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JURNAL KEPENDUDUKAN DAN KEBIJAKAN

SOCIAL PROTECTION FOR INDONESIAN MIGRANT WORKERS: BETWEEN URGENCY AND THE COMPLEXITY OF CHALLENGES
Sukamdi, Zainudin, Arief Dahyan Supriadi, Tarimantan S Saragih, Agus Joko Pitoyo, Sri Purwatiningsih, Idris Ihwanudin, An Nisa Pramasanti, Fergie S Mahaganti, Fadly Eka Pradana, Rendra H Hutabarat, Denny Siregar, and Mochamad Andika Putra

POVERTY AND WOMEN'S EDUCATION AS DETERMINANTS OF STUNTING AND HEALTH RIGHTS IN RIAU PROVINCE
Yusnarida Eka Nizmi, Rahmi Yulia, Tuah Kalti Takwa, Umunnisa Hidayati, Herry Wahyudi, and Ahmad I.R.S Hasibuan

FEMALE-HEADED HOUSEHOLDS IN YOGYAKARTA, INDONESIA: DEMOGRAPHIC REALITIES AND POLICY PATHWAYS FOR INCLUSIVE DEVELOPMENT
Muhammad Arif Fahrudin Alfana and Ajeng Qonitah

INEQUALITIES IN MATERNAL COMPLICATIONS IN INDONESIA: A MULTILEVEL ANALYSIS OF EDUCATION, PARITY, AND HEALTH INSURANCE USING IFLS 2014/2015
Dwi Nofiana Gita Pertiwi

THE ROLE OF COLLABORATIVE LEADERSHIP: A CASE STUDY OF THE EID TRANSPORTATION COMMAND POST AT HUNIMUA FERRY PORT, INDONESIA
Salvius Osiyen Fatubun

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Article

Social Protection for Indonesian Migrant Workers:
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Sukamdi, Zainudin, Arief Dahyan Supriadi, Tarimantan S Saragih, Agus Joko Pitoyo, Sri Purwatiningsih, Idris Ihwanudin, An Nisa Pramasanti, Fergie S Mahaganti, Fadly Eka Pradana, Rendra H Hutabarat, Denny Siregar, and Mochamad Andika Putra 1

Poverty and Women's Education as Determinants of Stunting and
Health Rights in Riau Province
Yusnarida Eka Nizmi, Rahmi Yulia, Tuah Kalti Takwa, Umunnisa Hidayati, Herry Wahyudi, and Ahmad I.R.S Hasibuan 17

Female-Headed Households in Yogyakarta, Indonesia:
Demographic Realities and Policy Pathways for Inclusive Development
Muhammad Arif Fahrudin Alfana and Ajeng Qonitah 33

Inequalities in Maternal Complications in Indonesia:
A Multilevel Analysis of Education, Parity, and Health Insurance using IFLS 2014/2015
Dwi Nofiana Gita Pertiwi 49

The Role of Collaborative Leadership:
A Case Study of the Eid Transportation Command Post at Hunimua Ferry Port, Indonesia
Salvius Osiyen Fatubun 64

PREFACE

Understanding population dynamics in Indonesia demands more than a descriptive account of demographic indicators. It requires critical attention to how broader social structures, institutional arrangements, cultural expectations, and governance practices shape people's lived experiences. As the country continues to undergo rapid social transformation, marked by expanding labor mobility, persistent socio-economic inequality, evolving household forms, and persistent challenges in health systems—the need for interdisciplinary population research becomes ever more pressing.

This edition of *Populasi* brings together five scholarly contributions that offer complementary perspectives on these developments. Each article addresses a specific domain—migration, child health, household structure, maternal risks, and leadership in public service—but collectively they underscore the reality that demographic outcomes are produced through interconnected pathways. By weaving together micro-level vulnerabilities and macro-level institutional responses, the articles in this issue invite readers to engage with population questions through a more integrated and systemic lens.

The first article, by Sukamdi and colleagues, delves into the intricate issue of social protection for Indonesian migrant workers. Their analysis goes beyond identifying policy gaps; it situates the vulnerabilities of migrant workers within the broader global labor landscape, where irregular migration pathways, limited access to services, and competing institutional mandates create a fragmented protection environment. The authors highlight that effective social protection requires not only regulatory harmonization but also strong coordination between sending and receiving countries, as well as mechanisms that accommodate migrants' diverse experiences.

In the second article, Yusnarida Eka Nizma and her co-authors examine how poverty and women's education function as determinants of stunting and health rights in Riau Province. Their findings illuminate a broader demographic truth: children's health is deeply embedded in the social and economic positioning of women. By linking micro-level household determinants to structural constraints, the authors show that meaningful progress in reducing stunting cannot be separated from strengthening women's access to education, resources, and decision-making power. This article contributes significantly to policy debates on human capital development by emphasizing that demographic outcomes are inseparable from gender equity.

The third article, "Female-Headed Households in Yogyakarta," authored by Muhammad Arif Fahrudin Alfana and Ajeng Qonitah, focuses on an increasingly visible yet understudied demographic group. Female-headed households reflect shifts in marital patterns, labor participation, and gender norms. The authors explore how these households navigate economic pressure, urban challenges, and social expectations while balancing caregiving and income-generating roles. Their study offers a nuanced portrayal of resilience and vulnerability, illustrating how demographic transitions at the household level shape broader patterns of welfare and inequality in urban Indonesia.

The fourth contribution, written by Dwi Noviana Gita Pertiwi, provides a rigorous analysis of maternal complications using multilevel modeling with IFLS 2014/2015 data. By examining individual factors—education, parity, and health insurance—alongside community-level

influences, the article reveals that maternal health risks emerge from a complex layering of personal circumstances and contextual realities. The study demonstrates the importance of place as a determinant of health, reinforcing the need for geographically sensitive policies and equity-oriented health system improvements. This work adds substantive empirical depth to ongoing discussions about reproductive health disparities and maternal safety.

The final article, by Salvius Osiyen Fatubun, shifts the focus toward governance through a case study of the Eid Transportation Command Post at Hunimua Ferry Port. Although centered on transportation management, the article offers valuable insight into population mobility and the institutional capabilities required to manage it effectively. By analyzing the role of collaborative leadership, the study illustrates how coordinated action among agencies can enhance service responsiveness, mitigate risks, and maintain public safety during periods of extraordinarily high population movement. This contribution broadens the scope of demographic inquiry by showing that leadership and institutional synergy are key components of population governance.

Taken together, the articles in this issue highlight a central message: population outcomes are inseparable from the social systems in which individuals and communities are embedded. Whether addressing the rights of migrant workers, the foundations of child health, the complexities of household structures, the determinants of maternal well-being, or the governance of mobility, each article underscores the importance of integrative approaches that bridge demographic research and public policy.

We hope that this edition not only enriches scholarly discussions but also inspires readers to think more critically about the multifaceted dynamics that influence Indonesia's population landscape.

Happy reading.

December 2025

Editor in Chief,
Muhadjir Darwin

Populasi

Volume 33 Issue 2 2025 Page 1-16

Social Protection for Indonesian Migrant Workers: Between Urgency and the Complexity of Challenges

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Abstract

Social protection for Indonesian Migrant Workers (IMWs) is a critical topic concerning the rights and welfare of migrant workers. This page covers different areas of social protection for IMW, including pre-departure planning, work in the target country, and reintegration upon return to the motherland. According to Law No. 18/2017, social protection is divided into three major stages that coincide with Maslow's hierarchy of needs theory. Although bilateral agreements with nations such as Hong Kong and Japan have had a favorable impact, issues in socialization, cross-country coordination, and monitoring in destination countries remain considerable. This study found that many IMWs are still uninformed of their rights, notably with Social Security Agency for Employment, due to a lack of information and access to adequate services. The novelty of this study lies in its integration of Maslow's hierarchy with a policy-oriented framework for migrant worker protection, offering a fresh analytical lens to assess unmet needs at each migration stage. Recommendations include enhancing socialization, strengthening bilateral and international cooperation, digitizing services, enforcing stricter oversight, and improving reintegration and economic empowerment programs. These measures are expected to strengthen social protection for IMWs and ensure their welfare abroad.

Keywords: Indonesian Migrant Workers (IMWs), social protection, international migration, policy, bilateral agreement

Introduction

Indonesian Migrant Workers (IMWs) itself has an important role in the national economy, especially in the form of remittances. Gross remittances from IMWs would reach USD 10.89 billion, according to Bank Indonesia in 2023 to serve as the second-largest provider of foreign currency after the oil and gas sector. Not that remittance flow will form the national economy while at the same time directly improve IMW families in each area of origin. IMW remittances raised 10.0 percent of Indonesian households from poverty (World Bank, 2022) In Indonesia, international migration has long been a widespread phenomenon (Pitoyo, 2018), and IMWs represent no exception to this (Widaryoko, Sukamdi, & Pitoyo, 2024). This trend is fed

by the increasing demand for labor abroad as well as government awareness which includes the overseas worker into the framework of national development (Sukamdi, 2007; Utami & Sukamdi, 2012).

Yet realities confronting IMWs in host countries are not always what they hoped. Many individuals encounter problems such as labor exploitation, unpaid wages, precarious immigration status, and physical and mental abuse. According to Setiadi (2000), such international migrations bring humanitarian, cultural and social issues which tend to be neglected. IMWs encountering rights breaches are often unable to access remedy owing to lack of coordination among relevant government agencies in many cases (Sepriandi, 2018). As a result, safeguarding IMWs must be a primary priority for Indonesia's labor policy. The United Nations defines migrant worker protection as part of human rights protection for all individuals (Sriyanto, 2015).

According to BP2MI (2025), the 2024 IMW data reported a total of 297,434 IMWs, rising 0.11 percent from the previous year. IMWs are used in a wide range of countries, including Hong Kong, Taiwan, Malaysia, Japan, and Singapore, which are the top five destinations for IMWs. As work is a leading reason for migration (Koser, 2010), migrant labor forms a central theme in international migration. People going abroad for jobs are often forced to go by economic conditions and lack of jobs in their own country (World Bank 2021).

The numbers of IMWs in foreign employment are affected by the failure of the domestic labor market to offer sufficient jobs. Lack of wages and socio-economic divide is another aspect behind migration. The acquisition of IMW has turned into a strategy for a person to get out of unemployment and poverty (Fikriansyah & Julia, 2023). The unemployment rate will reach 5.86 percent in 2024, according to Statistics Indonesia (SI), and most of the unemployed are people of productive age. Although migration may be an immediate solution, IMWs are exposed to significant risks abroad. Core challenges are limited capacity, low education, no knowledge of language from abroad, and illegal placement (Habibullah, et.al., 2016).

The most exploited labor category is domestic work, which employs almost 60 percent of IMWs (ILO, 2021). IMWs are a common breach of contract, paid below minimum wage and not legally protected. Many of the migrants make the journey without the correct paperwork, leaving them further open to exploitation.

The Indonesian government has stepped up to protect IMWs through different legislations, notably Law No. 18/2017 on the Protection of Indonesian Migrant Workers. The law is meant to extend comprehensive protection from pre-departure to post-return. Nevertheless, its execution is hindered by several factors, such as ineffective pre-departure training, which the majority of IMWs find unhelpful. According to a BP2MI (2023) study, merely 40 percent of IMWs believed the training gave an appropriate understanding of their rights and responsibilities abroad.

Cultural differences, juridical complexity, and language barriers all pose a challenge to IMWs operating in destination nations. Just 20 percent of the IMWs as per a study by Migrant Care (2022) are aware of how to access legal support in their host nations. Furthermore, Indonesian diplomatic missions' insufficient resources also hinder their capacity to monitor IMW situations overseas.

This article focuses on Indonesian migrant workers, a vital yet vulnerable labor group contributing to the national economy through remittances. Despite their economic importance, IMWs often face significant risks and limited access to legal, health, and social security protections while working abroad. Previous research (Habibullah, et.al., 2016; Sepriandi, 2018) has documented these gaps, but few studies have examined how formal national mechanisms, particularly social protection

for employment, function in practice to protect IMWs.

Social protection has emerged as a fundamental pillar of modern welfare states and global development agendas. Broadly defined, social protection refers to public actions aimed at preventing, managing, and overcoming situations that adversely affect people's well-being (Devereux & Sabates-Wheeler, 2004; ILO, 2021). It encompasses a range of policies including social insurance, social assistance, and labor market regulations.

In the context of developing countries, social protection systems often remain fragmented and underdeveloped. According to Barrientos and Hulme (2008), the expansion of social protection in the Global South reflects a growing recognition of its role in reducing poverty, enhancing resilience, and supporting inclusive development. However, scholars such as Hickey, et.al. (2019) and Razavi and Staab (2010) highlight that effective implementation requires political commitment, institutional capacity, and integration with broader development strategies. Indonesian scholars have similarly observed that social protection in Indonesia is constrained by institutional fragmentation, overlapping mandates, and inconsistent implementation at regional levels (Siregar & Tarsisius, 2015; Kusumaningrum, 2020).

Indonesia, like many Southeast Asian countries, exhibits feature of a productivist welfare regime, where access to social protection is closely tied to labor market participation (Holliday, 2000; Kwon, 2005). Indonesian scholars, such as Rahayu (2017) and Nurhadi (2022), argue that this model often excludes informal workers, including migrant labor, from the full scope of protection. Migrant workers, particularly those employed in informal or temporary sectors abroad, often fall outside the protection scope of national schemes. This exclusionary tendency is further complicated by cross-border migration dynamics, which demand new forms of transnational social protection (Yeates, 2009).

Most IMWs opt to migrate abroad due to limited local employment opportunities and to earn higher income. Working abroad, however, is fraught with several risks. Most of them suffer from exploitation of labor, harsh working conditions, and inadequate access to health care and social security (SMERU, 2018; ILO, 2021). Others become victims of human trafficking or modern slavery. In addition, remaining behind families, particularly children, are vulnerable to social problems (Purwatiningsih, 2016; UNICEF, 2006).

One of the largest tasks in protecting IMWs is their limited access to social protection. Many of them do not enroll in social protection for employment programs because they have poor information, there are bureaucratic obstacles, or legal prohibitions. Fahmi (2020) also discovers that the social protection for migrant workers in Indonesia is not comprehensive, with the majority not being included under Social Security Agency (SSA) schemes. As a result, when IMWs are hit by work accidents, illnesses, or unemployment, they lack proper protection.

Moreover, the IMW placement process remains lacking. Non-transparent recruitment practices tend to leave IMWs in the dark about their responsibilities and entitlements. Unscrupulous recruitment agencies tend to seize passports, charge excessive fees, and fail to provide clear-cut employment contracts, raising IMW vulnerabilities and the risk of exploitation. The government has taken many measures to extend IMW protection, including legal mechanisms, such as Law No. 18/2017. The law offers a stronger legal framework, obliging the state to protect IMWs' rights on departure, in work abroad, and upon return to Indonesia.

However, its application remains hampered by several impediments. One of the significant challenges is a lack of coordination between the various

stakeholders in IMW protection like BP2MI, Social Security Agency for Employment (SSAE), and the Ministry of Foreign Affairs. Overlapping authority and conflict of regulation tend to undermine policymaking efficiency (Sari, 2023; ILO, 2024). As a result, a majority of IMWs do not obtain the protection they are entitled to.

Besides, loopholes continue to lie in monitoring workers' conditions within host countries. Some countries maintain strict labor legislation to protect migrant workers, while others do not. Indonesia and destination countries need to have bilateral and multilateral coordination closer at hand to see to it that IMWs enjoy the same protective treatment as nationals.

This study applies public and social policy theories to analyze the Indonesian government's efforts to provide social protection to migrant workers through SSAE. First, Esping-Andersen's (1990) welfare regime theory offers insight into how social protection varies by political and institutional contexts. In this framework, Indonesia, while not fitting neatly into Esping-Andersen's typology, reflects characteristics of a productivist welfare regime where access to social services is closely tied to formal labor market participation. Scholars, such as Kwon (2005) and Holliday (2000), have elaborated how East Asian countries, including Indonesia in South East Asia, exhibit "developmental" or "productivist" welfare capitalism where social benefits are narrowly distributed and strongly employment-dependent.

Second, Devereux and Sabates-Wheeler's (2004) model of transformative social protection emphasizes that welfare policies must go beyond basic safety nets. This framework emphasizes that social protection must extend beyond immediate risk management and incorporate promotive and transformative dimensions, such as empowerment and structural change. Scholars, such as Barrientos (2010) and Hickey, et.al. (2019), have emphasized that transformative approaches are essential in the Global South, where structural inequalities, informal labor, and governance gaps weaken standard safety net models. The frameworks argue that effective protection includes not only preventive and protective functions, but also promotive and transformative roles—supporting empowerment and addressing structural inequalities, which is especially relevant to IMWs.

Third, the Social Risk Management (SRM) framework by Holzmann and Jorgensen (2000), developed by the World Bank, positions migration as a household strategy to cope with economic insecurity and inadequate domestic employment opportunities. SRM focuses on ex-ante and ex-post strategies for managing shocks. This approach has been influential in guiding global social protection dialogues (World Bank, 2012; Gentilini, et.al., 2022) and is particularly relevant to migrant-sending countries facing structural employment deficits.

These theories illuminate how existing protection mechanisms reflect broader welfare paradigms, expose implementation gaps, and suggest pathways for a more inclusive and transformative policy approach. They also enable the study to address both theoretical gaps—by analyzing transnational welfare delivery through national schemes—and offer theoretical propositions for strengthening social protection in migration contexts.

Methods

This study adopts a sequential explanatory mixed-methods approach. Quantitative data were collected through a structured survey of 180 IMWs, prospective IMWs, and returnees in Ponorogo Regency, East Java. The sampling used a purposive method to include individuals attending Pre-Departure Orientation (PDO) sessions.

Qualitative data were gathered through 10 in-depth interviews and 4 focus group discussions with stakeholders,

including officials from SSAE, BP2MI, the Department of Manpower, Private Recruitment Agencies (PRAs), and NGOs. National-level interviews included representatives from the Ministry of Foreign Affairs, Ministry of Manpower, and labor attachés.

Ethical protocols were observed throughout the research. All respondents provided informed consent, and anonymity was assured. Data were analyzed using thematic analysis techniques to identify common patterns and policy implications.

Results and Discussion

National Policy

The core legislative basis for the protection of Indonesian migrant workers is Law No. 18/2017. The policy provides full protection for the pre-departure process, the employment period abroad, and the integration process when returned. BP2MI (2023) documents that the passing of the regulation has enhanced adherence of labor agencies to IMW safety measures. Local dissemination and awareness, however, are yet to be addressed.

Law No. 18/2017 replaces Law No. 39/2004 and provides wider coverage. It rebalances IMWs as individuals worthy of complete protection, rather than commodities of labor. The policy protection mechanism encompasses.

- Pre-Departure Stage: This includes training, documentation, and access to social security. This approach aligns with the "Social Risk Management" theory proposed by Holzmann and Jorgensen (2000), which emphasizes the importance of mitigating social risks for laborers.
- During Employment: IMWs are guaranteed the right to fair wages, legal protection, and access to health services in destination countries. However, research by Migrant Care (2022) shows that access to these rights remains hindered by inadequate oversight in the host countries.
- Post-Employment: Focuses on social and economic reintegration through entrepreneurship training and access to business financing. This aligns with the “Reintegration and Re-adaptation” theory by Gmelch (1980).

Ministerial Regulation No. 4/2023 is the operational follow-up to Law No. 18/2017, which explicitly regulates social security plans for IMWs. The scope of protection provided by this legislation includes.

- Work Accident Insurance (WAI): Covers risks related to occupational accidents while working abroad. Data from SSAE (2023) show that 87 percent of 5,000 WAI claims were processed within less than three months.
- Death Insurance (DI): Provides financial compensation to the families of IMWs who pass away during employment. According to Migrant Care (2023), the implementation of DI is more effective in East Asian countries compared to the Middle East.
- Old-Age Security (AGS): Allows PMIs to accumulate savings that can be accessed after the completion of their work period.

The law also addresses cooperation with destination states so that IMWs can access health and social services in the destination countries, such as Hong Kong's Mandatory Provident Fund (MPF) scheme. Irregular or undocumented IMWs are not usually registered under such schemes, and therefore they cannot benefit from these social protections.

Bilateral Policy

Bilateral agreements are one of the crucial tools for protecting Indonesian migrant workers in host countries. The agreements involve legal provisions, implementation mechanisms, as well as monitoring systems for guaranteeing the rights of PMIs are maintained. Examples of bilateral agreements include:

- Hong Kong: IMWs are required to participate in the Mandatory Provident Fund (MPF) program, which ensures retirement savings. Additionally, employers in Hong Kong are mandated to provide health insurance for their PMI employees.
- Japan: Under the Economic Partnership Agreement (EPA) program, PMIs are granted full access to social security and health insurance. They also receive intensive training in Japanese language and culture to support their adaptation. Japan's language and cultural training programs exemplify the promotive aspect of transformative social protection, aiming to empower IMWs to navigate host country institutions independently. However, unequal application of these mechanisms across destinations reinforces Esping-Andersen's view of stratified welfare access.
- Malaysia: The bilateral agreement covers minimum wage standards, working hours, and labor insurance. However, the implementation of these policies continues to face challenges, particularly in sectors such as plantations and construction.

Global Policy

Multilateral policies seek to harmonize international law for the protection of migrant workers. Indonesia participates actively in international forums, such as the International Labour Organization (ILO) and the Association of Southeast Asian Nations (ASEAN), and has ratified a number of significant treaties, including ILO treaties No. 97 and 143. The ASEAN Declaration and Global Compact for Migration (GCM) also provide significant frameworks for IMW protection.

By means of these many policies, the Indonesian government continues to attempt to guarantee that the rights of PMIs are properly safeguarded both in the country and countries of destination. However, more effective implementation is necessary to tackle grass-root problems like poor socialization and monitoring.

Several global frameworks which serve as reference points for safeguarding IMWs include.

International Labour Organization (ILO): Indonesia has ratified several ILO conventions on the protection of migrant workers, including Convention No. 97 relating to Migration for Employment and Convention No. 143 relating to Migrant Workers (Supplementary Provisions), Equal Opportunity, and Treatment. These conventions are the international legal framework for the protection of migrant labor, granting rights to decent work, legal protection, and non-discrimination. The implementation of ILO principles in Indonesia also includes the implementation of ILO recommendations in the design of the SSAE program for PMIs, an effort to meet international social protection standards. According to ILO (2021) studies, countries which have ratified these conventions, such as the Philippines, provide more protection to migrant workers, especially in terms of access to legal services.

ASEAN Declaration on the Protection of Migrant Workers: This 2007 statement, signed by ASEAN members, highlights shared responsibility between the sending and receiving country for migrant labor protection. Indonesia and Malaysia, for

example, have exchanged information on the protection of migrant workers, including the use of information and communication technology to assist PMI monitoring in Malaysia. The ASEAN Forum on Migrant Labour (AFML) offers a platform for member states to share best practices in the protection of migrant workers.

Global Compact for Safe, Orderly and Regular Migration (GCM): GCM is a multilateral United Nations agreement in 2018. Indonesia is among the states which are committed to its implementation. The agreement contains 23 goals to improve migration management, including safeguarding migrant workers. Indonesia has raised its cooperation with Middle Eastern countries in overseeing and safeguarding migrant workers thanks to GCM. In accordance with a 2022 UN report, GCM implementation in Indonesia has led to greater employer compliance with PMI rights.

International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families (ICMW): Adopted by the United Nations in 1990, this convention spells out the rights of migrant workers and the responsibilities of states to protect them. Indonesia has not ratified this convention, but some of its principles have already been implemented through national policies, such as Law No. 18/2017.

Social Protection for Indonesian Migrant Workers

Social protection of Indonesian Migrant Workers is a process concentrating on safeguarding them and ensuring their rights during migration. Social protection of Indonesian Migrant Workers has various phases, which vary from preparation for departure, departure, work in destination countries, and, lastly, return to Indonesia. Under Law No. 18/2017, social protection of IMWs are divided into three general stages, as based on Maslow's hierarchy of needs, wherein a feeling of safety is an essential necessity for achieving self-actualization. This also corresponds to the protective and preventive pillars of the transformative social protection framework.

Pre-Employment Stage

Pre-departure protection seeks to empower IMWs with the capability to deal with various challenges in host countries. Pre-departure training, orientation of IMWs' rights and duties, and completion of official documentation are all components of this step. This concept concurs with De Jong and Gardner's (1981) "Preparation for Migration" thesis, which centers on preparedness for migration in limiting risks.

Pre-Departure Training: These training programs aim to improve IMWs' technical and non-technical competencies, such as language skills, cultural sensitivity, and labor rights knowledge. According to BP2MI (2023), only 60 percent of IMWs felt that their training adequately prepared them to work overseas.

Official Documents: Proper and legal documentation is pivotal in safeguarding IMWs against exploitation. Migrant Care (2022) notes that procedurally dispatched IMWs undergo significantly fewer rights violations compared to those who migrate through irregular channels.

During Employment

During the work period, measures include supervising employment situations, receiving country health care access, and receiving country legal aid. The sector of domestic work, compared to which the vast majority of IMWs are employed, is most vulnerable to exploitation, claims the International Labour Organization (2021). Such a measure satisfies Amartya Sen's (1994) "Human Security" hypothesis, whose significance is placed in emphasizing the necessity of protecting people from threats to their overall well-being.

