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Ethical and Legal Dimensions of Maternal and Child Health in Island and Coastal Settings: A Systematic Review with A Case Study from South Buton, Indonesia

Sulfianti A Yusuf*

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Archipelagic health; health equity; health law; maternal and child health; midwifery workforce; minimum service standards; right to health; small islands

A B S T R A C T

Women and young children who live on small islands and along remote coasts face health risks that are shaped as much by law, policy and the distribution of public resources as by clinical factors. This review asked which ethical and legal issues affect maternal, newborn and child health (MNCH) services in island, archipelagic and coastal settings, and how these issues relate to access, quality and outcomes. Following PRISMA 2020, we searched PubMed (three search strings) and Consensus (two searches) for studies published from 2015 to 2025, screened 487 unique records, and included 66 studies covering at least 26 countries and territories. Findings were synthesised thematically against the availability, accessibility, acceptability and quality (AAAQ) framework of the right to health. We then examined public data from South Buton Regency, an island district in Southeast Sulawesi, Indonesia, as an illustrative case. Six themes emerged: geography operating as a structural determinant of inequity; maldistribution and weak legal recognition of the MNCH workforce; referral and transport as a test of the duty of care; preventable harm and gaps in accountability for quality; financial entitlement that does not translate into physical access; and constraints on autonomy, gender equity and respectful care, with disasters amplifying each of these. The case data mirrored these themes. Between 2023 and 2025 the district's health workforce fell from 12.1 to 10.2 per 1,000 population, midwife density fell by 26.4% in island sub-districts compared with 17.3% on the mainland, and two island health centres had no civil-service physician. In 2024 the district capital's health centre reached 75.8% of its legally mandated target for antenatal care, 61.3% for childbirth care and 70.0% for newborn care. In island settings, the right to MNCH depends less on formal entitlement than on whether the state places skilled personnel, transport and emergency referral within reach. We propose legal and managerial measures that tie minimum service standards to island-specific workforce and referral obligations.

1. INTRODUCTION

Maternal and child health is one of the clearest tests of whether a health system honours its legal promises. Indonesia illustrates the difficulty well. The country spans more than 17,000 islands, and although its universal health coverage scheme grew to cover more than 200 million people, gains in maternal and neonatal survival have been uneven across regions (Agustina et al., 2019). Analyses of the 2010 population census showed that limited access to doctors and hospitals accounted for a measurable share of the gap in maternal mortality between high- and low-performing provinces, and that giving the Outer Islands the same access as Java and Bali would avert an estimated 44 deaths per 100,000 pregnancies (Cameron et al., 2019). Recent survey data show that women in Maluku and Papua remain far more likely than women elsewhere to receive no antenatal care at all (Titaley et al., 2025).

Small islands and remote coasts concentrate several disadvantages at once. Populations are dispersed, transport depends on boats and weather, and specialist care is usually located on a larger island or the mainland. Similar patterns have been described in the Pacific (Homer et al., 2017; Kelly et al., 2023), the Indian Ocean (Kassim et al., 2017; Yadav et al., 2022), the Caribbean (Valentín-Cortés et al., 2025) and South Asia (Jannat et al., 2025; Vadrevu & Kanjilal, 2016). A recent meta-analysis of 145 studies from 89 low- and middle-income countries found that only 50.8% of women completed four antenatal visits, and that distance to facilities and poor service quality remained important barriers (Taha et al., 2026). In Southeast Sulawesi, the province that contains our case district, chronic energy deficiency affected 55% of pregnant women at one coastal health

* Universitas Pelita Ibu, Kendari, Southeast Sulawesi, Indonesia
Email: sulfiantiayusuf@gmail.com

centre in 2021, and the authors called for a review of health-worker numbers in coastal areas (Mansyarif et al., 2022). For a woman in labour on a small island, these conditions translate into a simple and urgent question: can a skilled birth attendant, and if needed an operating theatre, be reached in time?

