reviewed at the same time, the results of this study revealed that the two factors are interrelated and are important factors in the referral decisions of pregnant women. By having a good socioeconomic status, it will be more appropriate for pregnant women with the risk of emergencies in deciding on early referral action planning. These two combinations of factors can help reduce the risk of pregnancy complications and reduce the Maternal Mortality Rate (MMR). Therefore, improving socioeconomic status and strengthening trust in health workers must be part of the strategy to improve the referral system for pregnant women to improve the quality of maternal health services.

The Nagelkerke R^2 value of 0.356 indicates that the model only explains about one-third of the variance in early planned referral decisions, leaving the majority of the variance attributable to other, unmeasured factors. This confirms that maternal referral decisions are complex and influenced by broader behavioral, social, and health system determinants. This underscores the need to investigate additional predictors to gain a more complete understanding of referral behaviour.

Several variables that theoretically have the potential to improve the model's predictive power should be considered in future research. Maternal health literacy, including the ability to understand and apply medical information, has been shown to influence maternal decisions and adherence to care [19, 20]. Similarly, broader perceptions of service quality, including accessibility, continuity of care, previous referral experience, and the condition of the referral facility are important determinants of maternal service utilization in various contexts [13]. Social factors, such as spousal and family support and household decision dynamics, have also been found to significantly influence referral decisions, particularly in collectivist societies [21]. Additional variables such as parity, facility distance, understanding of the National Health Insurance (JKN), psychological factors, and the quality of health worker communication likely contribute to the variance in referral behavior.

To enhance the robustness of the model in future research, mixed methods approach, longitudinal designs, and multilevel analyses are recommended. These approaches allow for a more comprehensive exploration of individual, family, community, and service system factors, thus strengthening predictions of maternal referral decisions and designing more effective interventions.

The findings of this study are consistent with those from other regions in Indonesia and Southeast Asia, where trust in health workers is a key determinant of maternal referral behavior. The proportion of correct referral decisions in Pasuruan Regency was higher than in several studies in other provinces, likely influenced by better health worker capacity and local competency-building programs. These results also align with findings in East Nusa Tenggara, where trust has been shown to facilitate referral decisions despite more challenging geographic access. Regionally, studies in Bangladesh indicate that structural and cost barriers remain dominant in contexts without health insurance [22], while in Nepal, women's autonomy is a key factor in referral behavior [23]. Findings from Vietnam and Cambodia confirm that perceived service quality and trust in providers are consistent determinants of maternal service utilization [24]. This pattern aligns with the post-JKN context in Indonesia, where financial barriers have decreased and relational factors—namely, trust, communication, and the quality of the patient experience—have become key determinants. Differences in system capacity and social context may influence the magnitude of the effect, but do not alter the general pattern that trust is a universal factor that needs to be strengthened in various interventions. These regional comparisons highlight that although context-specific factors influence the magnitude of effects, trust remains a universal determinant across diverse maternal health systems.

RESEARCH LIMITATIONS

This study has several limitations that should be considered. First, the cross-sectional design only allows for the identification of relationships between variables without establishing causality. Therefore, the possibility of reverse causality, unmeasured confounding factors, and unclear temporal sequence cannot be ruled out. Second, the use of a self-report questionnaire has the potential to introduce recall bias and social desirability bias. Third, the generalizability of the findings is limited to the context of Pasuruan Regency and may not be representative of other regions with different characteristics. Furthermore, the short data collection period may miss seasonal variations in referral patterns. Longitudinal or experimental research is needed to strengthen causal evidence in the future.

CONCLUSION

The results of this study indicate a significant association between socioeconomic status and trust in health workers and the decision to initiate early planned referrals for pregnant women in Pasuruan Regency. Both factors are important in pregnant women's referral decisions, with trust in health workers showing a stronger influence (OR = 6.04) than socioeconomic status (OR = 3.36).

These findings indicate that, in the context of the Indonesian health system with the National Health Insurance (JKN) program, socio-psychological factors (trust) play a more determinant role than economic factors in influencing maternal health behaviors. However, it should be emphasized that this study only establishes an association, not a causal relationship, due to the limitations of its cross-sectional design. Furthermore, the research model only explains 35.6% of the variance in referral decisions, indicating the presence of other important factors (such as health literacy, perceived service quality, and social support) that need to be explored in further research.

By increasing trust in health workers through structured, evidence-based interventions, while still socioeconomic status into account, it is hoped that the risk of complications during pregnancy can be reduced and maternal and infant mortality rates can be reduced in Pasuruan Regency and other regions in Indonesia.

RECOMMENDATIONS

The finding that trust in health workers is the strongest predictor of early planned referral decisions underscores the need for strategies focused on improving the quality of clinical relationships and patient-health worker interactions. Recommended priority efforts include: (1) improving the communication and counseling competencies of midwives and health workers through structured training and regular feedback mechanisms; (2) strengthening trust-based accountability systems, including routine surveys and rapid response mechanisms for complaints; (3) expanding community-based health education by involving trusted health workers and family participation; and (4) increasing transparency and coordination of the referral system through the integration of information and clear service standards. These interventions need to be supported by cross-sector collaboration, particularly in the provision of transportation, social support, and the utilization of the National Health Insurance (JKN) scheme to reduce non-medical barriers. Ongoing monitoring and evaluation are crucial to ensure program effectiveness and enable data-driven adjustments. This focus on strengthening trust is expected to result in significant improvements in planned referral decisions and contribute to reducing maternal risk in Pasuruan Regency and similar areas.

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