Surveillance of Working Conditions: Indonesian diplomatic missions in host

countries are responsible for surveilling the working conditions of IMWs. Nevertheless, the ILO (2021) points out that these missions are frequently constrained in terms of resources in the finances and manpower departments.

Access to Health Care Services: In countries, such as Hong Kong and Singapore, employer-based health coverage is received by IMWs. Access, however, does not typically exist in most of the Middle East, which requires IMWs to pay on their own. The "Social Protection Floor" approach under the ILO advocates broadening universal access to a social protection floor for all workers, including migrants.

Legal assistance is vital to IMWs who face contract violation or exploitation. Unfortunately, only 30 percent of IMWs are aware of the process of obtaining legal assistance, according to Migrant Care (2022).

Post-Employment Stage

IMWs returning to Indonesia fall under post-employment protection schemes which ensure their social reintegration and economic empowerment. The schemes aim to enable IMWs to reintegrate in their community as well as leverage the skills gained overseas.

Social Reintegration: Under this category include entrepreneurship skills, company financing, and psychosocial intervention. According to a study conducted by AASE (2023), IMWs undergoing reintegration programs are likely to enhance their family's welfare in comparison with non-enrolment IMWs.

Economic Empowerment: The Ministry of Manpower has launched several schemes to encourage return IMWs' entrepreneurship. These include the "Productive Migrant Village" (PMW) which seeks to create employment opportunities in IMWs' hometowns.

Despite different policy attempts, implementing social protection for IMWs continues to face several major hurdles.

- Limited Budget and Resources: Indonesian government diplomatic officials have fewer resources to conduct monitoring and provide adequate services to IMWs. ILO (2021) reports that only 20 percent of the actual funding needs for IMW protection are met.
- Low Awareness Among IMWs: Many IMWs remain unaware of the importance of social security. A study by DJSN (2021) reveals that 60 percent of IMWs do not know they are required to register with SSAE prior to departure.
- Regulatory Inconsistencies Across Countries: Differences in legal systems and labor policies between Indonesia and destination countries frequently impede the application of social protection. For example, in some nations, foreign workers are not required to get health insurance.
- High Number of Non-Procedural IMWs: Irregular (non-procedural) IMWs pose a higher risk as they are not protected by formal systems. According to data from (2025, non-procedural IMWs accounted for 73.9 percent of complaints.

It is intended that these problems can be minimized through greater outreach, regulatory harmonization, and cross-country cooperation, thus boosting the efficiency of social protection for Indonesian migrant workers.

Challenges in the Implementation of Social Protection for Indonesian Migrant Workers

This study identifies several problems encountered in the enforcement of Indonesian Migrant Workers' social

protection. According to survey data, over 65 percent of IMW respondents are unaware of their social security entitlements, such as being enrolled in SSAE. The above is reiterated in the National Social Security Council's (NSSC) 2021 report, which cites the persistently low rate of awareness among migrant workers regarding the necessity of participation in SSAE. However, enrollment in SSAE is one of the primary actions of the government to acquire social security coverage for IMWs—before going abroad, during time spent overseas, and upon return.

Though work-based social security program participation has picked up a bit, it is still quite low overall. According to a 2022 NSSC study, the non-take-up rate of IMW social security is 67.7 percent, or approximately 6.09 million workers out of a possible benefit pool of 9 million. It implies that nearly two-thirds of IMWs who are eligible for benefits are unregistered or not part of the employment-based social security system.

A 2024 study by Universitas Gadjah Mada's Center for Population and Policy Studies in Ponorogo Regency, where it interviewed 180 IMWs, prospective IMWs, and returnees, also reflected low participation rates in similar terms. Specifically, 72.2 percent of the respondents were not covered under the Work Accident Insurance (WAI) scheme, and 87.2 percent were not covered under the Death Insurance (DI) plan. One of the most significant causes of poor participation is a mismatch between government legislated social protection programs and IMWs' knowledge of their entitlements. Due to inadequate pre-departure outreach and limited access to information during overseas work, the majority of IMWs are not aware of the social protection they are entitled to. Consequently, fundamental entitlements, such as job injury compensation and old-age benefits are usually misused.

From the lens of transformative social protection, the study finds that most government initiatives focus on protective functions—such as death or accident insurance—while promotive and transformative dimensions remain underdeveloped. For example, pre-departure training is often generic and fails to empower IMWs with legal literacy or negotiation skills, which are essential for rights-based migration.

Qualitative interviews reinforce these findings. A representative from a local Social Security Agency (SSA) office admitted: "Our pre-departure modules are outdated and not tailored to real migrant worker experiences". One returnee from Malaysia noted, "When I got injured at work, I didn't know I was supposed to claim anything from SSA. No one told me back in Indonesia."

In focus group discussions, NGOs highlighted structural exclusion: "Women in domestic work are the most vulnerable. They are often placed through informal channels, and once abroad, they have no idea what their rights are".

The Social Risk Management framework helps contextualize the low participation in social protection as a symptom of broader labor market vulnerabilities. IMWs often migrate as a strategy to escape local economic hardship, yet pre-departure mechanisms to manage those risks—such as insurance or savings—are poorly implemented.

According to BP2MI study (2023), only 40 percent of IMWs think that pre-departure training had educated them on their rights, for instance, how to register with SSAE. Secondly, from IMW interviews, it was gathered that the majority of IMWs thought that what was given was too generic in nature and was not specifically based on their own needs. This implies that the content and format of pre-departure socialization courses have not been properly aligned to suit the different characteristics and functional needs of migrant workers.

The analysis of national policies through Esping-Andersen's welfare regime theory highlights that Indonesia's approach

to social protection remains anchored in a productivist model. This is evident in the design of SSAE, which prioritizes workers in formal sectors and excludes many informal or undocumented IMWs. Survey findings reveal that 67.7 percent of IMWs do not participate in social protection schemes—a pattern consistent with stratified welfare access.

Impacts of Limited Socialization and Information Access

Indonesian Migrant Workers lack low social security awareness, directly affecting their access to payment, particularly in situations of emergency, such as industrial accidents or death. This is aggravated by the circumstance that the majority of IMWs work in the informal sector of receiving countries where labor rights are not monitored or enforced at all or at least very infrequently.

Therefore, it is necessary to strengthen outreach and awareness efforts using digital technologies and community-based initiatives to reach PMIs in their home communities. IMWs who are made aware of their rights before departure will be better placed to handle workplace risks and will be able to access the social protection benefits to which they are entitled. This is a prevalent tactic, seconded by international Labor Organization (ILO) for increasing migrant workers' level of knowledge on social rights.

Another obstacle to the provision of social protection is limited access to host country social and health care. This case shows how inadequate outreach and information—before departure and during IMWs' periods abroad—are central to the problem.

According to the 2024 CPPS UGM Ponorogo survey, the biggest percentage of IMWs (40.4 percent of 180 respondents) did not receive any socialization connected with SSAE. It suggests that information on SSAE have not been conveyed to prospective or current IMWs effectively.

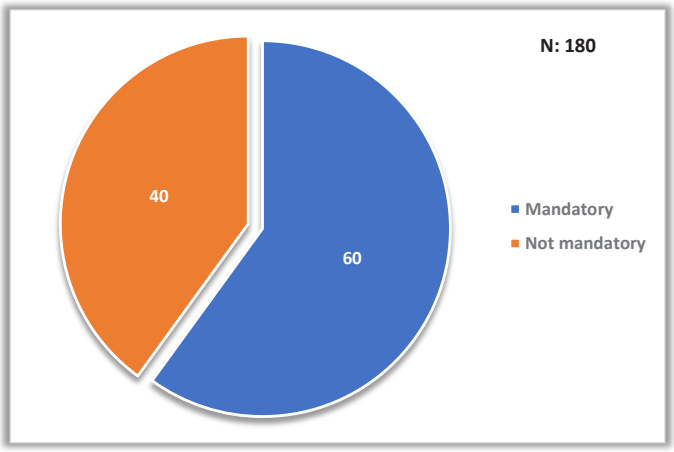

Figure 1. Outreach on SSAE to IMW Respondents

Source: CPPS-UGM Survey Data, 2024

Insufficient socialization has left the majority of IMWs lacking knowledge on social and healthcare centers available in host countries. A survey by BP2MI (2023) showed that just 40.0 percent of IMWs reported being adequately educated about health and social services through pre-departure training. This is added to by the fact that the Indonesian government is unable to collaborate with destination country authorities to allow for ease of IMW access to services.

Human security perspectives shed light on the intangible aspects of the

vulnerability that IMWs encounter. Qualitative interviews revealed fear, legal confusion, and isolation among IMWs, particularly among domestic workers. Only 20.0 percent reported having access to legal services abroad (Migrant Care, 2022). Labor attaché interviews exposed bureaucratic constraints: "We handle too many cases with very few staff. There is no clear budget line for proactive support. We mostly respond to complaints". Another interview from a migrant family support group shared: "My daughter worked in Hong Kong for five years. She had an accident and was repatriated, but no one helped us process her claims. We were left to figure it out ourselves". These findings underscore the need for protection policies which go beyond economic tools and include psychosocial and legal support.

This information and outreach gap has an immediate impact on the welfare of IMWs, particularly when they fall victim to occupational diseases, injuries, or other issues requiring social intervention. It also imposes a high level of reliance on labor agencies or employers, which might not be forthcoming in offering clear information about the rights of workers.

To address this issue, the government must expand its digital reach and increase control over recruitment agencies to ensure responsibility in disseminating information to PMIs. Besides that, cooperative efforts with destination nations must focus on providing simple and easy-to-access information to PMIs regarding social and health care services they are eligible to receive. These changes will ensure that IMWs have greater access to the protection they deserve to obtain information.

Social Protection for IMWs in Destination Countries

IMWs in locations such as Hong Kong and Taiwan enjoy access to social protection programs provided by their respective governments. In Hong Kong, for example, IMWs fall within the Mandatory Provident Fund (MPF) scheme, which provides retirement savings and health insurance cover. MPF is a compulsory pension scheme which covers all workers, including migrants. In this scheme, companies are required to pay 5.0 percent of their employees' salaries into the MPF account and also their employees have to pay the same percentage. The accumulated cash can be deposited in anticipation of the future or can be withdrawn when the contract work is completed. In addition, migrant domestic workers in Hong Kong must be provided with employer-sponsored health insurance which includes medical treatment, hospitalization, and repatriation fees in the event of serious illness.

In Taiwan, IMWs are required to enroll in the National Health Insurance (NHI) scheme, which is a universal health insurance scheme covering migrant workers too. Under this scheme, employers are required to enroll IMWs into NHI, thus making them eligible to claim health benefits like periodic medical check-ups and treatment for chronic diseases. Employers, employees, and the government contribute to the scheme. Moreover, IMWs in Taiwan are also entitled to occupational injury insurance, which covers medical costs and compensation in the event of work accidents.

The establishment of schemes like MPF in Hong Kong and NHI in Taiwan demonstrates how far-reaching bilateral collaboration can improve access to social and healthcare services among IMWs. However, these circumstances have caused some IMWs to be hesitant to register under SSAE, viewing it as unnecessary because they are already insured by their host countries. Because of this, SSAE is usually viewed as an additional administrative burden with less advantage.

The responsibilities of employers in providing social security for migrant workers

must also be increased. All businesses or enterprises which hire PMIs must be forced to enroll their workers in social protection programs. According to a 2024 CPPS UGM survey in Ponorogo, 60.0 percent of businesses required SSAE registration for IMWs. However, 40.0 percent, or nearly half of the employers in the sample, failed to meet this requirement.

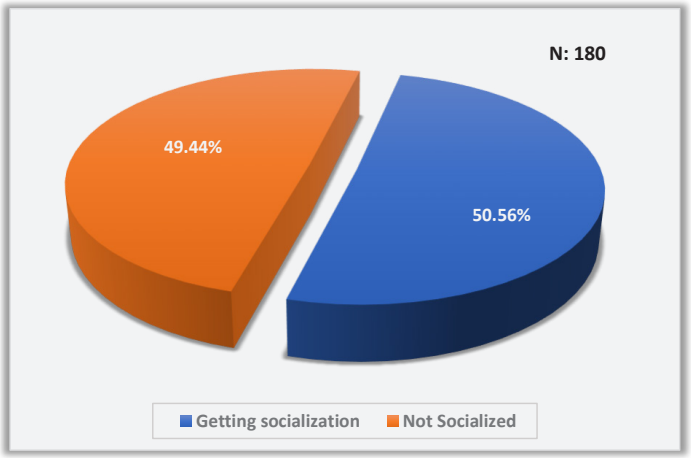

Figure 2. Employer/Company Obligations in Providing Social Security for IMWs

Source: CPPS-UGM Survey Data, 2024

The Social Risk Management framework helps contextualize the low participation in social protection as a symptom of broader labor market vulnerabilities. IMWs often migrate as a strategy to escape local economic hardship, yet pre-departure mechanisms to manage those risks—such as insurance or savings—are poorly implemented. Only 40.0 percent of respondents found the training relevant to their needs, suggesting that SRM principles are not fully institutionalized.

Therefore, more intensive pre-departure outreach has to be pursued in order to make IMWs aware of the benefits of SSEA and country of origin protection significance—particularly in the work accident insurance and old-age security programs. Partnerships with employers and employment agencies have to be built by the government in order to encourage IMW enrollment under SSAE. In certain instances, destination country employers, such as Hong Kong and Malaysia (particularly plantation and construction industries), have also actively helped IMWs with payment and registration of SSA contributions.

Through these different approaches, social protection for IMWs is to be significantly improved by national schemes as well as international cooperation, providing maximum well-being of migrant workers during their foreign employment. From a social policy perspective, the implementation of Law No. 18/2017 and Ministerial Regulation No. 4/2023 illustrates a formal attempt to extend institutional protection to PMIs as a vulnerable labor group. These policies define the entitlement structure that underpins SSEA, aiming to provide Work Accident Insurance (WAI), Death Insurance (DI), and Old Age Security (OAS). Yet, as emphasized in transformative social protection theory (Devereux & Sabates-Wheeler, 2004), effective protection also requires promotive and transformative elements, including legal access, healthcare, and empowerment.

While from the lens of transformative social protection, the study finds that most government initiatives focus on protective

functions—such as death or accident insurance—while promotive and transformative dimensions remain underdeveloped. For example, pre-departure training is often generic and fails to empower IMWs with legal literacy or negotiation skills, which are essential for rights-based migration.

These statutory protections reflect the Indonesian government's policy commitment to integrating migrant workers into the national social protection system. However, practical limitations in governance, coordination, and transnational service delivery undermine this commitment. Although IMWs are entitled to receive health and legal assistance in host countries, the fragmented institutional arrangements—both domestically and abroad—hinder consistent access. Survivors of abuse or contract violations may seek legal recourse through Indonesian embassies or BP2MI, yet bureaucratic hurdles and insufficient diplomatic resources limit these pathways.

In countries, such as Japan and Hong Kong, IMWs often receive health insurance through bilateral mechanisms. While these arrangements represent progress toward cross-border protection, they remain ad hoc and lack formal integration into Indonesia's national social policy architecture. The absence of policy harmonization between origin and destination countries reveals a critical gap in public policy implementation and limits the realization of comprehensive welfare protection for IMWs.

Conclusion

Although SSAE is a promising tool for social protection, implementation remains inconsistent. Many IMWs are excluded from coverage due to information asymmetry, administrative hurdles, and insufficient stakeholder coordination. The state must fulfill its obligation to guarantee social rights for all citizens, regardless of their migration status.

Social protection for Indonesian migrant workers is still beset by multifaceted challenges, particularly in terms of outreach, cross-border coordination, and monitoring mechanisms in destination countries. The majority of PMIs do not know their rights, particularly those related to SSAE, because of inadequate information and access to services needed.

Bilateral agreements with other nations, like Hong Kong and Japan, have helped improve the social protection of IMWs. However, collaboration with Middle East nations must be improved to make protection mechanisms more effective and compatible with international standards.

The Social Protection Floor idea emphasizes universal coverage of social protection as a key factor in addressing the social risks that face the labor force. Unfortunately, the implementation of this principle in Indonesia is still faced with a multitude of issues despite the existence of laws such as Law No. 18/2017 and Ministerial Regulation No. 4/2023. Because these policies are poorly implemented, the majority of IMWs are not given the full protection that they are entitled to by law.

This study determined that a more extensive and needs-based pre-departure training session can enable PMIs to better understand their rights and obligations. Tailor-made approaches which are attuned to the realities and concerns of migrant workers can improve the overall effectiveness of social protection programs and equip IMWs to access their benefits more effectively while working overseas.

To ensure the successful implementation of social protection policies for IMWs, there must be greater collaboration between the government, labor recruitment agencies, and host nations. Furthermore, stricter monitoring and harmonization of global regulations are essential factors in strengthening IMW protection and promotion of their welfare while working overseas.

The novelty of this study lies in bridging the gap between universal principles of social protection and the lived realities of Indonesian migrant workers. By integrating the Social Protection Floor framework with a needs-based and participatory perspective, this research not only advances academic debates on how global norms can be localized within fragmented migration governance systems, but also provides actionable insights for policy implementation. The emphasis on tailor-made pre-departure training, digital service delivery, and strengthened bilateral cooperation moves beyond abstract policy commitments toward practical solutions. In doing so, this study contributes both theoretically—by reframing social protection through a worker-centered lens—and practically—by offering pathways to make Indonesian migrant worker protection more inclusive, effective, and globally compatible.

This article offers many strategic strategies to increase social protection for Indonesian migrant workers:

1. Enhanced Outreach and Awareness:
   The government should increase outreach efforts for IMW rights through digital media, thorough pre-departure training programs, and awareness campaigns in migrants' home communities. Furthermore, outreach should target IMWs who are currently working abroad, since they frequently face limited access to information, notably on SSAE.
2. Strengthening Bilateral and Multilateral Cooperation:
   Bilateral agreements with destination countries should include wider social protection provisions like coverage for health insurance and strong dispute resolution mechanisms. It is critical to engage international actors like the ILO and ASEAN to seek regulation coherence in the context of migrant workers' protection.
3. Digitalization of Services:
   There is a compelling need to establish user-friendly and accessible digital platforms for IMWs, allowing them to register, monitor, and collect social security benefits independently and quickly.
4. Monitoring and Law Enforcement:
   The government must tighten oversight of labor recruitment companies and employers to ensure compliance with international norms and prevent violations of IMW rights.
5. Reintegration and Economic Empowerment:
   Entrepreneurship training, micro-finance access, and psychosocial assistance should all be included in reintegration programs for returning IMWs. These projects attempt to harness IMWs' talents and experiences obtained while overseas, eventually increasing their long-term economic and social well-being.

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Poverty and Women's Education as Determinants of Stunting and Health Rights in Riau Province

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Abstract

The right to health can be fulfilled by eliminating the threat of stunting, which is primarily influenced by two major variables, poverty and the low level of education among women aged over 15. This paper analyzes the relationship between poverty, the duration of women's education, and the prevalence of stunting in Riau Province. Women's formal education has proven to play a critical role in reducing stunting rates by enhancing knowledge about nutrition and health. Poverty which entraps families becomes the main barrier to accessing education. A qualitative research method was employed, with data gathered through interviews, literature reviews, journals, and relevant media sources. The results indicate that basic literacy and numeracy skills acquired by women in school increase their awareness and capacity to prevent and manage stunting, thereby positively impacting the future of their children.

Keywords: education awareness, literacy skills, nutrition knowledge, poverty barrier, qualitative study

Introduction

Qori'ah (2012) highlights that discussing poverty means confronting a serious and persistent challenge faced by many countries around the world. Despite longstanding efforts, poverty remains a deeply rooted issue which development programs and projects continuously strive to alleviate. Yet, defining poverty is far from straightforward. While it is often simplistically linked to hunger, poverty is, in fact, a complex and multifaceted condition. Witt, as cited by Qori'ah (2012), emphasizes that poverty remains one of the greatest challenges confronting humanity today. Understanding poverty requires looking beyond income alone—it demands a broader lens that includes economic hardships, social exclusion, political marginalization, and the impact of governmental policies.

When studying poverty, it is crucial to delve deeply into the specific contexts of different groups and regions. This is because poverty manifests in diverse ways—shaped by cultural, geographic, and social factors unique to each community. Boltvinik, as cited in Qori'ah (2012), emphasizes that an individual's or group's circumstances should be interpreted in relation to the fundamental needs considered essential for survival. This relativity means that poverty cannot be measured by a single yardstick, but requires context-sensitive indicators and multidimensional frameworks.

Maxwell's (1999) distinction between actual and potential poverty adds further depth to this understanding. Actual poverty describes the immediate experience of deprivation, whereas potential poverty points to the risk of falling into poverty in the future. This duality underscores the need for programs which not only aim to lift people out of current poverty, but also work preventatively to reduce vulnerability and the likelihood of future poverty. Poverty is inherently linked to structural inequalities; it intersects with social divisions, gender disparities, and uneven development patterns, demanding holistic and nuanced approaches.

In Riau Province, poverty's impact is felt strongly, especially in how it influences women's educational attainment—an important determinant of child health outcomes like stunting. Studies have consistently shown that lower levels of maternal education are linked to higher risks of child stunting, as women with limited schooling often lack access to essential knowledge about nutrition, hygiene, and healthcare practices (Rahmawati, et.al., 2022; Torlesse, et.al., 2016). Achieving equitable development in line with the Sustainable Development Goals hinges on promoting gender equality and ensuring women have access to education. Educated women are better positioned to support family well-being, economic security, and community progress.

According to the Indonesian Ministry of Health, as cited by Auliailahi and Oginawati (2020), clean and healthy living behaviors reflect a family's collective care and responsibility toward personal and public health. When clean living practices are nurtured starting at the household level, they become the foundation for greater health knowledge and active participation in community health initiatives. Families that grasp the importance of health practices are better equipped to protect their members from environmental health risks and disease.

In Riau Province, the implementation of Clean and Healthy Living Behavior (CHLB) remains inconsistent. Data from the Riau Provincial Health Profile (2016) reported that only 47.3 percent of households met national CHLB criteria, with the highest compliance in Pelalawan Regency (75.9 percent) and the lowest in Pekanbaru City (24.7 percent) (Health profile of Riau Province, 2016; see also Auliailahi & Oginawati, 2020). A study conducted in Muara Fajar, Pekanbaru (a community near a final disposal site or TPA), found that empowering families through integrated health service posts (known and popular as Posyandu) volunteers significantly improved CHLB practices.

This is particularly important in preventing conditions, such as diarrheal diseases, which remain a common health burden linked closely to poor environmental sanitation and limited access to clean water. In Riau Province, many families face significant challenges securing clean water due to inadequate infrastructure—a direct consequence of poverty. The intricate relationship between poverty, limited educational opportunities, and uneven health knowledge distribution presents a critical barrier to reducing stunting and improving overall community health. This interconnectedness poses a significant barrier to improving child health. It requires multisectoral interventions that address poverty's structural roots.

Literature Review

The intersection of women's issues and their social environment has been examined from multiple perspectives in previous research. Studies by Rameez (2018), Krause, et.al. (2018), and Alzuabi (2016) demonstrate that women's active participation in social development, particularly in health and education sectors, significantly benefits community well-being. Their findings collectively emphasize that women's

involvement is critical to achieving sustainable development goals related to social equity and health outcomes. However, most studies focus on broad social contexts, often overlooking local cultural constraints, particularly in regions like Riau.

Rogan (2016) emphasizes that patriarchal social and cultural norms profoundly influence women's welfare, often restricting their access to education and participation in family decision-making. This dynamic is evident in Riau, particularly in Kampar Regency, where qualitative research found that mothers of stunted children often attribute the condition to heredity, reflecting deep-rooted cultural beliefs and limited maternal understanding of nutrition and health (Suyanto, 2024). National surveys echo this pattern, with Hall, et.al. (2018) reporting that two-thirds of rural Indonesian mothers had never heard of stunting, and many misattributed its causes, underscoring the knowledge gap shaped by socio-cultural constraints. Evidence shows that women's empowerment—through education, economic participation, and community advocacy—can significantly mitigate stunting, with maternal knowledge and behaviors directly explaining over 30.0 percent of stunting cases and exerting additional indirect influence through child-related factors (Achmad, 2024; Santosa, et.al., 2025). Furthermore, women's bargaining power within households is positively associated with improved child nutritional status and reduced stunting prevalence (Astari, et. al., 2024). Broader analyses confirm that low maternal education, rural residence, and socio-cultural constraints are among the most significant determinants of stunting in Indonesia (Beal, et.al., 2018; Ariyanti & Hazmi, 2015), while highlighting a lack of subnational research examining how these cultural mechanisms operate differently across urban and rural settings in provinces, such as Riau.

Figure 1 illustrates stunting prevalence trends in Indonesia, in Riau Province, and Pekanbaru City from 2013 to 2023, based on data from Basic Health Research (BHR) and associated nutrition surveys. The stunting trend in Pekanbaru shows a clear long-term decline, but with intermittent reversals, especially in 2019 and 2022. This suggests that while interventions have had an impact, they may have inconsistent implementation or coverage.