This question has an ethical and a legal side. Ethically, it raises questions of distributive justice, of the duty of care owed by providers and the state, and of respect for women's autonomy and dignity. Legally, it concerns the right to health. Under the international human rights framework, health facilities, goods and services must be available, accessible, acceptable and of good quality (AAAQ) (UN Committee on Economic, Social and Cultural Rights, 2000). Under Indonesian law, the right to health services is protected in the Constitution (Constitution of the Republic of Indonesia, 1945) and given effect through the Health Law of 2023 (Law No. 17 of 2023) and its implementing regulation (Government Regulation No. 28 of 2024). District governments must meet Minimum Service Standards (Standar Pelayanan Minimal, SPM) for pregnant women, women giving birth and newborns, among other groups (Government Regulation No. 2 of 2018; Minister of Health Regulation No. 6 of 2024), and every primary health centre (puskesmas) must meet minimum staffing norms (Minister of Health Regulation No. 43 of 2019).

Most empirical research on island MNCH reports coverage, outcomes and access barriers without framing them as ethical or legal problems, while the health-law literature seldom engages with local service data. To our knowledge, no systematic review has brought the two together for island and coastal settings. This article addresses that gap in two steps. First, we systematically review empirical studies on the ethical and legal dimensions of MNCH in island, archipelagic and coastal settings. Second, we use public workforce and service data from South Buton Regency, an island district in Southeast Sulawesi, Indonesia, to show how the review's themes appear in one jurisdiction and what they imply for local legal obligations.

2. METHODS

2.1 Design and Reporting

We conducted a systematic review with thematic synthesis, reported according to the PRISMA 2020 statement (Page et al., 2021), together with a descriptive case study based on secondary data. The review protocol was not registered in advance; this is noted as a limitation.

2.2 Review Question and Eligibility Criteria

The review question, framed with a population–exposure/concept–outcome–context structure, was: "What ethical and legal issues shape MNCH services in island, archipelagic and coastal settings, and how do they affect access, quality and outcomes?" Table 1 summarises the eligibility criteria. We included peer-reviewed empirical studies (quantitative, qualitative, mixed-methods, ecological or document analyses with an explicit method) published in English or Indonesian between 2015 and 2025. Studies had to concern pregnant, intrapartum or postpartum women, newborns, children under five, or MNCH providers in island, archipelagic, small-island-state or coastal settings, or present national analyses in archipelagic countries that explicitly compared island regions. They also had to address at least one ethical or legal dimension: equity and justice in access, the right to health and entitlement to care, workforce distribution, regulation or scope of practice, referral and the duty of care, autonomy and respectful care, or accountability and governance. Editorials, protocols, conference abstracts and clinical efficacy trials were excluded. Reviews were excluded from the synthesis but read for background.

Table 1
Eligibility Criteria (PECO-S)

Element	Inclusion	Exclusion
Population	Pregnant, intrapartum and postpartum women; newborns; children <5 y; MNCH providers	Other age groups; non-MNCH populations
Exposure / concept	Ethical or legal dimension: equity, right to health, entitlement, workforce regulation and distribution, referral and duty of care, autonomy, respectful care, accountability	Purely biomedical or environmental exposure without an access, ethical or legal angle
Context	Island, archipelagic, small-island-state or coastal settings; national analyses comparing island regions	"Island" only as a place name; coastal only as hospital location
Outcomes	Access, utilisation, quality, safety, MNCH outcomes, ethical or legal issues reported	—
Study design	Peer-reviewed empirical studies; policy or ethical analyses with explicit method; 2015–2025; English or Indonesian	Editorials, letters, protocols, conference abstracts, clinical efficacy trials; reviews (background only)

2.3 Information Sources and Search Strategy

PubMed was searched with three strings combining terms for MNCH (e.g., maternal, antenatal, childbirth, neonatal, midwife), setting (island, archipelago, coastal, maritime; or Indonesia with remote, rural, geographic or inequality terms) and ethical–legal concepts (access, equity, rights, ethics, legal, policy, workforce, informed consent, autonomy, justice, referral, transport). The search was limited to publication dates from 1 January 2015 to 31 December 2025 in title and abstract fields. Consensus, a semantic search engine indexing more than 400 million peer-reviewed papers, was searched twice with natural-language queries limited to 2015 onwards and excluding preprints. All searches were run on 4

November 2026. The full search strings are given in Table 2.