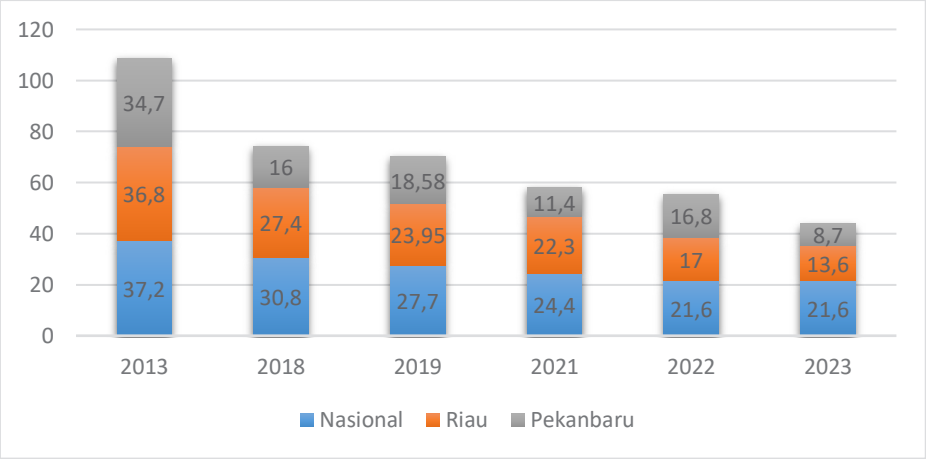


Figure 1 National Stunting Prevalence Data, Riau Province, Pekanbaru City, 2013-2023

Source: Basic Health Research (BHR), Indonesian Nutrition Status Survey (INSS), Indonesian Health Survey (IHS)

While there is an encouraging decline across all areas, stunting rates in Riau and particularly in Pekanbaru remain above national averages. This persistent disparity underscores the influence of underlying social determinants—such as women's education and poverty—which differ regionally. The reviewed literature acknowledges the important role of women's education in improving child health outcomes, but lacks detailed exploration of its interplay with localized cultural and economic barriers specific to Riau's urban and rural settings. This suggests an urgent need for more context-specific studies which focus on how education and empowerment strategies can be tailored to effectively address stunting within these communities.

Further, several scholars establish that education equips women with literacy and health knowledge, increasing their capacity to promote healthier behaviors within families (Abuya, et.al., 2012). Educated women tend to marry partners with better socioeconomic status and provide children with healthier environments, which contributes directly to reducing stunting prevalence. However, few studies address how these factors interact in areas with persistent gender inequality. This gap underpins the rationale for the present study. motivates the present study to investigate these intersections comprehensively, aiming to contribute actionable insights for policy and community interventions.

Overall, prior research establishes a clear connection between women's education, social environment, and child health outcomes, but regional socio-cultural factors and poverty present persistent challenges requiring further investigation. This study positions culturally responsive educational strategies as key to tackling stunting in Riau's unique socio-economic landscape.

Methods

This study uses a qualitative method to explore the relationship between poverty, women's education, and stunting in Riau Province. This method is appropriate to understand the social and economic conditions which influencing the fulfillment of the right to health in the context of gender equality. The data in this study consists of primary and secondary data which are used to support each other.

Primary data were collected through semi-structured interviews with selected informants using purposive sampling. A total of 18 informants were involved, consisting of 10 women aged over 15 years, 5 health workers (such as midwives and nutrition staff), and 3 community leaders. The informants were chosen based on their relevance to the topic and their experiences related to education, poverty, and child health. Interviews were conducted both directly and by phone, depending on the availability and location of the respondents.

Secondary data were obtained from relevant literature such as journal articles, government reports, and official documents. These include national and regional health surveys, the Food Security and Vulnerability Atlas (FSVA) 2024, BPS reports, and the Health Profile of Riau Province. The secondary data were used to provide context and strengthen the interpretation of the primary data.

The data analysis used thematic analysis by referring to the steps proposed by Braun and Clarke (2006), starting from data familiarization, coding, theme identification, reviewing, and interpretation. The analysis was carried out manually by reading the interview transcripts repeatedly and identifying themes related to education barriers, poverty, clean water access, and stunting prevention. These themes were then connected to data from official reports and statistical sources to give a broader view.

In this study, secondary data also played a role in supporting the analysis. Statistical data related to stunting prevalence, women's education, and access to clean water were presented in the form of visuals, such as bar charts and maps. These visualizations were used to show regional disparities and strengthen the arguments in the qualitative findings.

To ensure the validity of the data, the researcher used triangulation by comparing the interview results with secondary data sources. In addition, member checking was carried out by confirming some interpretations with several informants, and peer discussion was done to reduce interpretation bias. This process was important to ensure that the findings represent the actual situation in the field.

This method is in line with the objectives of the research, which aims to explore the connection between poverty, gender inequality in education, and stunting, and how these affect the fulfillment of the right to health in Riau Province.

Findings and Discussion

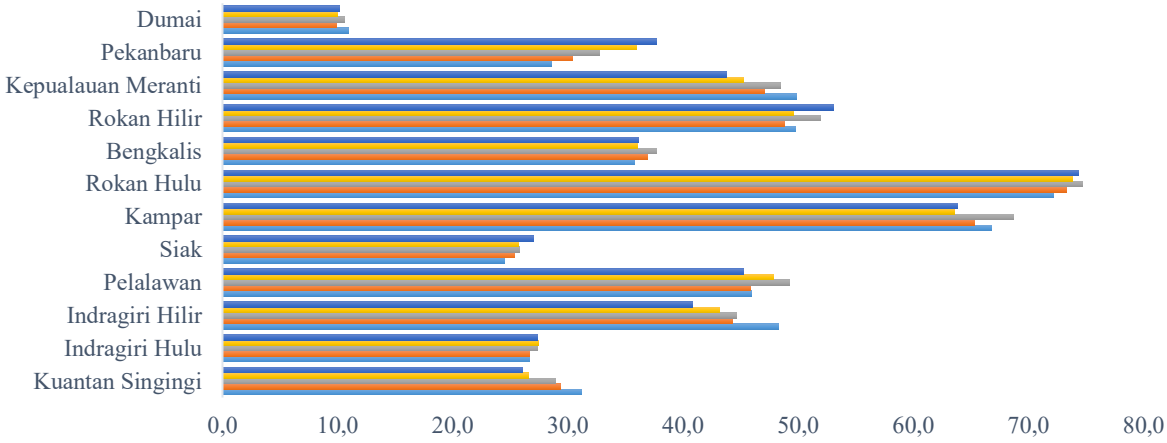
Poverty and Its Consequences: Food Insecurity

Poverty is more than a lack of income, it is a multidimensional issue which affecting health, education, and overall quality of life. As Rapanna (2017) explains, poverty is a root cause of a cascade of health problems, especially for vulnerable groups, such as pregnant women, breastfeeding mothers, children, and the elderly. These impacts were heightened by the 1997 Asian financial crisis, which left a lasting mark, including in provinces like Riau. However, the national narrative must be sharpened by focusing more directly on the local context.

In Riau Province, poverty continues to be a significant issue, particularly in areas where residents struggle to meet basic nutritional needs. This condition exacerbates malnutrition, weakens immune systems, and increases the prevalence of diseases, particularly among children. Many impoverished households also lack access to adequate health services and clean water. Poor sanitation and untreated illnesses increase the risk of infectious diseases such as diarrhea and typhoid, reinforcing a vicious cycle of poor health and poverty. These conditions are particularly harmful to women and children, as limited access to healthcare and poor nutrition directly affect maternal and child health outcomes.

Poverty also restricts educational opportunities. Many children from low-income families are forced to leave school to support their households, especially in rural areas of Riau. This is particularly burdensome for girls, who may face additional barriers such as early marriage or domestic responsibilities. A lack of education among women over the age of 15 is closely linked to heightened food vulnerability at the community level. As such, the gendered impacts of poverty should be made more explicit, as women are both central to food security and disproportionately affected by its absence.

The extent of poverty in Riau can be seen in the following figures. In 2019, the number of poor residents reached 490.72 thousand, slightly decreasing to 483.39 thousand in 2020. This rose again to 500.81 thousand in 2021 before falling to around 485 thousand in 2022 and 2023. Districts like Kuantan Singingi and Kepulauan Meranti saw gradual reductions in poverty, while Indragiri Hulu and Pekanbaru experienced increases. Notably, Rokan Hulu, Kampar, and Rokan Hilir consistently recorded the highest numbers of poor residents, with Rokan Hulu rising from 72.21 thousand in 2019 to 74.38 thousand in 2023.



	Kuantan Singingi	Indragiri Hulu	Indragiri Hilir	Pelalawan	Siak	Kampar	Rokan Hulu	Bengkalis	Rokan Hilir	Kepualauan Meranti	Pekanbaru	Dumai
2023	26,1	27,4	40,9	45,3	27,0	63,8	74,4	36,1	53,0	43,8	37,7	10,2
2022	26,6	27,5	43,2	47,8	25,7	63,6	73,8	36,0	49,6	45,3	36,0	10,0
2021	28,9	27,4	44,6	49,3	25,8	68,7	74,7	37,7	52,0	48,5	32,7	10,6
2020	29,3	26,7	44,3	45,9	25,4	65,3	73,4	37,0	48,9	47,1	30,4	9,9
2019	31,2	26,7	48,3	46,0	24,5	66,8	72,2	35,8	49,8	49,9	28,6	11,0

Figure 2 Percentage of Poor Population by Regency/City, 2019–2023 (Thousands of People)

Source: Riau Province Central Statistics Agency, 2024

These figures suggest that while some progress has been made, poverty remains a major challenge in certain areas, especially where infrastructure and services are lacking. The persistence of poverty has direct implications for food insecurity, which is increasingly a spatial issue tied to local governance and service access.

According to the Food Security and Vulnerability Atlas (FSVA) of Riau Province 2024, 172 sub-districts were assessed for food vulnerability. Of these, nine sub-districts (5.23 percent) fell within priority levels 1 to 3, indicating varying degrees of food vulnerability, while the remaining 94.76 percent were in priority levels 4 to 6, considered food secure. There were no sub-districts in the most severe category (priority 1), but two sub-districts (1.16 percent)—Kuala Indragiri and Concong in Indragiri Hilir—were classified as priority 2 (vulnerable), and seven sub-districts (4.06 percent) were labeled as priority 3 (moderately vulnerable).

The priority 3 sub-districts included, Pucuk Rantau (Kuantan Singingi), Perhentian Raja (Kampar), Tebing Tinggi (Kepulauan Meranti), Rokan IV Koto and Pendalian IV Koto (Rokan Hulu), Tanah Merah and Kateman (Indragiri Hilir). The table below presents a summary of sub-districts categorized under Priority 1 to 3, based on indicators of food insecurity, education, and clean water access, highlighting the most vulnerable areas across Riau Province.

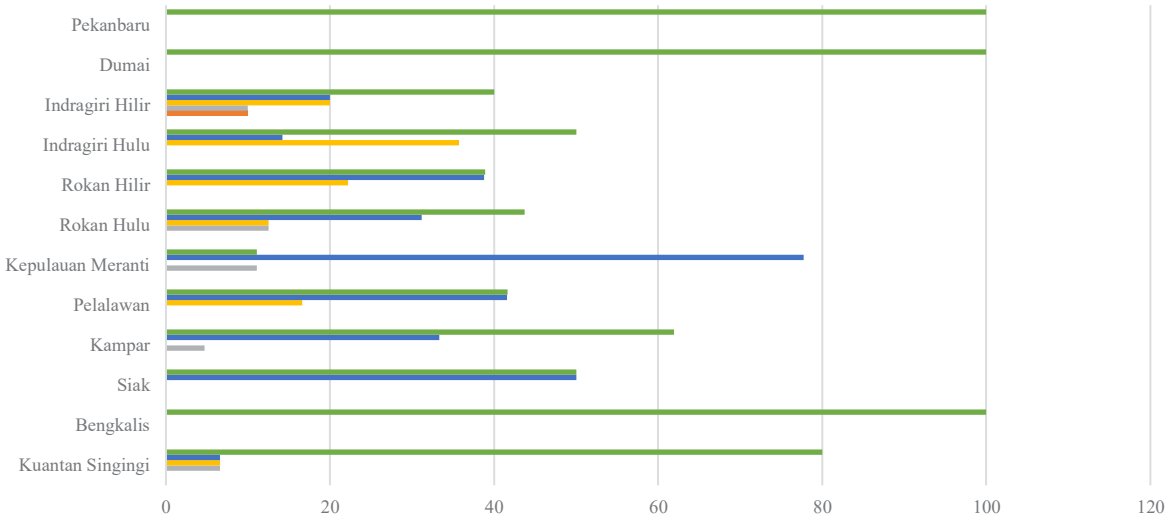
Table 1
Table of Sub-districts by Food Security Priority Levels in Riau Province (2024)

Priority Category	Number of Sub-districts	Sub-district and Regencies
Priority 2 (Highly Vulnerable)	2	Kuala Indragiri, Concong (Indragiri Hilir Regency)
Priority 3 (Moderately Vulnerable)	7	Pucuk Rantau (Kuantan Singingi), Perhentian Raja (Kampar), Tebing Tinggi (Kepulauan Meranti), Rokan IV Koto & Pendalian IV Koto (Rokan Hulu), Tanah Merah & Kateman (Indragiri Hilir)
Total Priority 1–3	9	
Priority 4–6 (Moderately Secure to Highly Secure)	163	Distributed across the province, with high concentrations in: Bengkalis, Dumai, Pekanbaru, Pelalawan, Siak, Indragiri Hulu
Total Sub-districts in Riau	172	

Source: Processed by author from FSVA Riau Province 2024, SAE and Susenas (BPS, 2024)

A key recommendation is that central and regional governments target these sub-districts for urgent food security interventions, particularly the two sub-districts in priority 2. Integrating poverty and food security data would strengthen the analysis further. For instance, sub-districts with high poverty rates often overlap with food vulnerability zones. A clearer example—e.g., "Kecamatan Kateman in Indragiri Hilir has both high poverty and is classified as priority 3 in food vulnerability"—would help readers see the spatial overlap between poverty and food insecurity.

The FSVA data, derived from variables including food consumption per capita, morbidity rates, access to clean water, and female education levels, was analyzed to classify the sub-districts into six priority levels. The majority of sub-districts fall into priority 6 (highly food secure), particularly in Bengkalis, Dumai, and Pekanbaru, where 100 percent of sub-districts are in this category. In Kuantan Singingi, 80 percent are in priority 6, though it still includes some sub-districts in priority 3. Other regencies, such as Kepulauan Meranti and Rokan Hulu, show more mixed classifications, with substantial portions of sub-districts in priority 3.



	Kuantan Singingi	Bengkalis	Siak	Kampar	Pelalawan	Kepulauan Meranti	Rokan Hulu	Rokan Hilir	Indragiri Hulu	Indragiri Hilir	Dumai	Pekanbaru
Prioritas 6	80	100	50	61,9	41,66	11,1	43,75	38,88	50	40	100	100
Prioritas 5	6,6	0	50	33,3	41,6	77,7	31,2	38,8	14,2	20	0	0
Prioritas 4	6,6	0	0	0	16,6	0	12,5	22,2	35,7	20	0	0
Prioritas 3	6,6	0	0	4,7	0	11,1	12,5	0	0	10	0	0
Prioritas 2	0	0	0	0	0	0	0	0	0	10	0	0
Prioritas 1	0	0	0	0	0	0	0	0	0	0	0	0

Figure 3 Percentage of Sub-Districts Based on Priority Groups Per District (by Percent)

Source: Analysis source by FSVA Riau Province 2024

Indragiri Hilir deserves special attention as it contains 10% of sub-districts in both priority 2 and 3, indicating more acute vulnerability. On the other hand, regencies like Indragiri Hulu, Siak, Pelalawan, and Kampar mostly fall within moderately to highly secure categories (priority 4–6), suggesting relatively better food security.

While Riau Province as a whole shows a trend toward improved food security, spatial disparities persist. Targeted and gender-sensitive interventions in sub-districts with lower priority rankings will be essential to closing this gap. By addressing poverty, improving access to education for women, and enhancing clean water infrastructure, policymakers can improve food resilience and reduce vulnerability in the most affected areas.

Poverty and Its Consequences: The Landscape of Low Female Education in Riau Province

Husein, et.al. (2021) reveals that the Indonesian government's women empowerment programs, aimed at reducing poverty, primarily focus on marginalized women from extremely resource-poor families. These initiatives target economic inequality within broader poverty dimensions, especially through increasing women's participation in the workforce—one of the key indicators of the Gender Inequality Index. The Indonesian government has undertaken efforts to promote equal opportunities for women by ensuring their rights, enabling development participation, and guaranteeing equitable outcomes.

According to Our World in Data (2015), women in developing countries comprise two-thirds of the world's illiterate

population, largely due to restricted access to education. This is not just a consequence of poverty—it is a key factor in its persistence, especially for women. Globally, approximately 1.3 billion people live below the poverty line, and women make up the majority. Their lack of access to education limits their knowledge of nutrition, sanitation, and health care, increasing household health risks and deepening vulnerability. These gaps ultimately reduce productivity and reinforce intergenerational cycles of dependency.

The gendered disparities in education observed globally are also evident in Riau Province, where their impacts manifest in comparable ways. Women in low-income regions around the world often face compounded vulnerabilities as a result of limited educational access, and this pattern is similarly reflected in Riau—particularly in regencies such as Indragiri Hilir—where low levels of female education contribute to broader social and economic challenges.

In Riau Province, poverty across multiple regencies remains a major barrier to female education. The entrapment of poverty significantly limits women's opportunities for schooling, which in turn affects health, economic mobility, and food security. According to the 2024 Riau Province Food Security and Vulnerability Atlas (FSVA), which used Small Area Estimation (SAE) based on the 2024 National Socioeconomic Survey, the average years of schooling among women over 15 varies considerably. Concong Sub-district in Indragiri Hilir has the lowest average at 5.53 years, while Bina Widya in Pekanbaru reaches 14.30 years.

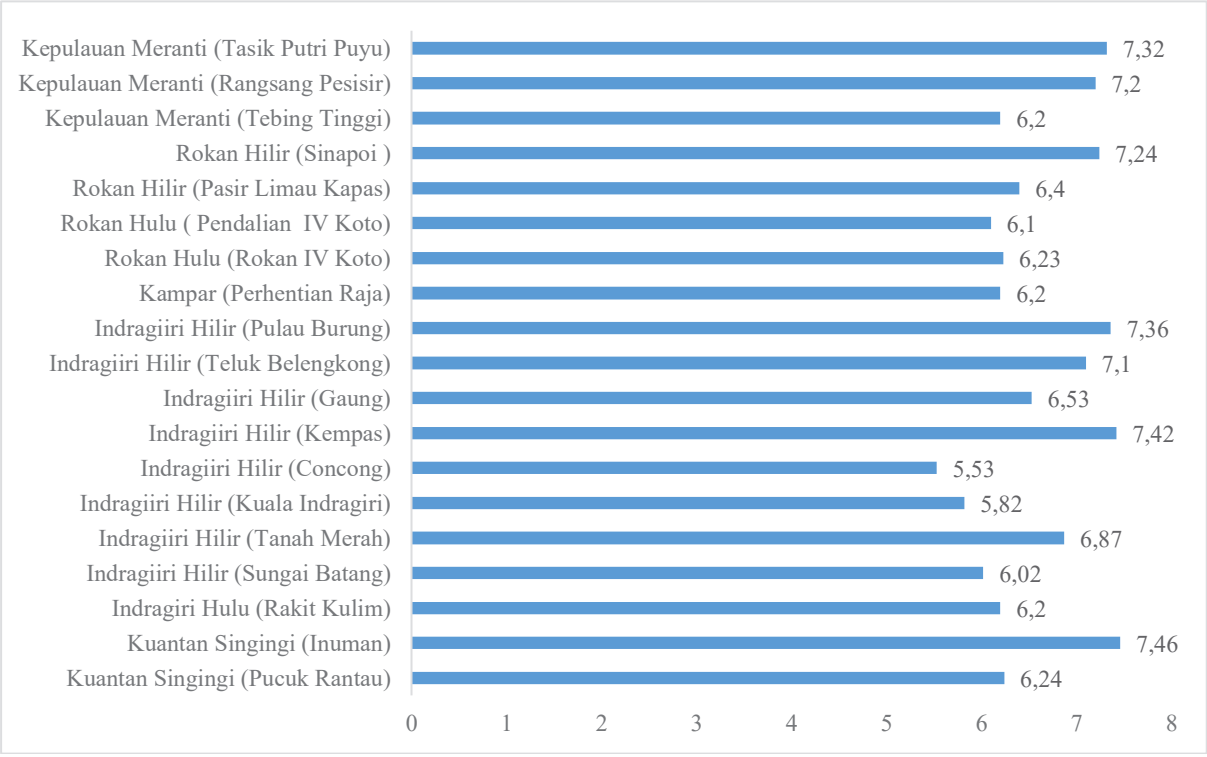


Figure 4 Average Years of Schooling for Women Over 15 Years Old in Vulnerable Sub-District Groups (Priority 1–3) in Riau Province, 2023

Source: SAE (Small Area Estimation), Susenas 2024

The figure 4 indicates that low average years of schooling for women (less than 7.5 years) are prevalent in 19 sub-districts across seven regencies, including: two sub-districts in Kuantan Singingi, one in Indragiri Hulu, eight in Indragiri Hilir, one in Siak, one in Kampar, two in Rokan Hulu, two in Rokan Hilir, and three in Kepulauan Meranti.

The implications of low educational attainment—particularly in areas like Concong, where women receive less than six years of schooling—are significant. Without at least basic education, women may lack the literacy needed to understand health and nutrition information, reducing their capacity to care for their families. This limitation can also exclude them from formal labor markets, pushing them into informal work with low income and no protection. The result is not only reduced economic independence, but also increased child malnutrition, higher maternal mortality, and limited social mobility across generations.

The 19 sub-districts mentioned are classified under Priority 1 to 3 in the FSVA categorization. This priority classification is based on a composite index of food insecurity indicators, including nutritional status, access to clean water, morbidity rates, and female education levels. Sub-districts in Priority 1 are extremely vulnerable, while those in Priority 3 face moderate food insecurity and limited access to key services.

A notable pattern is that eight out of the 19 sub-districts with the lowest female educational attainment are located in Indragiri Hilir Regency. Several local factors may contribute to this: Indragiri Hilir is characterized by a dispersed rural population, limited transportation infrastructure, and seasonal flooding, which affects access to schools. Cultural norms may also contribute to early marriage and the prioritization of male education. These barriers create a localized context where female education is particularly difficult to advance.

The educational attainment of women—especially mothers—has profound impacts on child health. Abuya et al. (2012) and Glewwe (2009) explain that formal education provides mothers with health-related knowledge, improves their ability to seek appropriate care, and increases their acceptance of modern health practices. Moreover, women with higher education are more likely to enter stable employment, marry better-educated partners, and raise children in healthier environments. Husein, et.al. (2021) emphasize that education is a core element of the Sustainable Development Goals (SDGs), specifically under Goal 5: Gender Equality. UNESCO calls for universal and equitable access to education by 2030.

If references, such as Solazzo (2018) and Hrynkow (2018), are to be retained, their relevance to the Riau context must be clarified. For instance, while Solazzo discusses inequality in the U.S., the comparison underscores how income inequality—whether in developed or developing regions—always constrains women's access to essential services. Similarly, Hrynkow's reference to Vandana Shiva's ecofeminism can be used to argue that the intersection of environmental degradation and patriarchal systems also affects rural Indonesian women, who are often responsible for water collection, food provision, and caregiving under resource-scarce conditions.

In development policy, women are increasingly recognized as essential drivers of progress. Broad access to education for women not only improves individual well-being but also benefits families and communities. The Ministry of Women's Empowerment and Child Protection emphasizes the importance of gender mainstreaming, which requires intersectoral coordination to ensure women benefit from development equitably. Beyond policy, community movements and economic initiatives are also key to changing attitudes and creating structural changes.

The Portrait of Stunting in Children in Riau Province

In the health domain, the gap between men and women in terms of socioeconomic status and access to care remains a pressing issue. The World Health Organization (WHO, 2017) reported that Indonesia's main public health burdens are concentrated in the productive age group (15–60 years), where many women face barriers in accessing prenatal, delivery, and postpartum services. These barriers are not only due to geographical or infrastructural limitations but are also rooted in economic hardship, gender norms, and unequal decision-making power. Consequently, maternal health outcomes suffer, increasing the risk of child stunting, a chronic condition that hinders physical and cognitive development in early life.

According to Claudia, et.al. (2018), using World Bank data, and Firman, et.al. (2022), roughly one in three children under five in Indonesia experiences stunting. Stunting reflects prolonged malnutrition and poor living conditions. It affects not only physical stature, but also learning capacity and long-term income potential. Booth (2023) explains that while Indonesia has seen economic growth, provinces like Riau still experience deep-rooted economic and health inequalities. Economic fragility at the household level reduces access to nutritious food and healthcare, making children more vulnerable to stunting.

This situation is illustrated in the following figure.

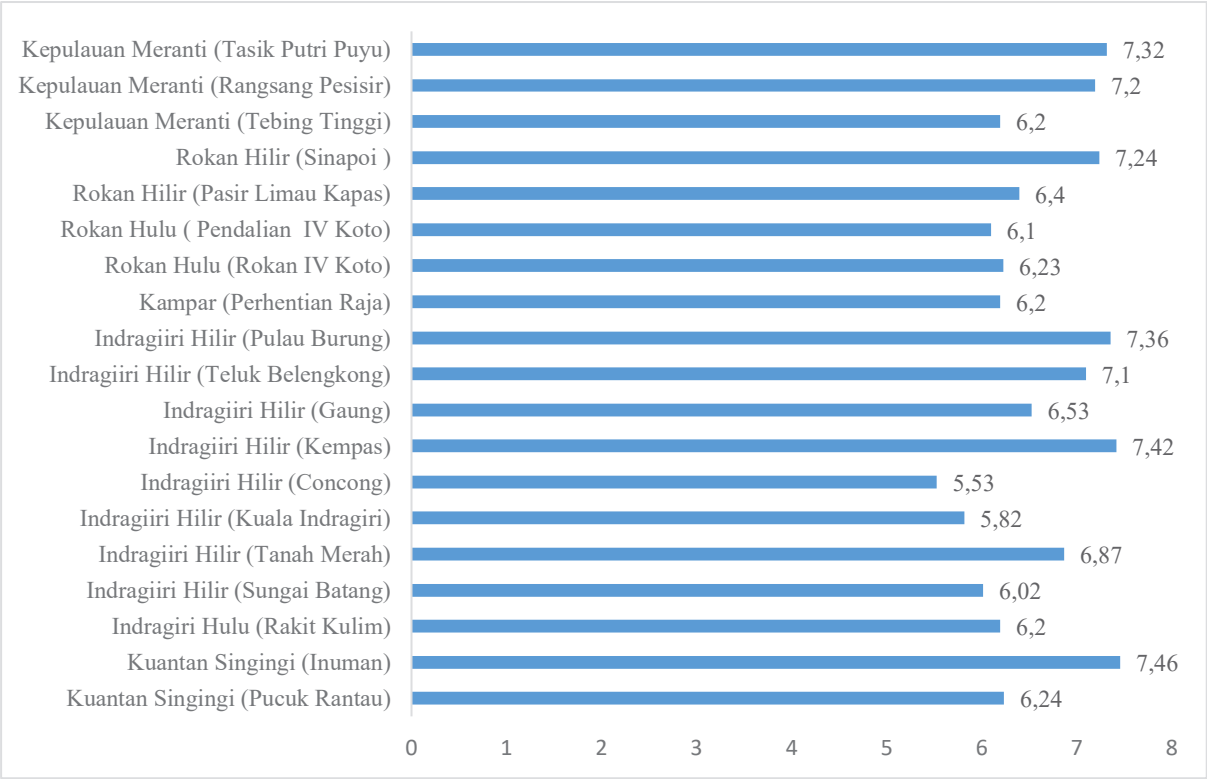


Figure 5 Indonesia Health Survey (SKI) 2023 and Stunting Prevalence Target for 2024 in Riau Province

Source: Indonesian Health Survey (IHS)

In 2023, Riau Province recorded a stunting prevalence of 13.6 percent, with a reduction target of 12.38 percent in 2024. However, data from certain areas presents ambiguity. For instance, Pekanbaru City shows a stunting prevalence of 8.7 percent

in 2023, yet a target of 16.6 percent for 2024. This seeming increase may reflects a change in measurement and reporting standards following the adjustment of national targets rather than an actual policy goal to increase stunting. Without clarification, such data may lead to misinterpretation that the government is tolerating worsening conditions.

Some districts are pursuing steep reductions. Kuantan Singingi aims to drop from 23 percent to 13.09 percent, and Kepulauan Meranti from 19.6 percent to 13.75 percent. Kampar's target appears to rise from 7.6 percent to 14.32 percent, which again suggests the need for further clarification or data reconciliation. Areas like Indragiri Hilir (18.8 percent), Bengkalis (17.9 percent), and Rokan Hilir (16.6 percent) aim to bring rates below 17 percent, demonstrating a strong commitment, though challenges remain in achieving these ambitious targets.

Gender plays a critical role in this issue. Women often manage family nutrition and care. Their limited access to clean water and health education reduces their capacity to ensure child health. Thus, addressing stunting must include empowering women with better access to healthcare, sanitation, and nutrition resources.

Poverty and lack of clean water create a double burden. Poor households struggle not only to afford food, but also to secure safe water, leading to repeated illnesses that further impair nutrient absorption. Sutomo, et.al. (2021) note that unsafe water contributes to dehydration and infections. The Ministry of Health (2012) emphasizes that unsafe water directly worsens public health. These recurring illnesses prevent children from absorbing essential nutrients, aggravating malnutrition.

Water access is also a gendered issue. Women and girls often bear the burden of fetching water, sometimes from unsafe or distant sources. This task affects their health and education and limits time for income-generating activities. Sutomo, et.al. (2021) stress that clean water must be a guaranteed right, accessible to all—especially in public services like schools and clinics. Ensuring water access empowers women, improves family health, and supports national nutrition goals.

Indonesia's struggle with water access stems from historical underinvestment in infrastructure. Diarrhea, a common illness linked to contaminated water, remains prevalent and deadly, especially among children. Improving water systems is a critical health intervention—not just infrastructure. It enhances hygiene, reduces disease, and supports better nutrition outcomes.

Using clean water in households reduces the spread of disease. The United Nations (2021) asserts that to meet SDG 6.1, water must be not only free of harmful substances, but also available and accessible for all. Contaminated water impairs nutrient absorption by damaging the gut. This means even when food is available, the body cannot use it effectively. DKP and WFP (2009) and Sofiati (2010) found that areas lacking clean water have higher malnutrition rates due to frequent illness and weakened immunity.

Solutions must include improving sanitation and hygiene alongside clean water access. DKP and WFP (2015) and Kavosi, et.al. (2014) showed that clean water and sanitation help restore gut health and improve nutrition. This approach is essential for public health strategies aimed at reducing stunting.

According to the 2024 FSVA report using BPS SAE data, some subdistricts in Riau have 100% of households without clean water access. This includes Sungai Batang, Kuala Indragiri, Concong, Gaung, and Mandah in Indragiri Hilir, and Pulau Merbau in Kepulauan Meranti. These areas lack access to safe sources such as piped water, protected wells, and boreholes. At the other end, some areas show 0 percent lacking clean water, including Teluk Belengkong (Indragiri Hilir), Koto Gasib

(Siak), Bonai Darusalam (Rokan Hulu), Rantau Kopar (Rokan Hilir), and Sail and Pekanbaru Kota (Pekanbaru City). The next figure presents data on clean water access by sub-district.

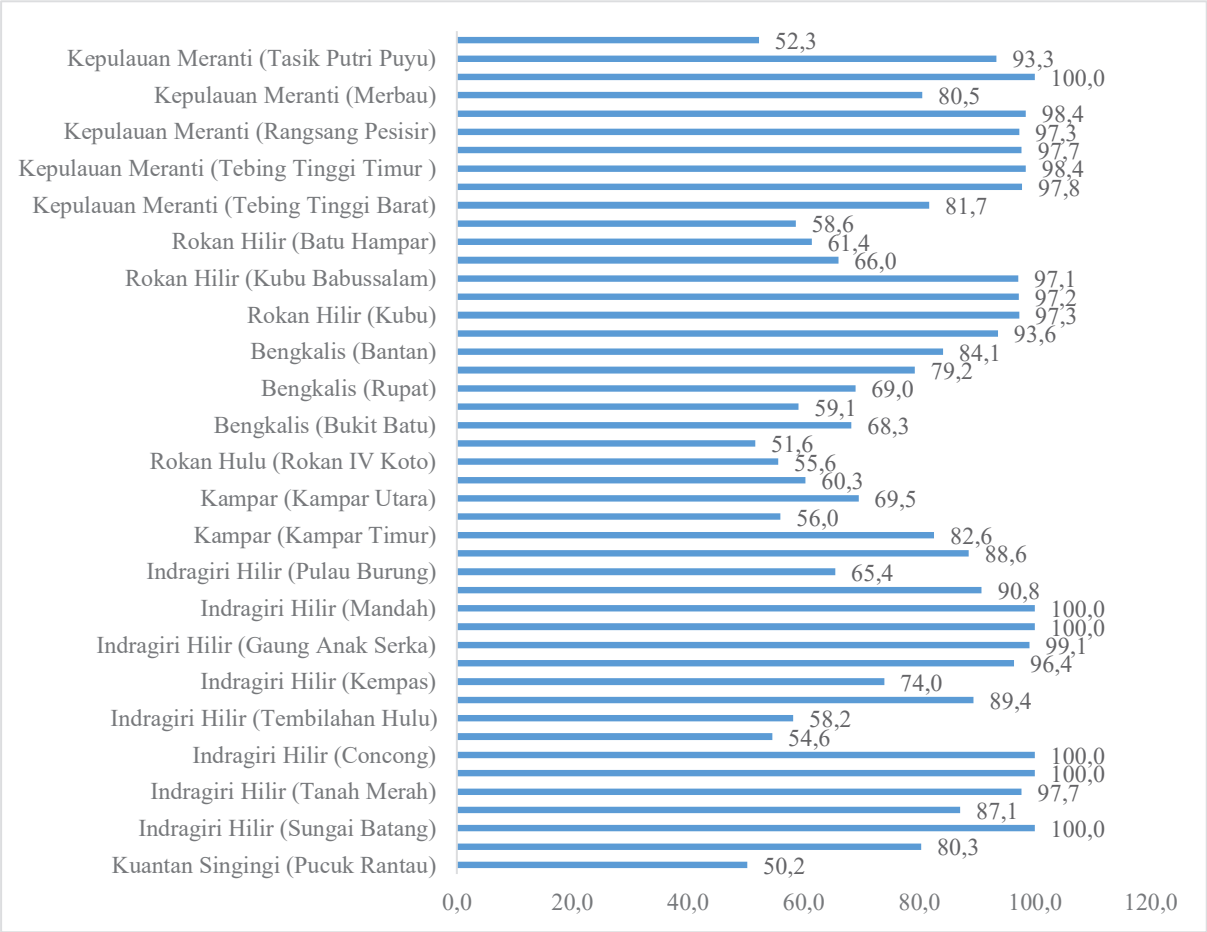


Figure 6 Percentage of Households Without Access to Clean Water by Subdistrict for Vulnerable Groups (Priority 1 to 3) in Riau Province, 2023

Source: SAE (Small Area Estimation), Susenas 2024

Visual data show that many subdistricts, especially in Indragiri Hilir, Kepulauan Meranti, and Bengkalis, face critical water shortages. These are not isolated cases—they reveal systemic problems. Areas with 80–100 percent of households lacking water are particularly concerning. Lack of water disrupts hygiene, increases disease risk, and hampers children's growth and development.

Water scarcity also reinforces social inequality, as the poorest communities suffer the most. The consequences go beyond health—they affect education, income, and opportunity. Water scarcity also reinforces social inequality, as the poorest communities suffer the most due to their limited ability to adapt or invest in alternative water sources. In these contexts, the absence of clean water disproportionately affects daily routines—children miss school to help collect water, women spend hours traveling long distances to unsafe sources, and entire households are forced to prioritize water collection over income-generating or educational activities. This not only interrupts the educational continuity of children, particularly girls, but also restricts adults from pursuing stable employment or entrepreneurial opportunities. Inadequate

water access increases reliance on informal labor and deepens the economic precarity of already vulnerable groups. Over time, this compounds social disparities: households with better access to water enjoy better health, greater productivity, and more stable incomes, while those without fall further behind. Thus, water scarcity is not only a symptom of poverty—it is an active driver of long-term inequality, shaping who gets to participate in social and economic progress.

To address this, the government must prioritize high-risk areas for infrastructure upgrades and water system expansion. Investments must be sustainable and involve community participation. Fixing water access is not only about survival—it is about dignity and long-term development.

In summary, reducing stunting in Riau requires integrated strategies that link clean water, sanitation, poverty alleviation, and gender equality. Women's roles in health and caregiving make them central to successful interventions. Ensuring equitable access to health and water resources is essential to break the cycle of stunting and poverty.

Conclusion

The government has designated stunting reduction as a national priority program, integrated into the 2022–2024 National Medium-Term Development Plan (NMTDP), with an ambitious target to decrease stunting prevalence from 27.6 percent in 2009 to 14 percent by 2024. This policy is reinforced by Presidential Regulation No. 72/2021 on Accelerating Stunting Reduction, which provides guidelines for ministries/agencies, provincial and district/city governments, village governments, and other stakeholders to implement coordinated interventions.

These efforts reflect the government's strong commitment and attention to addressing the multidimensional issue of stunting. However, analysis reveals that tackling stunting cannot rely solely on policy but requires a more holistic and integrated approach. A fundamental pillar to strengthen is poverty alleviation, as economic constraints directly affect communities' access to nutritious food and quality healthcare. Additionally, expanding women's access to quality education is a crucial factor. Female education not only raises awareness of nutrition and health but also improves overall family welfare.

Moreover, adequate access to clean water and sanitation must be a strategic component of interventions aimed at accelerating stunting reduction. Data indicates that disparities in clean water access remain a primary obstacle in several areas within Riau Province, increasing the risk of diseases that exacerbate children's nutritional status. Therefore, government interventions and policymaking must consider socioeconomic factors, education, and basic infrastructure availability—such as clean water—to ensure stunting reduction efforts are effective and sustainable.

Overall, accelerating stunting reduction demands strong synergy among various sectors and levels of government, alongside active community participation. A multisectoral, evidence-based approach should underpin these interventions to ensure measures are not merely short-term but address the root causes of stunting. Thus, the stunting reduction targets can be optimally achieved, positively impacting the quality of Indonesia's human resources in the future.

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Female-Headed Households in Yogyakarta, Indonesia: Demographic Realities and Policy Pathways for Inclusive Development

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Abstract

This study examines the demographic profile and policy implications concerning female-headed households in the Special Region of Yogyakarta, Indonesia. Using a descriptive quantitative approach based on secondary data from the 2023 Population Administration Database, the analysis employed frequency distributions, percentage breakdowns, and simple visualizations to profile socio-demographic characteristics and spatial variations across districts. The analysis reveals that the majority of female household heads are elderly (57% aged 60 years and above), have low educational attainment (42.8% completed only primary school or less), and are engaged in informal or subsistence employment (over 67% work in unpaid domestic work, farming, or casual labor). These patterns suggest heightened socio-economic vulnerability and limited access to formal support systems. The study integrates insights from recent international literature, emphasizing the importance of psychological empowerment, adult education, and economic inclusion in improving the quality of life for female heads of households. Based on these findings, the study proposes region-specific policy recommendations focused on skill development, access to formal employment, expanded adult education, community-based psychosocial support, and inclusive social protection. This paper contributes to the growing body of literature on gender and household dynamics by offering a localized, data-driven analysis and proposing holistic policy interventions that respond to the unique socio-demographic realities of female-headed households in SPecial Region of Yogyakarta. The results aim to inform policy strategies that promote social equity and sustainable regional development.

Keywords: female-headed households, demographic profile, policy recommendation, population administration database, spatial variations

Introduction

The increasing number of female-headed households is one of the most visible demographic transformations in Indonesia, particularly in regions with deeply rooted cultural and social norms such as the Special Region of Yogyakarta/Daerah Istimewa Yogyakarta/ DIY (Sembiring, 2003; Satriawan, 2022; Trias-Prats, R., & Esteve, 2024; Bramantyo, Irkhami & Prakoso, 2024). These women, who now serve as the primary economic providers and decision-makers within their families, often assume this role due to widowhood, separation, or economic necessity (Sembiring, 2003; Satriawan, 2021; Agussalim & Anwar, 2025). As such, they are not only redefining traditional family structures, but also facing a range of socio-economic vulnerabilities that remain largely unaddressed.

In Indonesia, the majority of female heads of households are in older age groups, have low educational attainment, and are concentrated in informal and agricultural employment sectors (Pukuh & Widyasthika, 2018; Purwaningsih, 2021; Satriawan, 2021; Satriawan, 2022; Pujiwati, et.al., 2024). These structural patterns indicate a convergence of age, gender, and poverty, making them a demographically and socially significant group which demands targeted policy attention. Prior studies show that psychological resilience and access to economic and social capital are key to improving their quality of life (Jalilian, et.al., 2023). However, much of the current literature and policymaking still overlook the contextual realities of this growing population group.

Despite their increasing numbers and responsibilities, female heads of households in many parts of Indonesia continue to be marginalized in socio-economic development strategies (Utomo & Haryani, 2019; Purwaningsih, 2021; Satriawan, 2022; Juwita, 2024). Low education, informal employment, lack of legal and financial security, and limited access to healthcare and social services are common barriers which hinder their ability to achieve household stability and long-term well-being (Mahmoudi, et.al., 2024; Lima, et.al., 2022; Satriawan, 2022; Pujiwati, et.al., 2024). In addition, the psychological burden and social isolation they often face have been shown to negatively impact both their mental health and their capacity to care for other family members (Rodiah, et.al., 2022).

While existing studies have examined the socio-economic and psychological conditions of female-headed households in Indonesia, few have explicitly considered how these factors might vary across regions with different demographic compositions and socio-cultural settings. In the context of DIY, the combination of urban, peri-urban, and rural areas suggests potential intra-regional variations which warrant further investigation. Although the present study does not specifically analyze spatial differences, this dimension remains underexplored in previous research and represents an important area for future study.

To address these multifaceted issues, policy responses must be both integrative and localized. Interventions should not only focus on welfare but also on empowerment through education, psychological support, and community engagement. Studies emphasize the importance of communication skills, social support systems, and mindfulness-based interventions in improving the psychosocial conditions of female heads of households (Mahmoudi, et.al., 2024; Rodiah, et.al., 2022).

A growing body of literature highlights the importance of psychological capital and empowerment as key components for improving life satisfaction and economic resilience among female-headed households (Lima, et.al., 2022; de Oliveira & de Lima, 2023; Jalilian, et.al., 2023). In Indonesia, interpersonal communication and grassroots social networks have been identified as crucial factors for women's empowerment in rural and semi-urban areas (Rodiah, et.al., 2022). Moreover, mindfulness-based educational interventions have shown promising results in improving mental health outcomes (Mahmoudi, et.al., 2024), which in turn can enhance decision-making and family management capacities.

In the international context, female heads of households in countries, such as Brazil and Iran face similar socio-economic constraints, but targeted public policies, including legal reforms and access to adult education, have demonstrated success in breaking intergenerational cycles of poverty (Lima, et.al., 2022; de Oliveira & de Lima, 2023; Jalilian, et.al., 2023). Lima, et.al. (2022), in their study of female heads of households in the backlands of Pernambuco, Brazil, emphasize that identifying the specific needs of this group,

through comprehensive demographic and socio-economic profiling, is essential to formulating responsive public policies. Their findings reveal that these women often face cumulative disadvantages related to informal employment, low education levels, and poor health access. However, when public policies are grounded in accurate demographic data, including age, employment type, education, and family structure, interventions can be more effectively tailored to local contexts, resulting in improved social inclusion and economic security.

Similarly, de Oliveira & de Lima (2023) provide a multidimensional poverty analysis of female-headed households in Northeast Brazil, demonstrating that poverty in this group extends beyond income to include deprivations in education, housing conditions, healthcare access, and digital inclusion. The study underlines that understanding the demographic and social characteristics of these women is key to designing multidimensional policy frameworks which address their needs holistically. For instance, the concentration of elderly female heads of households with limited formal education and caregiving responsibilities requires a different policy approach than younger, working-age women engaged in informal labor. This reinforces the argument that demographic profiling is not just descriptive but serves a critical function in ensuring policy precision and effectiveness.

In the Iranian context, recent research has shown that the well-being of female-headed households is significantly influenced by psychological factors closely linked to demographic characteristics. Jalilian, et.al. (2023) found that psychological empowerment mediates the relationship between psychological capital (such as resilience, hope, and self-efficacy) and quality of life among these women. This indicates that age, education level, employment status, and marital background are not only descriptive indicators, but also determinants of psychological strength and access to resources. The study emphasizes the necessity of policies which are sensitive to these demographic variations, arguing that tailored interventions (such as adult education, mental health services, and employment facilitation) should be prioritized according to the specific profiles of female heads of households. For countries like Indonesia, the Iranian experience underscores the importance of using detailed demographic profiling as a foundation for designing inclusive, psychologically informed, and effective public policies.

These findings have strong implications for the Indonesian context, particularly in culturally complex regions, such as the Special Region of Yogyakarta (DIY), where socio-demographic factors intersect with traditional gender roles and spatial disparities. By systematically analyzing the demographic profile of female heads of households (including age distribution, educational background, employment sector, and household composition) policymakers can design more nuanced and effective interventions. These may include targeted adult education programs, access to healthcare for elderly female heads of families, legal protection for informal workers, and psychosocial support networks. As the Brazilian case studies suggest, data-driven and context-sensitive policies are crucial not only for alleviating poverty, but also for empowering female heads of households to become resilient agents of change within their communities.

While previous studies have examined the psychological, social, and economic conditions of female-headed households, few have focused on the regional demographic profile of these women in the context of subnational governance and cultural diversity, particularly in areas like DIY. There is limited research which systematically analyzes their demographic distribution by age, education, occupation, and family structure, and even

less that connects this data to actionable policy recommendations. The contribution of this study lies in combining descriptive demographic profiling with the formulation of localized policy recommendations informed by updated district-level demographic data for DIY. By linking quantitative profiles, such as age structure, education level, employment sector, and household size, with potential policy directions, this research offers an approach which has been less common in previous studies, which often stop at descriptive analysis without extending to context-specific policy considerations. Accordingly, this study examines the demographic profile of female heads of households in the Special Region of Yogyakarta based on age, educational attainment, type of employment, and household size, in order to identify structural patterns and socio-economic vulnerabilities that require targeted intervention.

Methods

This study utilizes secondary data sourced from the Directorate General of Population and Civil Registration, Ministry of Home Affairs of Indonesia, specifically the Population Administration Database for the second semester of 2023. The dataset includes all registered female heads of households in the Special Region of Yogyakarta/Daerah Istimewa Yogyakarta/DIY, disaggregated by demographic characteristics such as age, education level, type of occupation, and number of household members. The data covers all five administrative areas within DIY: Yogyakarta City, Sleman, Bantul, Kulon Progo, and Gunungkidul.

The study population consists of the entire female head-of-household demographic recorded in the population administration database, making this a population-level analysis rather than a sample-based study. To ensure data reliability and validity, the dataset underwent a cleaning process which involved removing duplicates, reclassifying incomplete entries, and standardizing categorical variables, such as education level and employment type across districts. This process helped to harmonize the dataset for analysis and ensured that findings would be representative and consistent.

Descriptive quantitative analysis was employed to examine the demographic structure of female-headed households. This included frequency distributions and percentage breakdowns for each of the key variables. These were analyzed both at the regional level (DIY as a whole) and across the five administrative districts to identify intra-regional differences and spatial disparities. Visualizations, such as bar charts, were used to present the results in an accessible and interpretable format.

The key parameters analyzed include age groupings (e.g., ≤30, 31-60, up to 61), education levels (from no schooling to tertiary education), employment categories (housekeeping, farming, self-employment, casual labourer /daily wage worker, private sector employee, unemployment and others), and household size (ranging from single-member to more than six members). Each of these variables was selected for its relevance to understanding socio-economic vulnerability and policy implications. Microsoft Excel and SPSS were used to conduct the analysis.

No further statistical techniques, such as cross-tabulations, measures of association, or spatial mapping, were applied because the primary objective of this study is to provide an updated, population-level demographic profile that is accessible and policy-relevant, rather than to test statistical associations. While spatial disparities are acknowledged in the discussion, the current analysis focuses on descriptive outputs to establish a clear empirical baseline, which can serve as a foundation for future research employing more advanced statistical or spatial methods.

This methodological approach enables a comprehensive understanding of the profile and distribution of female-headed households in DIY. It provides a strong empirical basis for the development of policy recommendations aimed at reducing socio-economic vulnerability, improving access to services, and fostering long-term empowerment for women in these roles. The integration of official demographic data with a structured analytical framework ensures that the findings are both robust and applicable to real-world governance contexts.

Results and Discussion

Demographic Profile of Female Heads of Households in Special Region of Yogyakarta

The demographic distribution of female-headed households in the Special Region of Yogyakarta demonstrates marked spatial disparities across its five regencies and city. Out of a total of 269,797 female-headed households in the region, Sleman has the highest number with 84,790 households, accounting for 31.4% of the total (Table 1). Bantul follows with 69,503 (25.8%), then Gunungkidul with 44,665 (16.6%), Yogyakarta City with 39,529 (14.7%), and finally Kulon Progo with 31,310 (11.6%). These figures suggest that female-headed households are more prevalent in peri-urban and urbanizing areas such as Sleman and Bantul, and less so in rural or peripheral regions such as Kulon Progo.

Table 1 Distribution of Female-Headed Households by Regency/City in the Special Region of Yogyakarta (DIY)

Regency/City	Number of Female-Headed Households (f)	Percentage (%)
Kulon Progo	31,310	11.6%
Bantul	69,503	25.8%
Gunungkidul	44,665	16.6%
Sleman	84,790	31.4%
Yogyakarta City	39,529	14.7%
Total (DIY)	269,797	100.0%

Source: The Population Administration Database, 2023

These patterns reflect broader demographic and socio-economic dynamics often associated with the feminization of household headship. In Indonesia and other parts of Southeast Asia, the rise in female-headed households is linked to increased female labor force participation, greater educational attainment, declining fertility, and changes in marital patterns, including higher divorce and widowhood rates (Jones, 2012; Malhotra & Kabeer, 2003). Urban and peri-urban areas like Sleman and Bantul tend to attract younger, economically active populations, including women who may be single, divorced, or widowed, and who are more likely to be recognized as the primary

household decision-makers (Ford & Parker, 2008). In contrast, regions like Kulon Progo and Gunungkidul may exhibit stronger adherence to patriarchal norms, where women's roles as de facto heads are underreported or unrecognized, despite their functional responsibility in the household. This underreporting is a known limitation of the dataset, as cultural norms in rural patriarchal settings may result in official records capturing fewer female household heads than actually exist, particularly where male relatives are nominally registered as heads despite women carrying the primary economic and caregiving responsibilities.