Table 2

Search Strategies (All Searches Run on 4 November 2026)

Source	Search string / query	Limits	n
PubMed, string 1	(maternal[tiab] OR antenatal[tiab] OR childbirth[tiab] OR "child health"[tiab] OR neonatal[tiab] OR midwife[tiab] OR midwives[tiab]) AND (island[tiab] OR islands[tiab] OR archipelago[tiab] OR archipelagic[tiab] OR coastal[tiab]) AND (access[tiab] OR equity[tiab] OR rights[tiab] OR ethics[tiab] OR ethical[tiab] OR legal[tiab] OR policy[tiab] OR workforce[tiab])	Publication date 2015–2025	173
PubMed, string 2	(maternal[tiab] OR antenatal[tiab] OR "skilled birth"[tiab] OR midwife[tiab] OR midwives[tiab] OR "child health"[tiab]) AND Indonesia[tiab] AND (remote[tiab] OR rural[tiab] OR island[tiab] OR islands[tiab] OR geographic[tiab] OR inequality[tiab]) AND (access[tiab] OR equity[tiab] OR policy[tiab] OR "health workforce"[tiab] OR law[tiab])	Publication date 2015–2025	89
PubMed, string 3	(maternal[tiab] OR obstetric[tiab] OR childbirth[tiab] OR newborn[tiab] OR midwifery[tiab]) AND (island[tiab] OR islands[tiab] OR coastal[tiab] OR maritime[tiab] OR archipelago[tiab]) AND (ethics[tiab] OR ethical[tiab] OR "human rights"[tiab] OR "informed consent"[tiab] OR autonomy[tiab] OR justice[tiab] OR referral[tiab] OR evacuation[tiab] OR transport[tiab])	Publication date 2015–2025	83
Consensus, search a	"ethical and legal issues maternal and child health services island archipelago coastal communities access"	Year ≥ 2015; preprints excluded; first 100 results	100
Consensus, search b	"midwife maternal health access remote islands Indonesia equity health workforce referral"	Year ≥ 2015; preprints excluded; first 100 results	100

2.4 Selection Process

Records were deduplicated by PubMed identifier and, for Consensus records, by title matched against PubMed. Titles and abstracts were screened against the criteria in Table 1 with AI assistance, and every inclusion and exclusion decision was recorded with its reason. A second eligibility stage then re-applied the criteria more strictly to the complete bibliographic record, excluding studies in which an island or coastal location was only a place name, the population fell outside the MNCH age range, or no ethical or legal dimension was examined. Records without a verifiable journal, publication year or DOI were excluded at this stage.

2.5 Data Extraction and Appraisal

For each included study we extracted author, year, country and setting, design, population, ethical or legal dimension, and key findings, with numerical results copied exactly from the source. Studies were classified into the five design categories of the Mixed Methods Appraisal Tool (MMAT) version 2018 (Hong et al., 2019). In line with MMAT guidance, studies were not excluded on quality grounds, and the strength of each theme was judged by the number, designs and consistency of the contributing studies.

2.6 Synthesis

We used thematic synthesis (Thomas & Harden, 2008). Findings were first coded line by line, then grouped into descriptive themes, and finally interpreted as analytical themes against the four AAAQ elements, to which we added accountability as a fifth element. Because designs and outcomes were heterogeneous, no meta-analysis was attempted.