When compared to other studies on female headship, the DIY case illustrates both alignment and divergence. While prior research has often linked female-headed households with economic vulnerability (Quisumbing, et.al., 2001), more recent literature suggests that not all female-headed households are poor and that their profiles vary significantly across space and social strata (Chant, 2007; Budlender, 2010). The higher proportion of female-headed households in Sleman may reflect greater autonomy and access to resources, rather than solely economic distress. This highlights the importance of differentiating between types of female-headed households, those formed by choice, such as independent single women, versus those formed by necessity, such as widows or separated women with dependents (Varley, 1996).

The implications of these findings are critical for policy and programmatic interventions. First, they call for localized gender-responsive planning that considers the socio-spatial characteristics of female-headed households. For example, Sleman and Bantul, where concentrations are highest, could prioritize integrated social protection, vocational training, and affordable housing programs for working-age female heads, while Kulon Progo and Gunungkidul could focus on outreach initiatives to identify and support "hidden" female heads, alongside mobile health services and pension top-ups for elderly women living alone. For elderly single-member households, policy measures could include community-based care networks and home-visit health services, whereas for larger, multigenerational households, interventions might emphasize microcredit support, subsidized childcare, and household energy assistance. By addressing these variations, regional policies in DIY can better support women's agency and contribute to gender-equitable development outcomes.

The demographic structure of female-headed households in the Special Region of Yogyakarta reveals several important patterns. Based on the 2023 population adninistration data, the majority of female household heads are in older age brackets. As shown in Figure 1, 57 percent are aged 60+ years, followed by 40 percent in the 31–60 group. This indicates that most female heads of household in DIY are elderly, potentially due to widowhood or the absence of adult male family members. These age-based patterns suggest increased vulnerability, especially in terms of health and economic security. Older women are less likely to be active in the labor market and are more dependent on social safety nets or familial support.

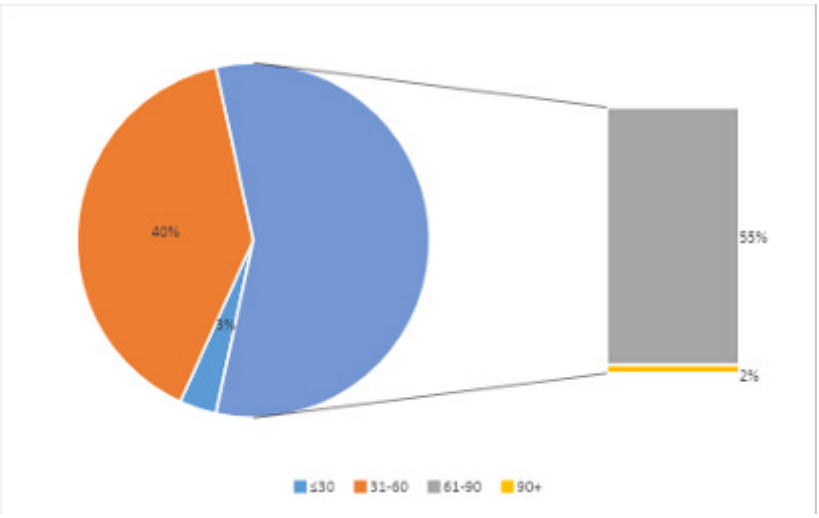

Figure 1 Percentage of Female Heads of Households by Age Group

Source: The Population Administration Database, 2023

The age distribution of female-headed households in DIY, with a dominant proportion in the elderly category, underscores a structural life-course vulnerability that aligns with the feminization of aging theory (Buvinic & Gupta, 1997). This theory argues that older women are more likely to experience poverty due to cumulative life disadvantages (such as lower lifetime earnings, limited access to pensions, and higher life expectancy) which is evident in the DIY context. These women often become heads of households not by choice, but by circumstance, such as widowhood, divorce, or migration of male family members.

This demographic pattern also resonates with the concept of social reproduction theory (Federici, 2012), which highlights the often-invisible labor and caregiving roles of women in maintaining family units. As female heads of households age, the burden of care may shift toward them rather than away, especially in cultures with strong expectations for intergenerational support. Without institutional recognition and support, this group remains doubly burdened by both productive and reproductive responsibilities, with limited external assistance. This aligns with Elson's (1999) critique that unpaid and care work, often performed by women, remains invisible in macroeconomic policy frameworks. Recognizing and valuing such contributions through state-supported community care services would directly address both gender inequality and gaps in social protection.

The distribution of household size among female-headed households in DIY reflects a dominant pattern of small family units (Table 2). Based on the 2023 population data, households with only one member (typically the female head herself) constitute the largest proportion, with 141,415 cases recorded. This condition likely arises from widowhood, separation, or adult children having moved away, leaving many women to manage daily life and economic survival alone.

Table 2 Number of Family Members in Female-Headed Households, DIY, 2023

Number of Family Members	F	%
1 Family Member	141,415	53.0
2 Family Members	72,838	27.3
3 Family Members	36,630	13.7
4 Family Members	11,924	4.4
5 Family Members	3,037	1.2
6 and More Family Members	1,110	0.4

Source: The Population Administration Database, 2023

Households with two or three members also account for a substantial share, totaling 72,838 (27 percent) and 36,630 (13,7 percent), respectively. These configurations may represent a mother with one or two children or other dependents, and suggest a high degree of individual caregiving responsibility. In contrast, the number of households with more than five members drops sharply. Although less common, households with six or more members are still present and represent a critical group. While these cases are numerically fewer, they indicate a significant caregiving and economic burden. In these families, the female head often must provide for both young dependents and elderly relatives, underlining the multidimensional strain carried by women in extended family systems without a male co-provider.

Large female-headed households tend to face compounded challenges, including greater daily consumption needs, higher expenditures on education and healthcare, and complex household management (Zhang, et.al., 2024). These factors increase the risk of structural poverty and often contribute to intergenerational poverty traps (Pukuh & Widyasthika, 2018). Moreover, limited access to stable employment and social protection further exacerbates their vulnerability. Following Rowlands' (1997) Empowerment Framework, strategies should aim not only to enhance "power to" (access to resources) but also "power within" (self-confidence and self-worth), "power over" (ability to influence household decisions), and "power with" (collective action through women's groups). Such a multidimensional empowerment approach ensures that policy interventions improve both internal agency and external opportunities.

The overall prevalence of small households led by women aligns with structural household theory (Laslett & Wall, 1972), which explains how demographic shift (such as increased life expectancy and lower fertility) result in fragmented household units. Female heads living alone or with one or two dependents are indicative of declining extended family support and increasing individualization of care. This demographic transformation has critical implications for social protection systems, especially in societies where familial support has historically been assumed rather than institutionalized.

The condition of larger households, meanwhile, supports the household survival strategy theory (Moore, 1985), which posits that families under economic pressure rely on internal labor and solidarity. In female-headed extended families, the burden of survival typically falls on one individual, creating a fragile system where short-term survival is prioritized over long-term development.

In sum, both small and large female-headed households face distinct but overlapping challenges. The state and local governments must design differentiated policy responses that consider household size, caregiving burden, and the socio-

economic status of female heads. Programs such as targeted income support, subsidized education and healthcare, and community-based care services will be essential in ensuring these women are not left behind in regional development.

The educational background of female heads of household is relatively low. As seen in Table 3, 30.8 percent completed only primary school, while 12 percent never attended school and another 5 percent did not complete primary education. Only 13 percent reached tertiary education (Diploma or Bachelor–Doctoral Degree). Limited educational attainment significantly affects their access to formal employment, information, and government services. Research has consistently shown that education is a strong predictor of economic independence and household resilience (Lima, et.al., 2022; de Oliveira & de Lima, 2023). In DIY, low education levels among this group contribute to intergenerational cycles of poverty and restricted upward mobility.

Table 3 Highest Educational Attainment of Female Heads of Household in DIY, 2023

Highest Educational Attainment	f	%
Not/Not Yet Attending School	32,248	12,0
Not Finished Elementary School/Equivalent	13,557	5,0
Graduated Elementary School/Equivalent	83,028	30,8
Junior High School/Equivalent	37,164	13,8
Senior High School/Equivalent	67,580	25,0
Diploma & Bachelor Degree	33,284	12,3
Master Degree	2,560	0,9
Doctoral Degree	376	0,1

Source: The Population Administration Database, 2023

The low levels of educational attainment among female heads of households can be analyzed through the lens of human capital theory (Becker, 1964), which posits that education enhances an individual's economic productivity and capacity for upward mobility. The data from DIY reflects that women with only primary or no schooling are disproportionately represented, limiting their access to well-paying and secure employment. This confirms that without adequate investment in human capital, female-headed households face long-term economic exclusion.

Furthermore, capability theory by Amartya Sen (1999) offers a broader perspective. It argues that development should focus not only on access to resources but also on expanding individuals' real freedom. In this case, low educational attainment restricts these women's capabilities in decision-making, accessing healthcare, managing finances, or advocating for their rights. The constraints are not merely economic but also reflect institutional neglect of gendered learning opportunities.

In terms of employment, most female heads of household in DIY are engaged in informal sectors or unpaid domestic work (Table 4). As illustrated in Table 4, 28.7 percent reported their main activity as unpaid domestic work, while 16.8 percent work as crop farmers or plantation workers (farming sectors). Additionally, 11.3 percent are self-employed, and 11.0 percent work as casual laborers. Only 7.5 percent are employed in the private sector, while 4.0 percenr are not economically active or

unemployed. Another 20.7 percent fall into other types of employment.

This occupational pattern reflects the region's semi-agrarian economy and the gendered division of labor. Informal work often lacks job security, legal protection, and social benefits—leaving many women in a precarious socio-economic position (Rodiah, et.al., 2022). Programs aimed at improving access to formal sector employment and skill development are essential to break this structural barrier. In line with lessons from Brazil's community-based adult education and Iran's psychosocial empowerment interventions, DIY could pilot collaborative programs through existing local institutions, such as PKK (Family Welfare Movement), women's cooperatives in Sleman and Bantul, or community learning centers (Pusat Kegiatan Belajar Masyarakat/PKBM) which already operate in rural areas. These entities could serve as platforms for scaling adult literacy, microenterprise skills, and mental health support tailored to the demographic profiles identified in this study.

Table 4 Type of Occupation of Female Heads of Household in DIY, 2023

Type of Occupation	f	%
Unpaid Domestic Worker	77,425	28.7
Crop Farmer / Plantation Worker	45,415	16.8
Own-Account Worker / Self-Employed	30,545	11.3
Casual Labourer / Daily Wage Worker	29,581	11.0
Private Sector Employee	20,187	7.5
Not Economically Active / Unemployed	10,784	4.0
Other Types of Employment	55,860	20.7

Source: The Population Administration Database, 2023

The dominance of informal labor among female household heads supports the relevance of the dual labor market theory (Doeringer & Piore, 1971), which explains labor market segmentation into a primary (secure, formal, high-paying) and secondary (insecure, informal, low-paying) sector. Women in DIY are largely concentrated in the secondary labor market, with minimal upward mobility, poor working conditions, and absence of social protections. This structural barrier is not individual in origin but systemic, often perpetuated by gender biases and educational limitations.

From a feminist economics perspective, as articulated by Nancy Folbre (1994), unpaid domestic worker (activities that are largely undertaken by female heads of households) remain undervalued and unrecognized in formal labor accounting. The finding that nearly one-third of these women classify themselves as "housekeeping" laborers further emphasizes this invisibility. Their economic contributions, while essential to household survival, are not rewarded within traditional labor systems, deepening their socio-economic marginalization.

Policy and Implications for the Special Region of Yogyakarta

A. Toward Inclusive and Empowering Policy for Female-Headed Households

The demographic profile of female-headed households in the Special Region of Yogyakarta (DIY) reveals clear and pressing structural vulnerabilities. These women are disproportionately older, less educated, and engaged in informal or unpaid domestic work, which places them at a disadvantage in accessing stable income, healthcare, and social services. It should also be

acknowledged that in some rural and patriarchal areas, particularly parts of Gunungkidul and Kulon Progo, female heads of household may be underreported in official records when a male relative is still nominally listed as the head, despite the woman being the de facto decision-maker and provider. To address these challenges, policies must move beyond generalized welfare approaches and adopt targeted, inclusive strategies that respond to the real conditions faced by this population group. This section outlines four key policy directions derived from empirical findings and aligned with global best practices and theoretical frameworks.

1. Education and Lifelong Learning for Empowerment

Education remains a central lever for empowerment, particularly among older women with limited formal schooling. The study found that nearly half of female-headed households in DIY have only completed elementary school or less, severely limiting their ability to access information, employment, and public services.

International studies emphasize that adult education and literacy programs play a crucial role in breaking the intergenerational cycle of poverty and increasing agency among marginalized women (Lima, et.al., 2022; de Oliveira & de Lima, 2023). Sen's (1999) capability approach further underscores that expanding real freedoms, including the freedom to learn, is essential for development. Therefore, local governments in DIY should implement flexible, community-based learning programs, digital literacy training, and vocational education that target female heads of households, especially those in rural areas.

Models from Iran and Brazil show that such educational programs not only improve knowledge and job readiness, but also enhance psychological empowerment and self-confidence (Jalilian, et.al., 2023; Mahmoudi, et.al., 2024). In the context of DIY, collaborations with universities, community learning centers, and NGOs could support the design and delivery of accessible lifelong learning modules tailored to women's schedules and needs.

2. Economic Inclusion through Formal and Protected Employment

Most female household heads in DIY work in the informal sector or are not economically active. Without access to stable, protected employment, they are exposed to income insecurity and lack labor rights or benefits. This reflects the segmentation described in dual labor market theory (Doeringer & Piore, 1971), where women are often confined to low-paying, insecure jobs without social protection.

To address this, the government should prioritize programs that facilitate access to formal employment through skills development, placement support, and incentives for employers to hire female heads of households. At the same time, entrepreneurship and microenterprise support, through access to microcredit, training, and cooperative models, can offer alternative pathways for economic inclusion. Evidence from Indonesia suggests that financial assistance, when combined with training, significantly improves the welfare of female-headed households (Juwita, 2024).

This policy direction also aligns with findings from Tenri, et.al. (2024), which stress the need to move from short-term survival strategies to long-term financial stability through structural reforms. In DIY, local governments can integrate economic empowerment programs with existing women's groups (PKK, UP2K) or village-owned enterprises (BUMDes) to ensure sustainability.

3. Psychosocial Support and Community-Based Empowerment

The psychological burden faced by female heads of households, especially older women living alone or caring for

multiple dependents, is often overlooked in policy design. Research from Indonesia and abroad has shown that psychological well-being is a key component of overall resilience and quality of life (Rodiah, et.al., 2022; Jalilian, et.al., 2023).

Integrating Rowlands' (1997) Empowerment Framework, covering "power within" (self-esteem), "power to" (capacity to act), "power over" (influence in household decisions), and "power with" (collective action), into psychosocial programs would allow interventions to target both individual and community dimensions of empowerment. Mindfulness training, peer support groups, and leadership development can be incorporated into existing women's forums, such as PKK or Posyandu Lansia, leveraging health centers (Puskesmas) in Bantul and Gunungkidul as safe spaces for both counseling and collective capacity-building.

4. Inclusive and Multidimensional Social Protection

Despite their vulnerability, many female-headed households are excluded from existing social protection programs, either due to data limitations or program design that does not adequately consider household structure. As de Oliveira & de Lima (2023) argue, multidimensional poverty assessments are crucial to accurately identify and support households facing overlapping deprivations, in income, education, health, and digital access.

DIY should develop a more gender-sensitive social protection framework which incorporates variables, such as age, caregiving burden, household composition, and employment status. In addition to income support, policies should explicitly recognize and compensate unpaid care work, as highlighted by Elson's (1999) critique of its invisibility in macroeconomic policy. This recognition could take the form of community-based childcare and eldercare services, freeing time for women to engage in paid work or training.

B. Strategic Implementation and Long-Term Outlook

Implementing inclusive policies for female-headed households in the Special Region of Yogyakarta (DIY) requires more than well-designed programs; it demands a sustained, coordinated, and adaptive policy environment. While initiatives ,such as Desa Prima and Jogja Prima Fest have laid the groundwork for community-based empowerment, their effectiveness over time will depend on strengthening institutional coordination, expanding data-driven decision-making, and investing in local capacity (Dewan Perwakilan Rakyat Daerah Daerah Istimewa Yogyakarta, 2023).

First, cross-sectoral collaboration must be institutionalized. Programs, such as Desa Prima, implemented by the DIY Office for Women Empowerment (Dinas Pemberdayaan Perempuan Perlindungan Anak dan Pengendalian Penduduk/ DP3AP2), have demonstrated the value of provincial-local cooperation involving village governments, NGOs, and women's organizations (DP3AP2 DIY, 2024a). A multi-stakeholder governance forum (meeting regularly and including government, academia, and civil society) could synchronize efforts and ensure program relevance across districts.

Second, a balance must be struck between local flexibility and provincial oversight. The decentralized nature of Desa Prima, where local governments determine specific empowerment strategies while receiving technical and financial support from the province, exemplifies this approach (Dewan Perwakilan Rakyat Daerah DIY, 2023). This model should be retained and enhanced with clearer monitoring guidelines and integration into village-level development planning.

Third, monitoring and evaluation systems must capture transformative change. Instead of focusing solely on participation numbers or funding disbursed, key performance indicators should include gains in agency, digital literacy, access to

formal work, and improvements in mental health. As suggested by Mahmoudi, et.al. (2024), psychological well-being is a central component of resilience and should be tracked using community-based tools.

Fourth, training and capacity-building for implementers are crucial. Many village-level officers or facilitators lack gender sensitivity training or skills in participatory communication. Learning modules (covering basic counseling, community facilitation, and gender-inclusive service delivery) could be integrated into the province's existing training platforms for village officials.

Fifth, the government must develop integrated data systems that combine demographic and programmatic databases. Linking the Population Administration Database with Desa Prima participation records, social protection registries, and local survey data would enable more precise targeting and facilitate impact assessment, echoing recommendations by de Oliveira and de Lima (2023) regarding multidimensional poverty data in Brazil.

Sixth, financial sustainability must be addressed. While Dana Keistimewaan (Special Autonomy Funds) currently fund most Desa Prima activities (DP3AP2 DIY, 2024b), additional support should be sought through RPJMD integration, cross-sectoral budgets, and private partnerships. Universities, for example, could offer community service funding to support adult education and business mentoring for female heads of households.

Seventh, the policy agenda must aim to reshape public narratives. Events such as Jogja Prima Fest (DP3AP2 DIY, 2023) have provided platforms for recognition, but broader cultural shifts are needed to reposition female-headed households as contributors to development rather than dependents. Public storytelling campaigns, leadership forums, and intergenerational dialogue spaces could support this shift.

Lastly, ongoing research and adaptive learning are vital for long-term impact. Qualitative studies—focused on local success stories, implementation bottlenecks, and community responses—should be encouraged in partnership with local universities. As Lima et al. (2022) argue, evidence-based adaptation is crucial to ensuring policies remain relevant and effective for diverse populations.

Conclusion

This study examined the demographic profile of female-headed households in the Special Region of Yogyakarta, focusing on age, educational attainment, employment type, and household size. The findings revealed that most female household heads are elderly, have low education levels, and are engaged in informal or unpaid domestic work. These characteristics point to layered vulnerabilities, economic, social, and psychological, that require thoughtful policy responses beyond short-term welfare programs.

Importantly, the study highlights the need to treat female-headed households not as a homogenous vulnerable group, but as a diverse population with varying needs depending on age, household composition, and labor market participation. Policies must therefore shift from generalized social assistance to targeted interventions that reflect these demographic nuances.

Based on this analysis, four key policy directions are recommended: (1) expanding adult and lifelong education programs; (2) facilitating entry into formal and protected labor markets through vocational training and microenterprise support; (3) integrating psychosocial services into community health programs, particularly for elderly women living alone; and (4) strengthening inclusive social protection schemes that address multidimensional poverty risks.

The study also contributes conceptually by connecting demographic data with structural and theoretical insights, thus bridging empirical evidence with normative claims for social equity. It

underscores that effective policy must be informed by both local realities and global lessons on empowerment and inclusion.

Future research should explore qualitative aspects of female-headed households, including intra-household dynamics, coping strategies, and the role of local institutions. Additionally, longitudinal studies can help assess the long-term impacts of targeted interventions on the well-being and agency of female household heads. Such research would deepen our understanding of how gender, aging, and socio-economic status intersect in shaping household-level development trajectories.

In conclusion, this study effectively ties together empirical findings, theoretical perspectives, and normative considerations, delivering a compelling final message about the importance of recognizing female household heads as active agents of regional development rather than passive beneficiaries. To strengthen the practical contribution, it is recommended that future work or policy implementation consider how the proposed policy roadmap could be locally piloted, monitored, and evaluated in specific contexts within DIY. Such efforts would help ensure the relevance, adaptability, and sustainability of interventions on the ground. Addressing the needs of female-headed households is not only a matter of social justice, but also a strategic imperative for inclusive and sustainable regional development. A policy approach that is evidence-based, empowerment-oriented, and context-sensitive will be essential in ensuring that these women are recognized not as passive recipients of aid, but as active agents of change in their communities.

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Volume 33 Issue 2 2025 Page 49-63

Inequalities in Maternal Complications in Indonesia: A Multilevel Analysis of Education, Parity, and Health Insurance using IFLS 2014/2015

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Abstract

Maternal complications remain a critical challenge in Indonesia, where progress toward the SDGs target of reducing maternal mortality has been slow. This study investigates how education and the absence of health insurance shape complication risks. Using nationally representative data from the IFLS (2014/15), 6,156 women's last pregnancies across 20 provinces were analyzed. Multilevel logistic regression models were estimated, with predictive margins used to explore education with parity and insurance interactions. Women with primary or less education had significantly higher odds of complications than those with post-secondary education (OR=1.41, 95% CI). Predictive margins revealed that education reduced risks at higher parities, while first births carried elevated risks across all education groups. Insurance effects were uneven: women covered by government schemes (national health insurance/NHI, maternity insurance) had greater odds of complications (OR=1.32 and OR=1.36), while those with employer/private insurance showed lower risks (OR=0.61). Older maternal age (≥35 years) increased risks, whereas antenatal care visits did not show a consistent protective effect. These findings emphasized that education and health insurance remain crucial for maternal complications in Indonesia. Policies should therefore prioritize first-time and high-parity mothers with low education, while also strengthening NHI to deliver equitable services, so that women without private insurance are not systematically disadvantaged.

Keywords: maternal complications, maternal education, health insurance, parity, multilevel analysis

Introduction

Despite steady progress in reducing maternal mortality, Indonesia remains far from achieving the Sustainable Development Goals (SDGs) target (70 deaths per 100,000 live births by 2030), with the current national maternal mortality ratio (MMR) estimated as one of the highest in Southeast Asia (189 per 100,000 live births) (BPS, 2024; Huang, et.al., 2025; Utomo, et.al., 2025). While maternal death is the most severe outcome, maternal complications represent a broader burden of morbidity that contributes to both immediate and long-term health risks (Diana, et.al., 2020; McNestry, et.al., 2023). Unfortunately, research on maternal complications in Indonesia remains limited, particularly studies using nationally representative data.

Most evidence on maternal complications in Indonesia comes from

small-scale or regional studies (Adisasmita, et.al., 2015; Rizkianti, et.al., 2021; Widyaningsih and Khotijah, 2018). National surveys, such as the Demographic and Health Survey (DHS) and the Indonesia Family Life Survey (IFLS), typically report maternal complications only for the last pregnancy within a defined recall period. This practice aligns with international monitoring standards but has been debated in the literature, as it may underestimate risks faced across multiple pregnancies and attenuate socioeconomic inequalities (Mensch, et.al., 2019; Weitzman, 2017). A systematic comparison of pregnancy-unit versus last-pregnancy analyses is rare, and most Indonesian studies still focus on last pregnancy data, which provides the most policy-relevant but possibly conservative estimates.

Among determinants of maternal complications, two factors stand out for both research and policy relevance: maternal education and health insurance. Maternal education is a well-established predictor of health-seeking behavior, service utilization, and health outcomes (Karlsen et al., 2011; Ketema et al., 2020). In Indonesia, low education has been linked to reduced use of antenatal care and higher risks of complications (Bantas, et.al., 2018; Tripathi and Singh, 2017). Meanwhile, the expansion of national health insurance (*Jaminan Kesehatan Nasional/JKN*) and maternal-specific programs, such as *Jampersal*, were intended to reduce financial barriers to safe pregnancy and delivery. However, evaluations suggest mixed effects, with some studies reporting persistent inequalities or even higher complication rates among insured women (Anindya, et.al., 2020; Rizkianti, et.al., 2021). These findings underscore the importance of examining how education and insurance interact in shaping maternal health outcomes, alongside other maternal and household characteristics, to inform more effective policy design.

Prior IFLS-based research has primarily examined how health insurance affects maternal healthcare utilization. For example, Sambodo, et.al. (2025) found that having any insurance, especially NHI, was positively linked to prenatal care use, while Idris and Sari (2023) showed that owning insurance significantly increased the likelihood of completing recommended antenatal visits. However, these studies primarily focus on service contact, leaving a critical gap in the literature.

Addressing this gap, this study offers several novel contributions to the literature. First, it moves beyond prior analyses of healthcare utilization by focusing on maternal complications as the ultimate health outcome, thereby reframing the discussion from access to effectiveness of care. Second, it investigates the intersection of maternal education and health insurance, structural and institutional determinants that have rarely been examined together in the Indonesian context. In this study, “inequality” refers not only to differences among women of varying educational and economic backgrounds but also to disparities between provinces, Third, the study uses a multilevel analysis method that clearly takes into account the hierarchical nature of the data, where individual women are nested within provinces. This approach is particularly valuable because maternal health outcomes are influenced not only by individual and household characteristics but also by broader contextual conditions, such as provincial disparities in health infrastructure, policy implementation, and socioeconomic development. Accounting for these contextual factors yields a more accurate and nuanced understanding of how individual and regional dynamics shape maternal complications. Finally, by restricting the analysis to the last pregnancy, consistent with national reporting standards, the study produces findings that are both internationally comparable and directly relevant for maternal health policy and program design. Collectively, these

contributions strengthen the evidence base on maternal health inequalities in Indonesia and underscore the need for multilevel interventions to accelerate progress toward national maternal health targets.

Methodology

a. Study design and context

This study utilized data from IFLS-5 (2014/2015, which was collected between 2014 and 2015. For this analysis, the unit of analysis was the last pregnancy reported by each woman of reproductive age (15–49 years) within the five years preceding the survey. Restricting the analysis to the last pregnancy ensures comparability with national and international reporting practices, such as those used in the DHS, while avoiding the potential bias of over-representing women with multiple pregnancies. This approach provides a clearer policy-relevant snapshot, as it captures one pregnancy per woman.

The analytic sample was restricted to women who reported at least one pregnancy during the reference period and provided valid information on maternal complications. Pregnancies with missing values on any key variable or coded as “don’t know” (value = 9) were excluded. After applying these criteria, the final analytic sample consisted of 6,156 women, each contributing one last pregnancy record. These pregnancies were distributed across 20 provinces, enabling both individual- and contextual-level variation to be assessed.

The use of IFLS-5 for this study offers several advantages. First, its extensive health modules allow for the measurement of maternal complications, antenatal care, delivery characteristics, and insurance coverage within the same survey. Second, the multilevel nature of the dataset, pregnancies nested within provinces, supports the application of hierarchical modeling approaches. Finally, the timing of IFLS-5 coincides with the early years of the Jaminan Kesehatan Nasional (JKN) rollout, making it well-suited for examining how insurance was beginning to shape maternal health outcomes in Indonesia.

b. Variable construction

The dependent variable was maternal complications during the last pregnancy, coded as a binary outcome (0 = no complication; 1 = at least one complication). Complications were defined broadly to include self-reported pregnancy or labor problems, such as bleeding, swelling, fever, or prolonged labor, as well as adverse outcomes, including miscarriage or stillbirth (Adisasmita, et.al., 2015; Diana, et.al., 2020). The primary explanatory variable was maternal education, categorized by the highest completed level: primary or less, lower secondary, upper secondary, and post-secondary/tertiary. Because the number of women with no formal schooling was very small, this category was combined with the primary education category to ensure statistical reliability.

In addition, health insurance was included as a key enabling factor. Insurance status was classified into five categories: pre-NHI worker schemes (*Askes, Jamsostek*), employer/private insurance, government/NHI (*Jamkesmas, Jamkesda, JKN, Jamkessos, SKTM*), maternity-specific insurance (*Jampersal*), and other forms of coverage, with no insurance serving as the reference group. Insurance is expected to reduce financial barriers to care, but its impact has been shown to vary depending on women’s education and socioeconomic position(Ahmed, et. al., 2010; Anindya, et.al., 2020; Asamoah, et.al., 2014; Rizkianti, et.al., 2021).

Finally, a set of covariates were included to account for known risk factors of maternal complications. These comprised: parity (1, 2–3 [reference], ≥4), as both first-time and high-parity mothers often face elevated risks (Kaur Jaspinder and Kaur

Kawaljit, 2012); maternal age (<25, 25–34, ≥35 years), since younger and older mothers experience higher morbidity (Cavazos-Rehg, et.al., 2015; Kpienbaareh, et.al., 2022); and household income quintiles, calculated from the combined earnings of mother and father, to capture socioeconomic gradients (Ahmed, et.al., 2010; Kpienbaareh, et.al., 2022). Service-related factors included antenatal care (ANC) (<4 vs. ≥4 visits), following WHO recommendations, and birth attendant consisting of skilled (SBA) and traditional (TBA) (Bantas, et.al., 2018; Idris and Sari, 2023; WHO, 2016). In addition, urban–rural residence was included, given persistent geographic inequalities in access and outcomes across Indonesia (Widyaningsih and Khotijah, 2018; Wulandari, et.al., 2021).

c. Statistical analysis

The discussion began with descriptive analyses, presenting frequencies and percentages of all study variables by complication status. Differences across groups were tested using Pearson's χ^2. Then a two-level mixed-effects logistic regression model was applied, with women (level 1) nested within provinces (level 2). A random intercept at the province level was specified to capture unobserved contextual variation. This framework follows standard multilevel modelling approaches (Snijders and Bosker, 2012). To confirm the appropriateness of this specification, an unconditional (null) model was first estimated to calculate the intraclass correlation coefficient (ICC). The ICC was 0.013 (95% CI: 0.005–0.032), indicating that approximately 1.3% of the total variance in maternal complications was attributable to differences between provinces. The ICC value is relatively small but non-zero, suggesting modest clustering of maternal complication risks across provinces and supporting the use of a multilevel model to obtain unbiased estimates and correct standard errors.

The basic model adjusted for potential confounders, including parity, maternal age, household income, antenatal care (ANC), birth attendant, and urban–rural residence, to obtain independent associations of maternal education and health insurance with complications. An interaction model including cross-terms between education and parity was also tested to assess whether the effect of education varied by birth order. Interaction effects were interpreted using predictive margins with 95% confidence intervals. In addition, an interaction between maternal education and health insurance ownership was included to examine whether the impact of education on complications differed by insurance status. This interaction was tested because insurance can improve access to care, but its benefits may depend on a woman's level of education, particularly her ability to understand, navigate, and make use of insurance services.

c.1. Basic confounding-adjusted model

The primary ("basic") model adjusted for a priori confounders identified from prior literature, parity, maternal age, household income, ANC visits, birth attendant, and urban–rural residence, to obtain confounding-adjusted associations for maternal education and health insurance with complications. Formally:

$$\boldsymbol{Y_{ij} = \beta_0 + \beta_1 Edu_{ij} + \beta_2 X_{ij} + u_{0j}} \ldots\ldots\ldots (\mathbf{1})$$

where $(\boldsymbol{Y_{ij}})$ is the complication indicator for woman *i* in province *j*; $\boldsymbol{\beta_0}$ is the overall intercept; $\boldsymbol{\beta_1 Edu_{ij}}$ is a vector of education categories; $\boldsymbol{\beta_2 X_{ij}}$ are other confoundings and $\boldsymbol{u_{0j}}$ is ~N(0,σu2) is the province random intercept.

c.2. Interaction model (education × parity) and ((education × insurance)

To test whether the effect of education varies by parity, interaction terms between education and parity was added:

$$\boldsymbol{Y_{ij} = \beta_0 + \beta_1 Edu_{ij} + \beta_2 Par_{ij} + \beta_{12}(Edu_{ij}\mathbf{x} + Par_{ij}) + \beta_2 X_{ij} + u_{0j} \ldots . (2)}$$

$$\boldsymbol{Y_{ij} = \beta_0 + \beta_1 Edu_{ij} + \beta_2 Ins_{ij} + \beta_{12}(Edu_{ij}\mathbf{x} + Ins_{ij}) + \beta_2 X_{ij} + u_{0j} \ldots . (3)}$$

where $\boldsymbol{\beta_2 Par_{ij}}$ are parity indicators and $\boldsymbol{\beta_{12}(Edu_{ij}\mathbf{x} + Par_{ij})}$ are all cross-products of education and parity levels. Therefore, variable $\boldsymbol{\beta_2 Ins_{ij}}$ are insurance indicators and $\boldsymbol{\beta_{12}(Edu_{ij}\mathbf{x} + Ins_{ij})}$ are all cross-products of education and insurance levels.

Model fit was assessed using log-likelihood values and Wald χ^2 statistics. The contribution of province-level clustering was tested with a likelihood ratio test comparing multilevel to single-level logistic regression. To quantify variance at each level, the variance partition coefficient (VPC) was calculated. Then to check for multicollinearity, variance inflation factors (VIFs) was calculated. Finally, robustness checks by re-estimating models with reduced covariate sets was conducted, excluding interaction terms, and testing alternative specifications of household income.

Result

a. Descriptive and bivariate analysis

The analytic sample included 6,156 last pregnancies across 20 provinces in Indonesia. Overall, 28.8% of women reported at least one complication. Table 1 presents characteristics of women by complication status. More than one-third of women had completed upper secondary education (35.4%), while 24.6% had only primary education or less. The prevalence of complications was slightly higher among women with lower education, though differences were not statistically significant (χ^2=0.76, p=0.659).

Table 1 The Descriptive and Bivariate Analysis

Characteristic	No complication n (%)	Complication n (%)	Pearson Chi² (p-value)
Maternal education			χ^2=0.76, p=0.659
Primary education or less	1,097 (17.8)	415 (6.7)	
Lower secondary	1,115 (18.1)	432 (7.0)	
Upper secondary	1,555 (25.3)	620 (10.1)	
Post-secondary/tertiary	671 (10.9)	251 (4.1)	
Parity			χ^2=6.71, p=0.035
First birth (1)	2,376 (38.6)	965 (15.7)	
2–3 births	1,789 (29.1)	633 (10.3)	
≥4 births	273 (4.4)	120 (2.0)	
Residence			χ^2=5.75, p=0.017
Urban	2,506 (40.7)	1,028 (16.7)	
Rural	1,932 (31.4)	690 (11.2)	
Birth attendant			χ^2=1.93, p=0.165
Skilled	3,812 (61.9)	1,499 (24.3)	
Traditional	626 (10.2)	219 (3.6)	
ANC visits (≥4)			χ^2=0.09, p=0.564
<4 visits	641 (10.4)	243 (4.0)	
≥4 visits	3,797 (61.7)	1,475 (24.0)	
Health insurance			χ^2=17.41, p=0.004
None	3,186 (51.8)	1,160 (18.8)	
Pre-JKN worker	174 (2.8)	73 (1.2)	
Employer/private	98 (1.6)	30 (0.5)	
Government JKN	519 (8.4)	237 (3.9)	
Jampersal	368 (6.0)	184 (3.0)	
Other	93 (1.5)	34 (0.6)	
Household income			χ^2=9.03, p=0.060
Poorest	972 (15.8)	322 (5.2)	
Poorer	1,318 (21.4)	520 (8.5)	
Middle	490 (8.0)	187 (3.0)	
Richer	891 (14.5)	359 (5.8)	
Richest	767 (12.5)	330 (5.4)	
Maternal age			χ^2=16.68, p=0.0002
<25 years	1,364 (22.2)	512 (8.3)	
25–34 years	2,398 (39.0)	871 (14.2)	
≥35 years	676 (11.0)	335 (5.4)	

Source: IFLS, analyzed

Parity and residence were significantly associated with complications. First births had the highest risk (15.7%) compared with 2–3 births (10.3%) and ≥4 births (12.0%) (χ^2=6.71, p=0.035). Similarly, women in urban areas reported more complications than those in rural areas (16.7% vs. 11.2%, χ^2=5.75, p=0.017). Insurance coverage showed a strong association with complications (χ^2=17.41, p=0.004). The prevalence was highest among women with government JKN (31.3%) and *Jampersal* (33.3%), compared with 26.7% among uninsured women. By contrast, women covered by employer/private insurance had the lowest prevalence (23.4%). Other significant differences were observed by maternal age, with complication prevalence rising from 27.3% among women <25 years to 33.1% among women ≥35 years (χ^2=16.68, p<0.001). Household income showed marginal significance (χ^2=9.03, p=0.060), while ANC visits and birth attendant type were not significantly associated with complications.

b. Multilevel regression: basic vs. interaction models

Table 2 Multilevel Models

Variable	Basic model OR (95% CI)	Interaction model OR (95% CI)	Interaction model OR (95% CI)
Maternal education (ref: Post-secondary)			
Primary education	1.18* (0.95–1.46)	1.41** (1.03–1.92)	1.086 (0.844 -1.397)
Lower secondary	1.17 (0.95–1.44)	1.21 (0.89–1.64)	1.049 (0.819 -1.342)
Upper secondary	1.07 (0.88–1.28)	1.04 (0.79–1.38)	1.054 (0.842 -1.319)
Parity (ref: 2–3 births)			
First birth	1.22*** (1.07–1.38)	1.32** (0.98–1.80)	1.219** (1.075 -1.383)
High parity (≥4)	1.09 (0.85–1.39)	1.04 (0.53–2.02)	1.092 (0.856 -1.392)
Education × Parity interactions			
Primary × First birth	-	0.71* (0.48 – 1.05)	-
Primary × High parity	-	1.03* (0.50 – 2.35)	-
Lower secondary × First birth	-	0.96 (0.65 – 1.41)	-
Lower secondary × High parity	-	0.92 (0.39 – 2.13)	-
Upper secondary × First birth	-	1.03 (0.71 – 1.47)	-
Upper secondary × High parity	-	1.05 (0.48 – 2.30)	-
Education × Insurance interactions			
Primary Education # JKN=1	-	-	0.432 (0.117 -1.599)
Primary Education # JKN=2	-	-	1.239 (0.216 -7.096)
Primary Education # JKN=3	-	-	1.048 (0.565 -1.947)
Primary Education # JKN=4	-	-	1.557(0.729 -3.325)
Primary Education # JKN=5	-	-	6.143* (1.178 -32.044)
Lower Secondary # JKN=1	-	-	2.703*(1.124 -6.499)
Lower Secondary # JKN=2	-	-	0.743 (0.139 -3.967)
Lower Secondary # JKN=3	-	-	1.163 (0.625 -2.164)
Lower Secondary # JKN=4	-	-	1.315 (0.635 -2.723)
Lower Secondary # JKN=5	-	-	5.801* (1.138 -29.572)
Upper Secondary # JKN=1	-	-	0.902 (0.460 -1.768)
Upper Secondary # JKN=2	-	-	1.202 (0.481 -3.001)
Upper Secondary # JKN=3	-	-	0.977 (0.532 -1.793)
Upper Secondary # JKN=4	-	-	1.015 (0.499 -2.063)
Upper Secondary # JKN=5	-	-	2.065 (0.381 -11.201)
Maternal age (ref: <25 years)			
25–34 years	0.99 (0.86–1.14)	1.02 (0.88–1.17)	1.008 (0.878 -1.157)
≥35 years	1.35*** (1.15–1.58)	1.38*** (1.15–1.65)	1.347**(1.125 -1.613)
Health insurance (ref: None)			
1. Pre-JKN worker	1.12 (0.84–1.51)	1.12 (0.84–1.51)	1.050 (0.666 -1.656)
2. Employer/private	0.82 (0.54–1.26)	0.82 (0.54–1.26)	0.743 (0.380 -1.454)
3. Government JKN	1.32*** (1.10–1.58)	1.32*** (1.11–1.58)	1.272 (0.747 -2.164)
4. Jampersal (maternity)	1.37*** (1.12–1.67)	1.36*** (1.12–1.66)	1.146 (0.605 -2.172)
5. Other	0.98 (0.66–1.47)	0.98 (0.65–1.46)	0.278 (0.064 -1.212)
Household income (ref: Poorest)			
Poorer	1.23** (1.02–1.48)	1.23** (1.02–1.49)	1.212*(1.005 -1.461)
Middle	1.20 (0.95–1.51)	1.21 (0.96–1.52)	1.190 (0.943 -1.502)
Richer	1.22** (1.00–1.49)	1.22** (1.00–1.49)	1.223*(1.003 -1.491)
Richest	1.38*** (1.11–1.72)	1.38*** (1.11–1.72)	1.371**(1.100 -1.710)
Residence (ref: Urban)			
Rural	0.91 (0.80 – 1.03)	0.91 (0.80 – 1.03)	0.905 (0.796 -1.028)
Birth attendant (ref: Skilled)			
Traditional	1.01 (0.83 – 1.22)	1.01 (0.83 – 1.22)	1.039 (0.858 -1.257)
Antenatal care (ref: <4 visits)			
≥4 visits	1.02 (0.86 – 1.22)	1.02 (0.86 – 1.22)	1.026 (0.863 -1.220)

Notes: OR = Odds Ratio; CI = Confidence Interval.
*Significance levels: *p<0.10, **p<0.05, **p<0.01.*
Source: Source: IFLS, analyzed

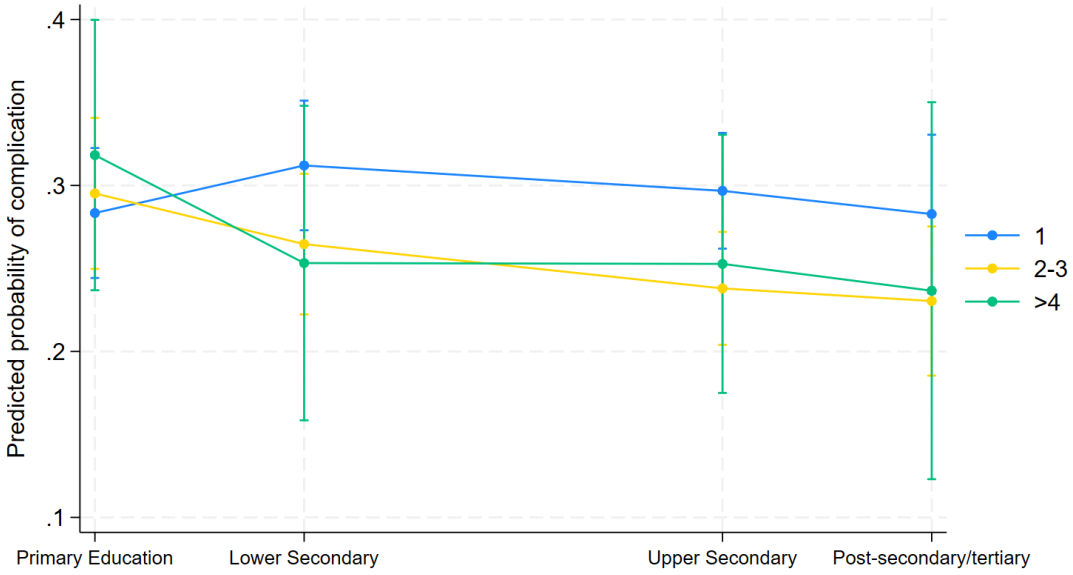
Before examining individual-level predictors, the null multilevel model was estimated to assess the extent of provincial variation in maternal complications. The multilevel model showed that approximately 1.3% of the variance in maternal complications occurred between provinces (ICC = 0.013, 95% CI: 0.005–0.032). Although relatively small, this indicates meaningful contextual variation, suggesting that maternal complication risks are not distributed uniformly across provinces. This provincial-level difference reflects spatial aspects of inequality, linked to regional variations in health system capacity, socioeconomic development, and access to maternal care, that would be overlooked in a single-level model.

Table 2 compares the basic multilevel model with the interaction model including education × parity. In the basic model**,** primary education was associated with higher odds of complications compared with post-secondary education (OR = 1.18, 95% CI: 0.95–1.46), but the effect became stronger and statistically significant in the interaction model (OR = 1.41, 95% CI: 1.03–1.92). Lower and upper secondary education showed no significant effects in either model.

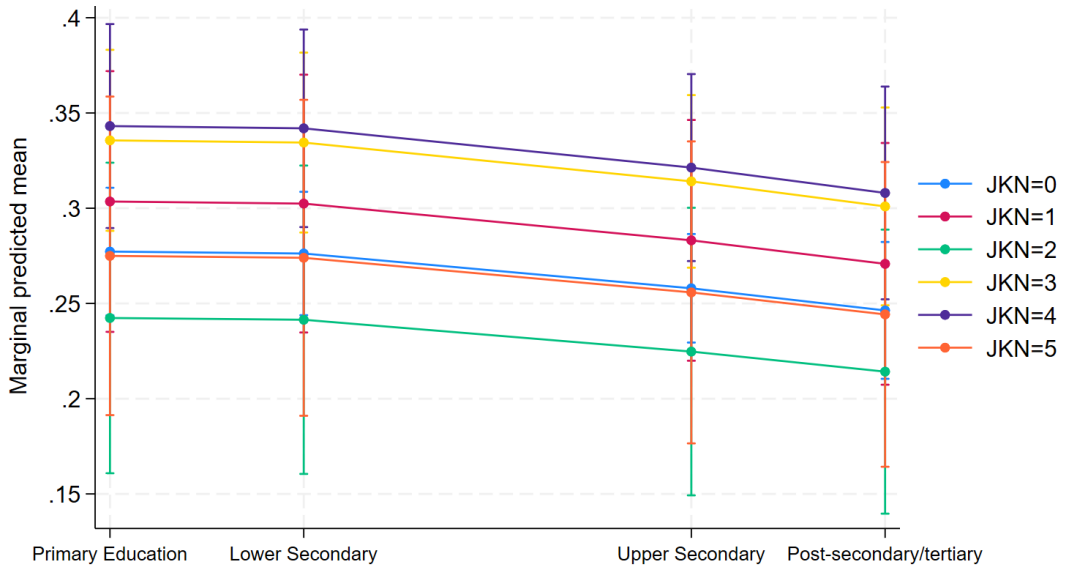
Parity effects also shifted once interactions were included. In the basic model, first births were significantly associated with elevated complication risks (OR = 1.22, 95% CI: 1.07–1.38). In the interaction model, this effect increased (OR = 1.32, 95% CI: 0.98–1.80), though significance attenuated slightly. High parity (≥4 births) remained non-significant in both models, but the predictive margins indicated that its impact was conditional on education level. Other covariates were largely consistent across models. Older maternal age (≥35 years) remained a strong predictor (basic OR = 1.35, 95% CI: 1.15–1.58; interaction OR = 1.38, 95% CI: 1.15–1.65). Government JKN (OR = 1.32, 95% CI: 1.10–1.58) and *Jampersal* (OR = 1.36, 95% CI: 1.12–1.66) were consistently associated with higher odds of complications, while employer/private insurance tended to be protective (OR = 0.82, 95% CI: 0.54–1.26). Household income showed a clear gradient, with women in the richest quintile facing 38% higher odds than the poorest (OR = 1.38, 95% CI: 1.11–1.72).

When the education × insurance interaction was added, most coefficients were not statistically significant, but several notable patterns emerged. Among women *with* primary *and* lower secondary *educatio*n, those covered by certain insurance categories, particularly pre-JKN workers, *Jampersal*, and other JKN, had markedly higher odds of complications compared with uninsured women (OR = 6.14, 95% CI: 1.18–32.04 and OR = 5.80, 95% CI: 1.14–29.57, respectively). These effects were not evident among women with higher education, whose interaction terms were close to unity. Overall, the results suggest that the influence of insurance on maternal complications varies by educational background, indicating that less-educated women may gain fewer benefits, or even experience greater risks, from insurance coverage compared with their more-educated counterparts.

Graphic1 Predictive Margins Plot of Education and Parity



Graphic 2 Predictive Margins Plot of Education and Insurance



To further analyse the maternal complications, Graphic 1 and Graphic 2 illustrate predictive margins for both education and parity and insurance. Among first-birth mothers, the predicted probability of complications was highest for those with lower secondary education (31.2%), followed by upper secondary (29.7%), and primary education (28.3%), compared with post-secondary/tertiary (28.3%). For women with 2–3 births, the probabilities declined across all education levels, ranging from 29.5% (primary) to 23.0% (post-secondary). Among women with ≥4 births, predicted probabilities were generally higher, particularly for those with primary education (31.8%) compared with 23.7% in the post-secondary group. These results indicate that education-related disparities are most pronounced among multiparous women (≥4 births), while for first births, differences are smaller but still observable. The margins confirm the regression findings, showing that both low education and high parity combine to increase the likelihood of complications. In addition, across all insurance categories,

women with primary education consistently showed higher complication probabilities compared with post-secondary women. The highest risks were observed among women with government JKN (33.6%) and *Jampersal* (34.3%), both schemes that predominantly cover poorer women. By contrast, women with employer/private insurance had the lowest complication probabilities (around 25%).

c. Diagnostics and robustness checks

The likelihood ratio test confirmed the appropriateness of the multilevel structure compared to a single-level logistic model ($p<0.001$). Multicollinearity was not a concern: the mean variance inflation factor (VIF) was 3.18, with all values <10. In addition, robustness analyses confirmed the stability of results. Models with reduced covariates, alternative income measures, and exclusion of interaction terms produced consistent findings. The elevated risk associated with low maternal education and government/maternity-specific insurance, as well as the protective effect of adequate ANC visits and the increased risk at older maternal age, were stable in both magnitude and significance across specifications.

Discussion

This study provides new evidence on how education and health insurance are related to maternal complications in Indonesia, using IFLS wave 5, and a multilevel approach. By focusing on women's last pregnancy across 20 provinces, this analysis highlights the continued burden of maternal complications and the role of education and insurance coverage in shaping risks. Four main findings stand out.