2.7 Case Study: South Buton Regency

South Buton Regency (Kabupaten Buton Selatan) was established in 2014 (Law No. 16 of 2014). Three of its seven sub-districts (Batauga, Sampolawa and Lapandewa) lie on the southern part of Buton Island. The other four (Batu Atas, Siompu, Siompu Barat and Kadatua) lie wholly or mainly on smaller islands to the west and south. We used three sources of public or administrative data: (a) sub-district population and health-workforce counts for 2023–2025 from Statistics Indonesia's Buton Selatan Regency in Figures 2024–2026 (BPS Kabupaten Buton Selatan, 2024–2026); (b) civil-servant staffing of the 14 registered puskesmas from the Ministry of Health's workforce-planning platform, which is based on the national health-workforce information system (Ministry of Health of the Republic of Indonesia, 2026); and (c) the 2024 SPM report of the Batauga health centre, located in the district capital (UPTD Puskesmas Batauga, 2025). Indicators were calculated as counts per 1,000 population and as percentages of annual SPM targets. All data were aggregated and contained no personal information.

3. RESULTS

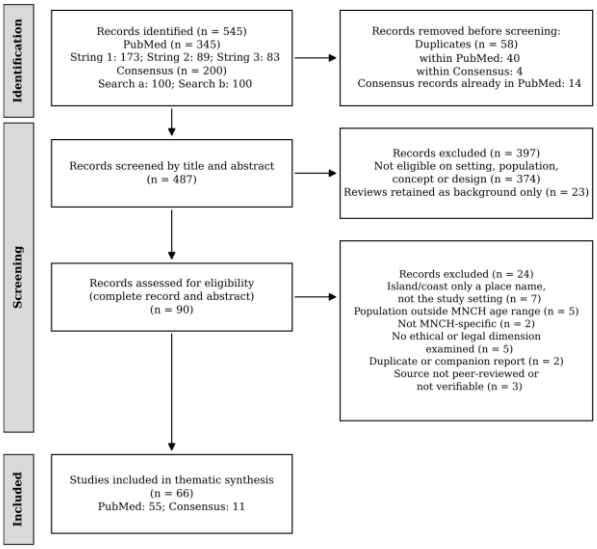
3.1. Study Selection

The searches identified 545 records (345 from PubMed and 200 from Consensus). After removing 58 duplicates, 487 records were screened by title and abstract

and 397 were excluded, including 23 reviews retained as background. Of the 90 records assessed for eligibility, 24 were excluded, leaving 66 studies (Figure 1).

Figure 1

PRISMA 2020 flow diagram of study identification, screening and inclusion



3.2. Characteristics of Included Studies

The 66 included studies were published between 2015 and 2025 and covered at least 26 countries and territories (Table 3; full list in Appendix Table A1). Indonesia contributed the largest group (23 studies), followed by Pacific island states (16), South Asia (8), African lake, coastal and Indian Ocean island settings (8) and Caribbean territories (4). Quantitative non-randomised designs, mostly secondary analyses of national surveys, predominated (25), followed by quantitative descriptive studies (14), qualitative studies (13), mixed-methods studies (7) and other designs such as geospatial modelling, ecological analysis and one formal ethical analysis (7). Few studies named an ethical or legal framework explicitly; most raised ethical or legal questions through their findings and recommendations.

Table 3

Characteristics of Included Studies (n = 66)

Region / design	n	Countries and territories
Indonesia	23	Indonesia
Pacific	16	multi-country (5 Pacific island countries); multi-country (12 Pacific island states); Kiribati; Solomon Islands; Samoa; Papua New Guinea; Fiji, Tonga; Vanuatu
South Asia	8	India; Bangladesh
Africa/Indian Ocean	8	Kenya; Comoros; Ghana; Uganda; Tanzania
Americas/Caribbean	4	Puerto Rico; US Virgin Islands
Southeast Asia (other)	3	Philippines; Timor-Leste
East Asia	2	Japan
Europe	1	Italy
Multi-region SIDS	1	multi-country (9 small island developing states)
By MMAT design category		
Quantitative non-randomised	25	
Quantitative descriptive	14	
Qualitative	13	
Mixed methods	7	
Other (modelling, geospatial, ecological, ethical analysis)	7	

3.3. Thematic Synthesis

Six analytical themes emerged. Table 4 maps them to the AAAQ-plus-accountability framework, and each theme is described below.