First, education remains a critical determinant of maternal health. Women with only primary schooling were significantly more likely to report complications compared with those who completed post-secondary education. This finding is consistent with earlier studies showing that maternal education improves health literacy, decision-making, and health-seeking behavior (Ahmed, et.al., 2010; Mensch, et.al., 2019; Weitzman, 2017).

Second, the interplay between education and parity reveals important heterogeneity. First births consistently carried the highest risk across all educational groups, confirming that primiparity is intrinsically high-risk due to biological factors such as cervical immaturity and immunological maladaptation, which predispose women to preeclampsia, obstructed labor, and preterm delivery (Kaur Jaspinder and Kaur Kawaljit, 2012). However, for women with 2–3 births, education played a clear protective role: complication risks declined from 29.5% among those with primary education to 23.0% among those with post-secondary education. Thus, suggested that educational attainment enhances health literacy, preparedness, and timely care-seeking during the relatively lower-risk mid-parity births (Asamoah, et.al., 2014; Mensch, et. al., 2019).

Among high parity women (≥4 births), risks increased again, and this pattern was most evident among those with only primary education, whose complication risk reached 31.8%. This increase likely results from both biological and behavioral factors. Biologically, repeated pregnancies are linked to the cumulative depletion of maternal reserves, higher risks of uterine atony, and greater vulnerability to postpartum hemorrhage (Al-Farsi, et.al., 2011; Luke and Brown, 2007). Behaviorally, women with low education at higher parity often engage less with formal health services. Studies from Indonesia and other LMICs show that after safely delivering one or two children, women, especially those with limited education, often accept pregnancy risks as normal, relying more on personal or family experience instead of professional care (Mersha, 2018;

Widyaningsih and Khotijah, 2018). This complacency is worsened by gender norms: women with less education tend to depend more on husbands or elders for decision-making, which can delay or discourage facility-based care, especially in rural areas (Laksono, et.al., 2022; Wulandari, et.al., 2021). This indicates a cumulative vulnerability, where the combined burden of low education and high parity makes women less likely to seek timely or effective care, particularly after uncomplicated births when health services are often underutilized (Asamoah, et.al., 2014; Mensch, et.al., 2019). Interventions should therefore focus not only on first-time mothers but also on high-parity women with low education, who may need additional counseling and community follow-up to counteract the tendency to underuse maternal health services.

Third, insurance coverage did not uniformly protect against complications, and its interaction with education sharpened inequalities. Across all insurance types, women with primary education consistently faced higher risks compared with those with post-secondary education. The elevated risks observed among women enrolled in government JKN and *Jampersal* may partly reflect improved detection, since insured women are more likely to interact with health services and thus report complications (Anindya, et.al., 2020; Rizkianti, et.al., 2021). At the same time, these patterns also reflect socioeconomic vulnerability. Beneficiaries of JKN and *Jampersal* disproportionately come from poorer households, who often enter pregnancy with poorer baseline health, nutritional deficiencies, and limited ability to supplement inadequate public services (Adisasmita, et.al., 2015; National Research Council and Indonesian Academy of Science, 2014). Moreover, the facilities accessible to JKN users are often under-resourced, with uneven referral readiness and variable quality of intrapartum care, limiting the capacity of insurance alone to reduce risks (Agustina, et.al., 2019).

By contrast, employer-based and private insurance predominantly cover wealthier, better-educated women. In this group, the protective effect of education is amplified by higher-quality coverage, shorter delays in accessing care, and greater choice of private facilities, resulting in the lowest observed complication risks (Anindya, et.al., 2020). Recent national-level evidence confirms these concerns, showing that wealthier groups in Indonesia accrue disproportionately greater benefits from health spending, while poorer groups shoulder relatively heavier financial burdens (Asante, et.al., 2023; Sambodo, et.al., 2025). Thus, while the expansion of JKN has broadened coverage, it has not closed equity gaps in either who benefits or the quality of care delivered.

Fourth, antenatal care (ANC) did not show a significant protective effect in adjusted models. This contrasts with prior studies in Indonesia and globally, where at least four ANC visits reduced complications and improved outcomes (Bantas, et.al., 2018; Idris and Sari, 2023; WHO, 2016). The discrepancy may lie not in coverage but in quality. Evidence shows that Indonesian ANC often emphasizes routine checks while neglecting individualized counseling, risk assessment, and timely referral. As a result, women may attend multiple visits without receiving the interventions most critical for preventing or managing complications (Rizkianti, et.al., 2021; Tripathi and Singh, 2017). This diagnostic checks further support the robustness of the findings. Variance inflation factors (mean VIF = 3.18; all <10) indicated no multicollinearity, confirming ANC, income, and insurance captured distinct constructs. Notably, higher income was associated with greater reported complications. This likely reflects greater detection and reporting among wealthier women with better health system contact, rather than higher biological risk (Ahmed, et.al., 2010; Kpienbaareh, et.al.,

2022). This suggests that ANC visit counts may reflect service contact rather than effective protection, underscoring persistent quality and equity gaps.

Although this study mainly focused on individual factors, the multilevel results also show some inequality in maternal complications that comes from differences between provinces. This indicates that a woman's place of residence can influence her risk of complications, regardless of her personal or household characteristics. Interestingly, even though most of the sample was from western Indonesia, where health services and infrastructure tend to be better, provincial disparities still persisted. This emphasizes that maternal health inequality in Indonesia is not just about the West–East divide often mentioned in national reports, but also exists within more developed regions. Variations in health system capacity, the implementation of maternal programs, and local service quality probably contribute to these local variations. Therefore, combining national-level policies with locally responsive strategies is important to strengthen provincial health capacity, ensure consistent quality of maternal care, and reach women who remain underserved despite formal coverage.

Conclusion

This study highlights the persistent burden of maternal complications in Indonesia and shows that education and insurance are key, though complex, determinants. Higher education protects women by buffering the risks of higher parity, while those with limited schooling face cumulative disadvantages. At the same time, first-time mothers remain especially vulnerable regardless of education, indicating that both ends of the parity spectrum, first births and high-parity women with low education, require special attention. Insurance schemes such as JKN and *Jampersal* are associated with higher reported complications, reflecting a double burden of socioeconomic vulnerability and uneven service quality rather than effective protection. The absence of a clear protective effect from ANC visits further underscores gaps in the quality and equity of care.

For Indonesia to accelerate progress toward maternal health targets and the SDGs, policies must move beyond expanding coverage to ensuring quality, equity, and education-sensitive interventions. Prioritizing both first-time and high-parity mothers with low education, strengthening the effectiveness of JKN and *Jampersal*, improving ANC quality, and investing in girls' education and maternal health literacy are critical steps to reduce complications and advance maternal health equity nationwide.

From a policy perspective, these results carry several implications. First, reducing maternal morbidity and mortality requires tackling structural determinants such as education, as Indonesia is unlikely to reach its 2030 SDG targets without addressing these foundational inequities. Second, financial protection schemes like JKN and *Jampersal* must go beyond expanding coverage to ensure consistent service quality, effective referrals, and equitable access across income groups. Third, targeted interventions are needed for women at highest risk, particularly first-time mothers and high-parity women with low education, through enhanced antenatal counseling, complication screening, and postpartum family planning support.

Equally important, policies should focus on improving the quality rather than merely the quantity of antenatal care, emphasizing meaningful service content, such as counseling, risk assessment, and timely referral. Integrating education and health policy is also critical, as promoting girls' education and maternal health literacy represents a long-term investment in women's health and autonomy. Finally, even modest provincial variation in complications underscores the need to strengthen

subnational governance, financing, and accountability to ensure that maternal health improvements are equitably distributed across Indonesia's diverse regions.

Strengths and limitations must also be acknowledged. The key strengths of this study include the use of nationally representative data, the multilevel design that accounts for clustering, and robust diagnostic checks confirming the stability of the estimates. However, limitations remain. The analysis relies on self-reported complications, which may be affected by recall bias, and lacks certain clinical measures that would allow more detailed case validation. Despite these constraints, the consistency of results across models increases confidence in the robustness of the findings. Overall, this study reinforces that education and insurance coverage are pivotal but complex determinants of maternal complications in Indonesia. Education provides protection against cumulative parity risks, while current insurance coverage often reflects vulnerability rather than resilience. To accelerate progress toward maternal health targets, Indonesia must pursue integrated policies that combine educational advancement, equitable health financing, and improved quality of maternal care.

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The Role of Collaborative Leadership: A Case Study of the Eid Transportation Command Post at Hunimua Ferry Port, Indonesia

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Abstract

This study analyzes the role of collaborative leadership in the effectiveness of the 2025 Eid Transportation Post at Hunimua Ferry Port, Central Maluku. In the face of complex challenges such as high traffic volume, limited infrastructure, and cross-agency operational demands, this research adopts a qualitative embedded single case study design. Data was collected through in-depth interviews, direct observations, and institutional document analysis. Findings reveal that the success of the post is closely linked to leadership figures who perform three collaborative functions: steward (ensuring inclusive and transparent coordination), mediator (managing inter-agency relationships and resolving conflicts), and catalyst (driving adaptive innovation and cross-sector mobilization). These roles were effectively carried out by the Post Team Leader and the Post Manager, despite minimal institutional protocols. The prevailing leadership style identified was that of an organic leader, which fostered responsive coordination through informal networks. However, the absence of formal facilitation systems and integrated SOPs limits the institutionalization of collaboration. The study recommends the development of a hybrid leadership style that combines relational legitimacy with professional facilitation to ensure sustainable cross-agency coordination. This research contributes to the theoretical development of collaborative governance in the context of transport services and provides practical insights for institutional reform of temporary integrated command posts.

Keywords: collaborative leadership, Eid transportation post, ferry port, cross-sector coordination, public service effectiveness

Introduction

Background

Quality public services are a fundamental component in supporting national development, particularly in the public transportation sector, which has a significant impact on socioeconomic stability and interregional connectivity. In the context of Eid al-Fitr transportation, this sector faces complex challenges such as congestion, limited-service capacity, and high safety risks (Banjo, 2017; Camporeale et al., 2021; Green, 2016). In order to respond to these challenges, the government needs to consider political, economic, social, and technological factors that influence the accessibility of services (Totum & Tossamas, 2024), and strengthening collaboration across government agencies (Bello-Gomez & Cheng, 2024). Evaluations of the 2024 Christmas and

2025 New Year's transportation programs showed a high level of user satisfaction, although several issues persisted, such as departure delays, difficulty obtaining tickets,

and limited supporting infrastructure (UGM, 2025).

The Ministry of Transportation has prepared the 2025 Eid Transportation Operational Plan which includes traffic engineering, service digitalization, transportation mode integration, and logistics vehicle regulations through one-way, contraflow, and odd-even traffic control mechanisms (Kemenhub, 2025b, 2025a). In Maluku Province, transportation challenges are more complex due to the geographical conditions of the archipelago, which includes around 1,340 islands and water areas amounting to 92.4% of the total province (Pelupessy & Manuhutu, 2019). Ferry transportation is the main backbone of inter-regional connectivity, although it still faces obstacles such as high costs, minimal accessibility, mode disparities, and less than optimal safety facilities (Kelwulan et al., 2023; Sihaloho & Jinca, 2019; Siswoyo, 2018).

The Hunimua-Waipirit route is a strategic route connecting Ambon Island and Seram Island. Previous research has noted that the service capacity of this route has exceeded its optimal limit, necessitating improvements to the fleet, shipping schedules, and port facilities to reduce queues and shorten waiting times (Mandaku, 2022; Maspaitella, 2021; Ohorella et al., 2023). On the other hand, user loyalty is greatly influenced by service quality, safety, and accessibility (Usman et al., 2020), which until now have not all met standards, especially in terms of safety equipment (Surnata et al., 2021), and implementation of minimum service standards (Tanasale et al., 2023). Therefore, improving the quality of service at Hunimua Ferry Port requires a strategy that includes increasing infrastructure capacity, operational efficiency, and reforms in safety and public service aspects.

As a major port connecting various districts in Maluku, Hunimua serves as a crucial distribution hub, especially during peak mobility periods like Eid al-Fitr. However, the challenges faced in managing the service are not only technical but also social, legal, and institutional, such as smuggling of prohibited goods, business demonstrations, and land conflicts (Ameks Online, 2024; Media Citra Nusantara, 2025). This complexity emphasizes that no single institution can solve the problem alone, making cross-agency collaboration a necessity. In response, the Maluku Class II Land Transportation Management Agency (BPTD) established the 2025 Eid Transportation Post as a coordinating forum in the field to ensure operational oversight and integrated services involving various cross-sector actors (Tribun Ambon, 2025).

Studies on collaborative governance increasingly highlight the importance of collaborative strategies and collective leadership in enhancing the effectiveness of public services. Jazlan et al. (2025) emphasize that, in sectors involving multiple stakeholders—such as transportation—collaborative approaches become essential to navigate complex interests and ensure service efficiency. The success of such approaches is closely tied to the quality of collaborative leadership, a leadership model that moves beyond a single-command hierarchy toward one that facilitates cooperation, builds synergy, and supports joint problem-solving among stakeholders.

This perspective aligns with the conceptual framework proposed by Ansell & Gash (2012) in their article “Stewards, Mediators, and Catalysts: Toward a Model of Collaborative Leadership.” They argue that in collaborative governance settings, leaders function not as commanders but as facilitators who steward shared goals, mediate conflicts, and catalyze innovation. Their model provides a useful analytical lens for understanding how leadership shapes collaborative processes across institutions.

Building on this theoretical foundation, the present study examines how collaborative leadership roles—steward, mediator, and catalyst—manifest in and influence cross-agency collaboration during

the operation of the Eid Transportation Post. This context is particularly relevant because the post requires the involvement of various institutions to ensure safe, orderly, and integrated holiday transportation services.

To ground the analysis, the study focuses on the Maluku Class II Land Transportation Management Center (BPTD), a technical implementing unit under the Directorate General of Land Transportation, Ministry of Transportation. Maluku BPTD's organizational mandate and structure are regulated under Minister of Transportation Regulation Number 1 of 2025, which outlines its functions through the Administration Subsection, the Road, River, Lake, and Crossing Infrastructure Section, as well as the Road, River, Lake, Crossing, and Supervision Traffic Section, supported by functional units and field service units.

In an archipelagic region like Maluku—where inter-island mobility depends heavily on land and ferry transportation—the role of BPTD becomes especially strategic. The institution manages key operational facilities, including the Passo vehicle weighing unit and eight ferry port service units located in Hunimua, Galala, Amahai, Geser, Tual, Dobo, Saumlaki, and Kisar. Given this extensive operational scope, the Maluku BPTD serves not only as a provider of physical and technical infrastructure but also as a cross-sector coordinator responsible for ensuring that collaborative-based public services function effectively, particularly in the supervision and organization of ferry transportation.

By bridging the conceptual discussion with this institutional context, the study positions the Eid Transportation Post as an ideal arena to explore how collaborative leadership roles contribute to strengthening inter-agency coordination and improving the quality of public service delivery.

Hunimua Ferry Port Service Unit Post

The Hunimua Ferry Port Service Unit Post is a strategic operational unit established through the Decree of the Head of BPTD Class II Maluku Number SK-BPTD KLS II MLK 15 of 2025 concerning the Establishment of the 2025 Eid Transportation Coordination Post. The establishment of this post was carried out in response to the need to manage the flow of homecoming and return travelers on the Hunimua - Waipirit route which is the main crossing route in Maluku Province. This post is not established as an ad-hoc entity but is an implementation of the national institutional structure regulated in the Regulation of the Minister of Transportation Number 1 of 2025. In this regulation, the River, Lake, and Ferry Port Service Unit is designated as a technical implementing unit directly under the Head of the Land Transportation Management Center (BPTD), including the Hunimua Executing Unit which is the location of this study. Thus, the Hunimua Post operates within a formal, strategic and systematic institutional framework.

Institutionally, the post structure is established with reference to functional principles and hierarchical command. This post is chaired by the Supervisor of the Hunimua Ferry Port Service Unit as Team Leader, with direct supervision from the Post Manager (Head of Maluku Class II BPTD) and administrative support from the Post Secretary and Post Coordinator from the structural officials. Two work teams are prepared in rotation with a shift system that adjusts to the operational schedule of ferry transport vessels, consisting of technical and administrative personnel from the Hunimua Ferry Port Service Unit and additional staff from various sections within the Maluku Class II BPTD.

The main tasks of the command post team include regulating the flow of vehicles and passengers, recording daily data consisting of the number of ferry trips, the

number of passengers and vehicles, documentation and significant events, and reporting operational conditions to the Command Post Secretariat. The reporting flow is carried out in a hierarchical and structured manner, from team members to the team leader, then to the secretariat, and finally to the Command Post Officer to be forwarded to the national command center through the Directorate General of Land Transportation. This process is depicted in detail in Figure 4.2, which shows that the reporting and coordination mechanisms are simultaneous and adaptive to field dynamics.

Hunimua Ferry Port located in Liang Village, Salahutu District, Central Maluku Regency, Maluku Province, is a class I port that has a strategic position in the ferry transportation system in Maluku Province. Based on geographic coordinate data, this port is located at 03º30'38.2" South Latitude and 128º20'45.7" East Longitude and has been operating since 1980. With an area of ±15,000 m² and a dock capacity for ships measuring 300 to 500 GT, Hunimua Port is equipped with various marine facilities such as plengsengan (9 × 8 meters), two units of breasting dolphins (6 × 6 meters), one mooring dolphin (6 × 6 meters), two units of catwalks (36 × 1.2 meters), and one unit of trestle. The ground facilities consist of a ticket counter (2 x 2 meters), a terminal building (14 x 11.5 meters), a parking area of ±1,500 m², seven lighting units, a guard post, and a generator house (BPTD Class II Maluku, 2025).

This port serves commercial ferry services within the province on the Hunimua - Waipirit route, approximately 11.5 nautical miles, connecting Ambon Island with Seram Island. Daily operations are served by two main operators, namely PT. ASDP Indonesia Ferry Ambon Branch and PD. Panca Karya, with a total of five ferry units. Ferry fares for economy class passengers are set at Rp. 27,500 for adults and Rp. 2,700 for infants, while business and exclusive classes are provided at a higher price. For vehicles, fares vary according to class, including Rp. 63,000 for Class II (motorcycles), Rp. 303,445 for Class IV(a) (private cars), and Rp. 904,597 for Class VII (large trucks). (Corporate Secretary PT ASDP Indonesia Ferry, 2024). The following map shows the spatial context and importance of the existence of the post as a mobility control center.

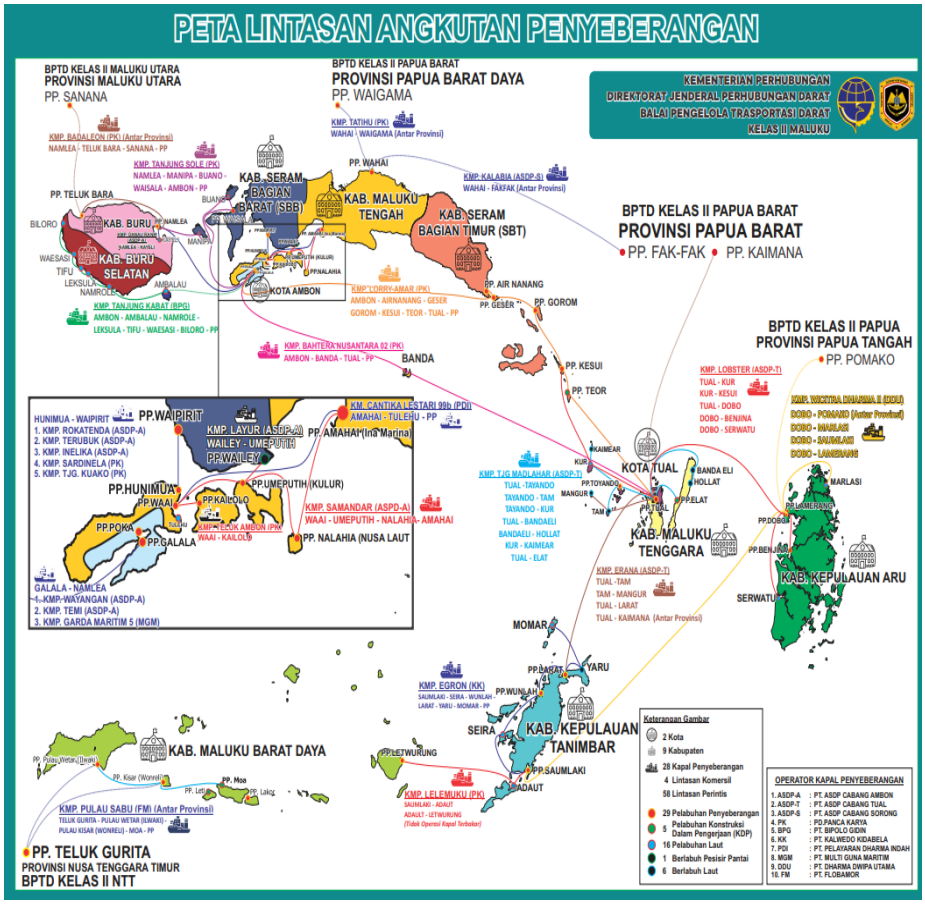

Figure 1. Map of Ferry Transportation Routes in Maluku Province

Source: BPTD Maluku, (2023)

The personnel composition and two-team shift system were designed to ensure continuity of service according to the ferry vessel's operational schedule. Each team works in shifts to maintain field readiness. Although this system was designed with efficiency in mind, field findings revealed implementation challenges, such as the unexplained absence of several personnel, which created an additional workload for those present.

Beyond its internal structure, the Hunimua Ferry Port Service Unit Post Post also serves as a deliberative and coordinating space across agencies. The post's duties involve external actors such as PT ASDP Ambon Branch, PD Panca Karya, the Indonesian National Armed Forces (TNI), the Indonesian National Police (Polri), the Maluku Provincial Transportation Agency, Jasa Raharja, and other technical agencies. In this context, the Head of the Command Post Team plays the role of steward which maintains the integrity of the coordination process, as well as mediator which facilitates communication between actors with different mandates and institutional logics. This practice represents a leadership approach inshared-power world, as presented (Ansell & Gash, 2012), where decision-making is not command-hierarchical, but rather based on consensus, trust, and direct interaction between stakeholders. This adaptive and deliberate work pattern demonstrates how the command post team leader must develop leadership capacities that are not only administrative, but also reflective and facilitative in responding to the technical, social, and institutional dynamics in the field.

The Hunimua Public Order Agency (Satpel PP) Command Post cannot be

understood solely as an administrative structure, but rather as an institutional instrument that integrates service, oversight, and decision-making functions within a collaborative management system. The existence of this post reflects a hybrid institutional form that combines top-down national regulations with flexible and contextual local organizing practices. In the context of an archipelagic region like Maluku, this design is crucial for ensuring the continuity of public services, particularly during peak periods of seasonal and stressful exodus and return travel. Furthermore, the operational experience of this post provides a baseline for understanding how a formally established system can transform into a dynamic coordinating arena, as analyzed in an embedded case study approach (Yin, 2018). Therefore, the institutional mapping of this post serves as an important foundation for further analyzing collaborative practices, cross-sector leadership, and service effectiveness, which will be discussed in the following sub-chapters.

Methods

This study applies a qualitative research design with an embedded single case study approach as outlined by Yin (2018). This methodological choice is particularly suitable for examining collaborative leadership because it enables an in-depth exploration of relational dynamics, multi-actor interactions, and contextual conditions that shape leadership practices within real-world settings. Collaborative leadership—characterized by shared authority, negotiation, and joint decision-making—requires a research design capable of capturing complexity across multiple levels of activity, which the embedded case study effectively provides.

The research focuses on the 2025 Eid al-Fitr Transportation Post at Hunimua Ferry Port. The primary unit of analysis is the role of the post leader, while the embedded sub-units include inter-agency interactions, coordination mechanisms, and actors' perceptions of service effectiveness. This structure allows the study to examine leadership not only at the individual level but also in relation to cross-sector collaboration.

Data were collected through in-depth interviews, direct observation during the post's operations, and documentation review. Informants were selected using purposive sampling to ensure relevance and depth of insight. Interviews explored stakeholders' views on leadership roles; observations captured real-time coordination processes; and documents provided institutional and procedural context. Methodological triangulation across these sources enhanced the validity and reliability of the findings.

The data were analyzed using a theory-based thematic approach. Interview transcripts were coded according to the core dimensions of collaborative leadership—stewardship, mediation, and catalytic roles. Observational and documentary data were incorporated to verify and strengthen the thematic patterns. To connect empirical findings with theoretical expectations, the analysis applied Yin's (2018) pattern matching and explanation building techniques, enabling a structured interpretation of how collaborative leadership contributes to the effectiveness of the transportation post.

The study was conducted at Hunimua Ferry Port, Salahutu District, Central Maluku Regency—an essential transportation hub requiring complex cross-sector coordination. As a major operational point for the 2025 Eid Transportation Post managed by BPTD Class II Maluku, this location provides a relevant and dynamic environment for observing collaborative leadership in practice. Data collection was carried out throughout the post's operational period from March 21 to April 11, 2025.

Results and Discussion

The success of cross-agency collaboration within the Hunimua PP Implementation Command Post during the 2025 Eid al-Fitr Transportation Period cannot be separated from the role of collaborative leaders who appear at various structural levels. In the context of horizontal, temporary work-based collaboration such as this command post, leaders function not only as instruction providers but also as facilitators of shared values, guardians of collaborative processes, and drivers of collective action. These three roles are known as steward, mediator, and catalyst in the collaborative leadership model byAnsell & Gash (2012) and becomes particularly relevant when formal structures are not fully reliable due to time pressures and resource constraints.

Role as Steward (Guardian of Collaborative Process)

In the frame collaborative governance according to Ansell & Gash (2012), the role steward is the main pillar in maintaining the continuity of the collaborative process. As teward not acting as the sole authority, but rather as the guardian of inclusivity, transparency, and continuity of cooperation. In the context of the 2025 Eid al-Fitr Transportation Post at Hunimua Ferry Port, this role is carried out in a distributed manner by two main actors: the Head of the Maluku Class II BPTD as the Post Manager, and the Hunimua PP Service Unit Supervisor as the Post Team Leader. Both demonstrate a form of distributed stewardship which is typical in non-hierarchical collaborative structures.

Head of the Command Post as Operational Steward

Stewardship at the operational level, it refers to the ability of field leaders to build an inclusive work environment, maintain trust between actors, and ensure that the entire collaborative process runs fairly and accountably (Ansell & Gash, 2012). A steward at the front-line acts not as a holder of structural power, but as a facilitator who maintains social cohesion and horizontal coordination among actors from different backgrounds.

The Team Leader of the Post at Hunimua Ferry Port demonstrates this role in action. In the context of a post comprised of representatives from various agencies, including the Regional Transportation Agency (BPTD), the Civil Service Agency (ASDP), Jasa Raharja, the Provincial Transportation Agency (Dishub), the National Police (POLRI), the Marine Military Police (POMAL), and two ship operators (ASDP and PD Pancakarya), the work dynamics are highly susceptible to sectoral dominance, miscommunication, and rigid segregation of duties. This is where the Team Leader's role as a operational steward. It is important not to use a coercive approach towards officers or agency partners. He builds social capital based on trust (trust) through an informal approach, open communication, and rapid response to complaints in the field. This approach creates a sense of security and openness in raising operational issues, even among agencies with different hierarchies. This is demonstrated in the following in-depth interview.

> “The squad leader knows how to bring together diverse agencies. He has a style that doesn't impose but instead inspires confidence in us to follow his direction” (informant CP).

This demonstrates that trust is not built through formal authority, but rather through interpersonal relationships built on shared work experiences and social sensitivity. In collaboration studies, trust is a prerequisite for healthy and cooperative deliberation (Ansell & Gash, 2012).

The steward's role is also reflected in the Team Leader's consistency in involving all actors in decision-making and post evaluation, regardless of position or the size of institutional contribution.

> "We don't feel marginalized. In fact, we're invited to sit down with them to discuss technical aspects of work and services. That's why we can maintain a consistent work rhythm during peak traffic" (Informant CP).
> "We, as a non-technical agency, sometimes only provide support. But the Team Leader always invites us to discuss things directly. We feel appreciated"(Informant AA).

The involvement of all parties in this coordination forum shows that the Team Leader applies the principle procedural fairness, namely ensuring that all voices have equal access and weight in the post's deliberations. In addition to maintaining trust and inclusion, the Post Team Leader also actively aligns the agency's work orientation with the collective goals of public service, not simply the implementation of sectoral duties and functions.

> "The post team leader always reminds us that we're not just working for the agency, but also for public service. During the Eid transportation post period, many agencies are involved, so coordination is essential"(BSH informant).

This statement shows that the Squad Leader acts as a guardian of the public mission (guardian of shared mission), which consistently reminds us that the ultimate goal of a post is not individual or institutional performance, but rather safe, comfortable, and fair service for service users. This is a key principle value stewardship in the literature governance collaborative (Ansell & Gash, 2012).

As a steward, the Team Leader also ensures that technical and strategic information is accessible to all parties. He encourages open evaluations, a cross-shift reporting system, and openness to input from operational staff. In this regard, the Team Leader positions himself not as an information filter, but as a liaison between agencies. This is demonstrated by information from one of the staff members at the command post secretariat.

> "The Head of the Public Order Agency Command Post, Hunimua, helped us summarize the reports because he also diligently receives reports from the field. So, not everything was forwarded to the secretariat. He knows the field and helped us check the data as well" (informant HT).

This function reflects collaborative transparency, namely the alignment between technical information and collective decision-making to maintain public trust and team performance.

The Squad Leader's role as an operational steward was confirmed by narrative triangulation from internal actors (squad members), external actors (operators, vertical agencies), and supervisory officers (secretariat and security personnel). None of the narratives mentioned an authoritarian, exclusive, or discriminatory leadership style. Instead, all informants described a work style that was open, inclusive, and prioritized shared values. This strengthens construct validity because the Squad Leader's behavior meets the theoretical indicators of stewardship. Trust-building, inclusiveness, shared commitment, and procedural fairness (Ansell & Gash, 2012). Internal validity is also maintained because the logic of this role explains why inter-sectoral coordination can take place harmoniously in a complex and temporary post structure (Yin, 2018).

As steward Operationally, the Head of the Hunimua PP Implementation Unit Command Post plays a crucial role in maintaining trust, inclusivity, and shared direction within a multi-actor and dynamic structure. His leadership is not only technical, but also relational and strategic. Within a collaborative leadership framework, the command post's success is not solely a result of its structure, but also due to the presence of a steward at the executive level who is able to maintain collective legitimacy in every decision and action in the field.

Person in Charge of the Post as Strategic Steward

Apart from creating space, the person in charge of the post also displays low ego leadership by not taking over the image of the command post's success. He allowed the team leaders and field officers to be recognized for their contributions, fostering a sense of collective ownership between agencies. However, there was no documented delegation of tasks or written protocol system, so the entire process remained based on trust and personal relationships, rather than a documented institutional framework.

In the organizational structure of the 2025 Eid al-Fitr Transportation Post at Hunimua Ferry Port, the Head of the Maluku Class II BPTD holds the position of Post Manager. As the actor with the highest authority, this role is not only administrative or structural, but also strategic in maintaining the integrity of the collaborative process, preventing institutional disintegration, and ensuring all actors feel valued and involved. In collaborative leadership literature, the role of stewardship strategic refers to leaders who act as guardians of the process, facilitators of justice between actors, and caregivers of collective goals at the macro level. Ansell & Gash (2012). Steward strategically does not take the path of command domination, but rather creates a safe and fair space for cross-sector collaboration.

One of the primary forms of strategic stewardship is the delegation of trust to operational implementers. The Command Post Manager explicitly grants the Command Post Team Leader and field team the freedom to manage daily dynamics while maintaining ongoing reporting and coordination channels.

> “I entrust field coordination to the Team Leader. They understand the dynamics better. My job is to ensure all agencies operate in harmony and that no one feels left out” (Informant HB).

This statement shows that the Person in Charge is not trying to control in a top-down manner but is strengthening the model, distributed leadership, which enables rapid and adaptive responses on the ground, while maintaining institutional lines of accountability.

As a strategic steward, the person in charge also carries out the function of guarding inclusiveness, namely by ensuring that all agencies, large and small, technical and supporting, receive equal treatment and participation. This is crucial to maintaining the legitimacy of collaboration and preventing sectoral jealousies that could potentially disrupt synergy.

> “We feel appreciated, even though the nature of our post operation is...mobile, We remain involved in all relevant meetings and are informed of any accidents. The person in charge isn't dominant; instead, he unites us” (Informant AA).
>
> “He provided space. Coordination wasn't just about issuing orders, but also about open, cross-agency evaluations, which he facilitated” (Informant IY).

This shows that the person in charge of building institutional trust, namely trust in an open and non-discriminatory collaborative structure, is a characteristic of strategic stewards according to collaborative governance theory (Ansell & Gash, 2012). Steward Strategic planning also plays a role in directing collaboration toward public service goals, not just the sectoral targets of each agency. In an in-depth interview, the person in charge of the command post provided the following information.

> "We all have the same goal: to ensure people can travel home safely and comfortably. That's what I'm ensuring, so that all agencies don't go their separate ways" (Informant HB).

This statement reflects an effort to maintain shared purpose, a key dimension of stewardship, in a potentially fragmented coordination situation. Without a strategic-level guidepost for collaboration, synergies on the ground will be technical, not substantive.

In addition to maintaining equality and direction, the Post Manager also actively facilitates daily and final evaluation forums, involving all stakeholders across agencies. These forums are not just for reporting, but also serve as a platform for providing input, acknowledging shared mistakes, and building commitment to improvement. This is demonstrated in the following interview.

> "The Head of the Center (the person in charge of the BPTD Post) was active in the evaluation. But he didn't get angry. He listened to everyone first, then gave directions. This created a conducive atmosphere at the post". (Informant RM)

In collaborative theory, forums like this are important for creating procedural legitimacy, namely a sense of ownership of the shared process, which is a source of long-term motivation and cohesion(Ansell & Gash, 2012)The role of the Person in Charge as a strategic steward is also confirmed through the convergence of narratives from various actors, including vertical agencies, supporting agencies, and operators. None of the narratives demonstrate sectoral dominance or exclusivity in decision-making. Instead, the leadership style demonstrated is dialogic, facilitative, and oriented toward institutional inclusion.

Thus, this role meets construct validity criteria, as strategic stewardship indicators (delegation, neutrality, shared purpose, reflective forums) are clearly present in practice. Internal validity is also maintained because there is a strong logical link between this strategic leadership style and successful cross-actor coordination in the field, as evidenced by the stable and responsive performance of the command post.

As a strategic steward, the Post Manager plays a crucial role in maintaining the integrity of cross-agency collaboration at Hunimua Ferry Port. He or she does not assume a commanding managerial role, but rather through delegation of trust, facilitation of equality, maintenance of shared orientation, and creation of a collective evaluation space. This role demonstrates that the effectiveness of the post structure depends not solely on the formal system but also on the presence of strategic leaders capable of nurturing the collaborative process as a just and productive social space.

Role as a Mediator (Guardian of Relationships Between Actors)

Within the collaborative leadership framework, the mediator's role focuses on maintaining the quality of relationships between actors through facilitating open communication, managing conflict, and creating shared meaning (shared meaning). The mediator acts as an honest broker

maintaining open and equal collaborative dynamics and encouraging problem-solving through a dialogical process. In the implementation of the 2025 Eid al-Fitr Transportation Post at Hunimua Ferry Port, this role was primarily carried out by the Post Team Leader through a collaborative mediation approach that was not only responsive to conflict but also proactive in maintaining cross-sector relationships.

One concrete example of the mediation role is seen in the Team Leader's response to differing perceptions among ship operators regarding ship schedule rotation. In this situation, the Team Leader facilitated an informal discussion to find a fair compromise and focus on public service interests. This is demonstrated in the following interview.

> "The Team Leader invited both parties to a discussion. He listened to all the differing opinions first, then invited them to resolve their differences and focus on service" (AP informant).

Mediation like this reflects the practice of facilitative leadership, where the leader does not act as the sole decision-maker, but rather as the manager of a deliberative process that unites diverse interests. A mediating role is also evident within the internal context of the command post, particularly in addressing varying levels of participation from partner agencies. In some cases, the Team Leader does not immediately issue formal reprimands, preferring to build mutual understanding personally.

> "At this post, there are squad members who have not been able to fully attend to their duties without official notification, but the squad leader has been encouraging them to coordinate slowly so that squad members can continue to carry out their duties with a full sense of responsibility" (JP informant).

This approach is in line with the principal restorative leadership, which seeks to restore team cohesion through communication and fostering empathy, rather than through coercion or structural punishment. Furthermore, in resolving technical miscommunications, such as ship schedules, the Team Leader also demonstrated the ability to mediate, maintaining the integrity of the service system. One team member stated,

> "There was once a problem with the ship's schedule, but the squad leader immediately spoke to all parties, we are here to serve the community and he provided a solution without blaming anyone" (informant RH).

This shows the role of the leader as a guardian of informal governance, which is able to direct the course of cross-institutional coordination without always relying on formal administrative procedures.

The transition to informal forms of coordination has also become a key arena for collaborative mediation. With a lack of regular formal coordination forums, communication via personal WhatsApp and face-to-face interactions have become the primary channels for maintaining a collective work rhythm. One informant emphasized this.

> "Coordination takes place because of the personal relationships that have been built, not just from official letters" (RF informant).

This coordination model is in line with the characteristics of organic leadership, namely a leadership pattern that grows naturally from social networks and interpersonal trust, not solely from structural lines of authority.

In addition to unifying field operations, the mediator's role is also evident in how the Team Leader maintains neutrality in decision-making. This is a crucial element in

maintaining the legitimacy of the collaborative process.

> "He never blames; he tends to invite us to find solutions together" (informant RM).

Furthermore, the ability to bridge organizational cultural differences is also an important aspect of mediative leadership. An official from a local government agency acknowledged:

> "Indeed, each agency has a different way of working, but the Team Leader understands it well and can bridge the gap well" (DP Informant).

This finding confirms that the role of the mediator is not only to resolve conflicts, but also to establish institutional cross-border relations which allows actors from different backgrounds to continue working within a shared vision of service.

Thus, mediation practices at the Hunimua Post have facilitated collaboration by strengthening three fundamental components of collaborative theory: open communication, trust between actors, and orientation toward collective goals. These three aspects are evident not only in technical interactions but also in the informal mechanisms established and maintained by the Team Leader as mediation leader.

However, it's also important to note that the role of mediator, performed personally and informally, carries its own structural burdens. The Team Leader must manage the expectations of all parties, maintain relationships between actors, and resolve technical and social issues that arise in the field, all within an environment of loose coordination and minimal institutional protocols. This imbalance creates emotional stress and the risk of burnout, which can impact the effectiveness of the overall leadership role.

Furthermore, reliance on the Team Leader's mediation capacity without the support of a formal system carries the risk of dysfunction if personnel rotation or leadership style changes. Several informants noted that the same issues frequently recur due to the lack of a forum for ongoing cross-agency reflection and evaluation. In other words, mediation success is temporary unless institutionalized in a mutually agreed-upon collaborative procedure.

Therefore, the role of mediators in collaborative leadership at the Hunimua Command Post can be concluded as a key element in facilitating cross-sector collaboration. However, to ensure the sustainability of this collaboration, individual capacity needs to be strengthened through institutional mechanisms such as conflict resolution standard operating procedures (SOPs), periodic coordination forums, and cross-organizational collaborative leadership training. These efforts will not only reduce the personal burden on leaders but also strengthen the resilience of cross-sector collaboration in public service during peak periods such as Eid al-Fitr.

Role as a Catalyst (Trigger for Innovation and Action)

Within the framework of collaborative leadership according toAnsell & Gash (2012), role catalyst refers to the capacity of a leader to drive change, open up space for innovation, and mobilize actors across organizations to act adaptively in the face of complex situations catalyst. It's not just about maintaining processes or nurturing relationships, but rather acting as a transformation agent capable of driving collective action, reformulating problems as opportunities, and creating value through shared learning. In the context of multi-actor public services like the Eid al-Fitr Transportation Post, this role is crucial to ensuring effective coordination amidst structural limitations.

The research results show that the catalytic role at the 2025 Eid al-Fitr

Transportation Post at Hunimua Ferry Port was carried out by the Post Team Leader. His actions met the indicators of catalytic leadership as defined in the theory. Ansell & Gash (2012), from activating adaptive responses, providing space for technical improvisation, to efforts to encourage structural change. One manifestation of this role was when the barcode scanning system for tickets failed. Without structural instructions, post members immediately shifted reporting through photo documentation and sending data via WhatsApp to the post secretariat. The Post Team Leader, rather than restricting, supported this step as a form of adaptive resolution.

> "I took a photo and immediately sent it to the group. Because the barcode was broken, I took action myself to prevent a backlog" (Informant R).
>
> "Because the scanner is broken, sometimes officers just check it manually and send it to the secretariat via photo" (Informant OW).

The emergence of technical innovations outside of official procedures is a pattern of non-routine mobilization (Ansell & Gash, 2012). This occurred due to the support of leaders who provided discretion. The Command Post Team Leader also connected various actors through informal channels like WhatsApp and personal phone calls, particularly when there were vehicle queues or miscommunications about ship schedules.

> "If there's a long queue, I immediately contact the operator or traffic control officer at the dock. We don't wait for a meeting; we coordinate directly over the phone". (Informant HS)
>
> "The Command Post Team Leader usually calls or WhatsApps you directly if there's a problem, without the hassle of lengthy bureaucracy". (BSH Informant)

The use of this personal network is evidence of how Robby operates as an organic leader, which activates functional relationships across institutions. Within the framework of the case study, these actions are part of a catalytic mechanism that connects cause (crisis situation) with effect (adaptive collective solution).

The Head of the Hunimua PP Implementation Unit Command Post Team was not only technically responsive but also institutionally reflective. He identified the lack of integrated inter-agency SOPs as the root of the coordination problem and emphasized the need to develop a common reference for the future. This attitude demonstrates capacity reframing which is an important feature catalyst.

> "We don't have a unified SOP yet. We need to think about this in the future so that all agencies have the same references". (HS informant)

Apart from the post team leader, the role of Catalyst is also reflected in the push for public service transformation through digitalization and monitoring. PT. ASDP Ambon Branch initiated an online ticketing and monitoring system real time based monitoring room at four ports including Hunimua ferry port, which is shown in the following interview results.

> "We install CCTV, there's audio, so you can hear the officers' conversations and coordinate immediately if anyone parks carelessly or enters the ship without a ticket". (Informant C)

While this initiative hasn't been entirely successful due to user resistance to the online system and the persistence of street vendors around the docks, it marks a reformist step. On the user side, an interview with one informant indicates that the

community is beginning to feel the impact of this intervention.

> "The loading and unloading process feels faster now. The officers are more responsive. The ship's facilities are also cleaner and less cramped than last year". (Informant RAH)
>
> "The schedule is more organized, the ships are also more ready, there are no long queues outside the port like before," (RT informant).

However, innovations that emerged during the post's operational period were incidental and not systematically documented. Post team members reported that these good practices were not archived as procedures, potentially preventing them from continuing into the following year.

> "We sometimes innovate in the field, but unfortunately, it's not standardized. It might be forgotten next year". (Informant OW)
>
> "There's no standard operating procedure (SOP) to refer to. So, innovation sometimes just gets lost". (Informant RK)

This situation confirms that the catalyst role played by field leaders will only have a long-term impact if supported by institutional learning mechanisms. Nevertheless, during the post's operational period, Robby's catalytic leadership was significant in accelerating decision-making, strengthening inter-agency collaboration, and creating a more responsive service experience for service users.

By demonstrating how field leadership can enable adaptive responses, strengthen collaborative networks, and open up learning spaces, the role of catalyst. In this case, it becomes the focal point for the overall effectiveness of the command post. Beyond simply managing the process, this role drives the collaboration toward structural change. Therefore, this study demonstrates that in inter-agency collaboration systems, the effectiveness of cooperation is not always determined by the highest structural authority, but rather depends heavily on the ability of functional actors in the field to activate cross-border action contextually.

Thus, the case of Posko Hunimua extends the analytical generalization of the theory. Ansell & Gash (2012), that catalytic leadership can emerge from operational and leadership-level figures who possess social credibility, contextual understanding, and the ability to build trusting relationships between actors. This study emphasizes the importance of recognizing and documenting such transformational roles as a foundation for future systemic learning.

Leadership Style

Research by Ansell & Gash (2012), put forward two leadership styles in collaboration, namely organic leader And professional facilitator. These two styles are not antagonistic dichotomies, but rather two approaches that can complement each other. Organic leaders within the stakeholder community and based on social networks, personal legitimacy, and contextual understanding. In contrast, professional facilitators are more neutral and technocratic, with the capacity to facilitate deliberative processes through structure, mediation skills, and the creation of inclusive participatory spaces.

In the context of the 2025 Eid Transportation Post at the Hunimua PP Satpel Post, the most dominant leadership style is the type of organic leader, as reflected in the figure of the Head of the Post Team. He is part of the Maluku Class II BPTD and has built strong working relationships with relevant stakeholders at the port. His legitimacy stems from his familiarity with working across timeframes, his adaptability to emergency situations, and his ability to convey instructions quickly and informally.

> "The Head of the Satpel PP Command Post is used to working with us, so communication is easy. He immediately coordinated with us regarding some technical issues, and we immediately understood what he meant" (Informant BNY).
> "We usually ask the Command Post Team Leader directly if there's a problem. He understands the terrain and can take action quickly. Sometimes we don't have to hold a formal meeting" (CSP Informant).

This leadership style has proven effective in dealing with dynamic situations, such as surges in traffic, miscommunications over ship scheduling, and inter-sectoral field coordination. A leader who functions as an organic leader able to build trust and speed of execution through informal communication and established social networks. This creates what is called Ansell & Gash (2012) as collaborative momentum, namely the spirit of cooperation that flows from social closeness and interpersonal trust.

However, this style also has serious limitations, particularly in building sustainable collaborative structures. Ad-hoc coordination and reliance on specific figures de-institutionalize collaborative processes. Without scheduled deliberative forums and integrated cross-agency SOPs, participation can become exclusive, and not all actors feel fully engaged.

> "Unfortunately, not all problems can be solved with just words. Sometimes we need a written system to clarify responsibilities" (Informant ABD).

Absence of style professional facilitator The post system widens this gap. The Post Manager (Head of BPTD), despite having structurally strategic authority, prefers to delegate operational responsibilities to the Team Leader and Secretariat without actively facilitating formal collaborative processes.

> "In practice, coordination in the field takes place between the Team Leader and each agency" (PJP Informant).

The absence of a professional facilitator results in weak documentation, minimal collaborative reflection, and the absence of an evaluation forum to discuss the implementation of service standards (Directorate General of Maritime Affairs and Fisheries Regulation 5062/2020s). In this situation, problem-solving occurs through personal relationships and field intuition, rather than through systematic and participatory deliberative mechanisms. Recommendations from several internal officers also indicate the need for institutional strengthening and increased facilitation capacity going forward, as demonstrated in the following interviews.

> "Perhaps in the future there should be some kind of cross-agency facilitation training, so we don't just rely on personal communication" (Informant OW).

Thus, it can be concluded that the style organic leader has made a significant contribution to building fluid and responsive coordination amid operational pressures. However, to ensure sustainability and fairness in cross-agency collaboration, strengthening of these elements is necessary. professional facilitator in the command post structure. Hybridization of these two styles is a necessity in the context of complex and multi-sectoral public collaboration.

However, it is also necessary to consider alternative explanations (rival explanation) that the absence of a formal forum and SOP for the command post is not solely due to leadership style, but also due to limited administrative and logistical resources during the command post's

operational period. In addition, the dominance of the command post's leadership style organic leader may not be a conscious strategic choice, but rather an adaptation to weak institutional support that does not yet provide a well-established framework for facilitating collaboration. Therefore, the development of a hybrid leadership style is necessary (hybrid leadership style), as suggested(Ansell & Gash, 2012)which combines the social closeness of organic leaders with the order of the process of professional facilitator This effort will ensure that speed and field familiarity are balanced with accountability and sustainability of the cross-agency service system.

Conclusion

The results of this study indicate that collaborative leadership plays a crucial role in the successful implementation of the Lebaran Transportation Post at Hunimua Ferry Port, especially in the context of temporary and non-hierarchical cross-agency coordination. The three main roles in collaborative leadership as stated by Ansell & Gash (2012), namely steward, mediator, and catalyst were proven to be present and carried out effectively by two key actors: the Head of the Post Team and the Person in Charge of the Post.

This is evident through efforts to maintain inclusiveness, build trust, and maintain a shared orientation toward public service. The Command Post Team Leader exercises operational stewardship by creating a fair, open, and participatory work environment, while the Command Post Officer demonstrates strategic stewardship by supporting non-dominant coordination, facilitating cross-agency evaluations, and maintaining the integrity of collective goals.

As *mediator* The Team Leader successfully maintained relationships between actors through a dialogic approach, informal conflict resolution, and strengthened interpersonal communication that transcended the limitations of formal forums. This enabled adaptive, functional cooperation amidst the weakness of formal institutional structures.

This is reflected in the command post leader's ability to spark technical innovation, activate social networks for rapid response, and facilitate procedural changes based on field learning. These practices demonstrate how collaborative leadership can drive transformation even within a limited operational space.

However, the research also revealed that the effectiveness of collaborative leadership at the Hunimua Command Post depended heavily on individual figures with social legitimacy and contextual understanding, rather than on established institutional systems. The dominant leadership style was organic *leader*, which is effective in a crisis context but has the potential to hinder the institutionalization of collaborative practices if not complemented by the role of professional *facilitator.* The absence of reflective forums, integrated cross-agency SOPs, and collaborative facilitation training are weaknesses that need to be addressed.

Therefore, the development of collaborative leadership in the future must be directed at the formation of a hybrid leadership style that combines the power of social closeness and personal legitimacy, *organic leader*, with the systemic facilitation capacity of professional *facilitators. This* will ensure that coordination is not only responsive in the short term, but also sustainable and accountable in the long term.

This research contributes to the literature on collaborative leadership in the context of cross-sector public services and recommends follow-up actions in the form of.

1. Preparation of collaborative inter-agency SOPs for integrated posts.
2. Strengthening cross-sector leadership facilitation training.

3. Further studies in ports or other service sectors are needed to strengthen the generalizability of the findings and formulate a collaborative leadership model that is applicable in Indonesia.

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Picture 1 Sceme of Social Assessment Channeling

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