Table 4

Analytical Themes Mapped to the AAAQ-Plus-Accountability Framework

Theme	AAAQ element	Ethical principle	Indonesian legal anchor	Contributing studies
1. Geography as a structural determinant of inequity	Accessibility (physical); availability	Distributive justice; equity	Constitution Art. 28H(1), 34(3); GR 2/2018 (SPM)	(Al-Mamun et al., 2025; Bermejo et al., 2015; Cameron et al., 2019; Idris & Anisah, 2024; Jannat et al., 2024; Jannat et al., 2025; Kassim et al., 2017; Laksono et al., 2020; Moindi et al., 2016; Nababan et al., 2017; Rizkianti et al., 2021; Seidu et al., 2022; Ssetaala et al., 2020; Titaley et al., 2025; Utomo et al., 2025; Vadrevu & Kanjilal, 2016; Widyaningsih et al., 2025)
2. Maldistribution and weak legal recognition of the workforce	Availability; accountability	Justice; state duty to provide	Law 17/2023; GR 28/2024; MoH Reg. 43/2019	(Adnani et al., 2025; Burhin et al., 2024; Cameron et al., 2019; Dawson et al., 2016; Homer et al., 2017; Reyes, 2021; Tosif et al., 2018; Wenang et al., 2024; Yadav et al., 2022)

Theme	AAAQ element	Ethical principle	Indonesian legal anchor	Contributing studies
3. Referral and transport as a test of the duty of care	Accessibility; quality	Duty of care; non-maleficence	GR 2/2018 and MoH Reg. 6/2024 (SPM childbirth and newborn services)	(Chowdhury et al., 2022; Darwitri et al., 2025; Jannat et al., 2024; Li et al., 2017; Pagalday-Olivares et al., 2017; Rambu Ngana & Eka Karyawati, 2021; Sansosti et al., 2025; Saputri et al., 2024; Sharma et al., 2021; Ssetaala et al., 2022; Sumikawa et al., 2020; Tjokroprawiro et al., 2024; Vadrevu & Kanjilal, 2016; Wulandari et al., 2025; Yadav et al., 2022)
4. Preventable harm and gaps in accountability for quality	Quality; accountability	Beneficence; non-maleficence	Law 17/2023 (quality and patient safety)	(Babona et al., 2025; De Silva et al., 2020; De Silva et al., 2022; Karim et al., 2020; Kaspar et al., 2020; Moreno-Oliveras et al., 2023; Tosif et al., 2018; Tosif et al., 2020; Wenang et al., 2024)
5. Financial entitlement without physical access	Accessibility (economic)	Justice; fair financing	National health insurance (JKN); Law 17/2023	(Anindya et al., 2020; Aryastami & Mubasyiroh, 2023; Chowdhury et al., 2022; Kelly et al., 2023; Lee et al., 2023; Putri et al., 2025; Rizkianti et al., 2021)
6. Autonomy, gender equity and respectful care	Acceptability	Respect for autonomy; dignity	Constitution Art. 28H(1); patients' rights under Law 17/2023	(Al-Mamun et al., 2025; Davis et al., 2016; de los Reyes et al., 2024; King & Jones, 2019; Kluckow et al., 2018; Mochache et al., 2020; Nasir et al., 2016; Ndimbii et al., 2018; Saputri et al., 2020; Seidu et al., 2022; Shen et al., 2023; Situmorang et al., 2022; Wentworth & Blalock, 2025; Zaluchu & Meher, 2025)
Cross-cutting: disasters amplify every gap	All elements	Solidarity; protection of the vulnerable	—	(Beek et al., 2021; Jeffers et al., 2022; Lafarga Previdi et al., 2022; Reyes, 2021; Sugawara et al., 2016; Valentín-Cortés et al., 2025)

3.3.1 Theme 1: Geography as a Structural Determinant of Inequity

Across settings, living on an outer island or remote coast was consistently linked to lower use of essential MNCH services, and this disadvantage persisted after adjustment for household wealth. In Indonesia, women outside Java and Bali were less likely to complete the maternal and child continuum of care (Widyaningsih et al., 2025). Complete neonatal care visits ranged from 58.5% in Java–Bali to 23.8% in Papua (Idris & Anisah, 2024), and in eastern Indonesia, living in Maluku or Papua multiplied the odds of receiving no antenatal care by 13.76 and 17.72 respectively (Titaley et al., 2025). Women in Sumatra and Maluku–Papua most often reported physical, cultural and financial barriers, and distance barriers were associated with pregnancy complications (OR 1.46) (Rizkianti et al., 2021). Inequities in institutional birth narrowed between 1986 and 2012 but did not disappear, and service use remained higher in Java and Bali than elsewhere (Nababan et al., 2017). Using Papua as the reference, women in Nusa Tenggara and Java–Bali had 4.365 and 3.607 times the odds of four or more antenatal visits (Laksono et al., 2020), and a census-block analysis linked proximity to a hospital with lower maternal mortality risk while showing striking residual disparities in the eastern region (Utomo et al., 2025). The same pattern appeared between the three islands of Comoros (Kassim et al., 2017), among island groups in the Philippines (Bermejo et al., 2015), in the river-locked deltaic villages of the Indian Sundarbans, where ten villages could not reach any maternal health facility (Vadrevu & Kanjilal, 2016), and in coastal and char (riverine island) areas of Bangladesh, where children were about twice as likely to be unvaccinated (Jannat et al., 2024; Jannat et al., 2025). On Lake Victoria's fishing islands, 63% of women started antenatal care late, and the authors recommended a public antenatal facility on every island (Ssetaala et al., 2020). In coastal Kenya, living 10 km or more from a facility was the only factor independently associated with home birth (adjusted RR 3.86) (Moindi et al., 2016). From a justice perspective, these studies show that inequity is produced by where services are placed, not by individual choice.

3.3.2 Theme 2: Maldistribution and Weak Legal Recognition of the Workforce

Availability depended above all on whether skilled personnel were present. Decomposition of Indonesian census data identified the number of doctors at community health centres and in villages as the largest service-related contributors to provincial differences in maternal mortality (Cameron et al., 2019). A province-level analysis found that the availability of obstetricians and midwives was strongly associated with less inadequate referral. It also linked a high obstetrician supply to higher caesarean rates, and its authors called for regulating the training and distribution of obstetricians for remote areas (Wenang et al., 2024). Midwives were the most accessible providers for rural and eastern Indonesian women (Adnani et al., 2025). In twelve small Pacific island nations, some countries had only two midwives, most had no separate licensing system for midwives, and only three had a midwives' professional association (Homer et al., 2017). In Papua New Guinea, a midwifery capacity-building initiative increased the number of graduates, but its gains depended on accrediting curricula and regulating new graduates (Dawson et al., 2016).

Child-health nurses in Solomon Islands reported better care after specialist training, but their grade and salary were unchanged because the Nursing Council and ministry did not formally recognise the qualification (Burhin et al., 2024). In Puerto Rico, home-birth midwives lacked legal recognition and protection even when demand rose during the COVID-19 crisis (Reyes, 2021). In the Andaman and Nicobar Islands, retaining specialists on the islands was identified as essential to prevent maternal deaths (Yadav et al., 2022). Workforce questions are therefore legal as well as managerial: they concern licensing, scope of practice, recognition and the state's duty to post personnel where people live.

3.3.3 Theme 3: Referral and Transport as a Test of the Duty of Care

Referral is where the duty of care is most visibly tested, because responsibility passes between providers across water and weather. In Japan's islands, maternal transport to the mainland was more common from small islands (6.8% vs 2.6% of births), and adverse weather was the main threat to its reliability (Sumikawa et al., 2020). In the Andaman and Nicobar Islands, around 64% of maternal deaths were in referred women (Yadav et al., 2022), and improving referral systems was a central recommendation of a near-miss audit in the same islands (Sharma et al., 2021). On Lampedusa, a structured obstetric triage protocol for migrant women arriving by sea reduced dedicated urgent helicopter flights by 52% (Sansosti et al., 2025). In East Nusa Tenggara, a GIS tool modelling seasonal sea travel gave midwives and district planners evidence for improving access to emergency obstetric care (Rambu Ngana & Eka Karyawati, 2021). Nationally, 94.5% of Indonesian women of reproductive age lived within two hours of a hospital that could perform emergency obstetric surgery, but eight provinces had low timely access (Tjokroprawiro et al., 2024). In Maluku, women who used maternity waiting homes were 2.756 times as likely to give birth in a facility, yet only 6.8% used one (Wulandari et al., 2025). Elsewhere, community health workers improved links to care, raising timely hepatitis B birth-dose coverage on Kiribati's Outer Islands from 57% to 83% (Li et al., 2017), and household visits by community health workers were acceptable to more than 90% of women on Lake Victoria's islands (Ssetaala et al., 2022). In Bangladesh and Ghana, transport, out-of-pocket costs and organisational gaps were identified as bottlenecks to referral (Chowdhury et al., 2022; Pagalday-Olivares et al., 2017). In the Riau Islands, where referral routes combine land and sea, midwives were satisfied with an island-specific emergency referral manual and a midwifery emergency guidance application, although these evaluations measured user satisfaction rather than health outcomes (Darwitri et al., 2025; Saputri et al., 2024).

3.3.4 Theme 4: Preventable Harm and Gaps in Accountability for Quality

Quality failures were often avoidable, which turns them from misfortune into a question of accountability. At Solomon Islands' only referral hospital, 79% of maternal deaths had potentially preventable elements, with laboratory delays in 54% and medication shortages in 29% (De Silva et al., 2020). In the same hospital, 72% of stillbirths with a recorded cause were judged preventable, and 92% of intrapartum stillbirths had received no intrapartum monitoring (De Silva et al., 2022). Perinatal and special-care mortality were higher in provincial hospitals than at the national referral hospital (Tosif et al., 2020), and an earlier assessment had documented workforce shortages and weak infection control (Tosif et al., 2018). In Zanzibar, children from Pemba Island had more complications after neural-tube defect surgery, which was available at only one public centre (Moreno-Oliveras et al., 2023). In hard-to-reach areas of Bangladesh, private-facility birth was associated with 13.1 times the odds of caesarean delivery, prompting calls for an accreditation system to regulate private hospitals (Karim et al., 2020). One ethical analysis from Samoa concluded that universal newborn hearing screening would be unethical where follow-up services did not exist, even with donated equipment (Kaspar et al., 2020). The principle is general: offering a service that cannot be completed may itself cause harm. Point-of-care guidance can partly offset isolation: in Papua New Guinea, a clinical guidance application was rated especially useful in remote areas, and its registered users rose from 354 in 2022 to 1,304 in 2024 (Babona et al., 2025).

3.3.5 Theme 5: Financial Entitlement Without Physical Access

Formal entitlement mattered but was not enough. Enrolment in Indonesia's national health insurance scheme was associated with higher antenatal, facility-birth and postnatal care use, with larger gains among the poor and in eastern Indonesia, but large regional differences persisted (Anindya et al., 2020). Insurance was associated with optimal maternal service use independently of free service delivery (Aryastami & Mubasyiroh, 2023). Yet insured women in the richest quintile in Java–Bali were 6.4 times as likely to be attended by an obstetrician or general practitioner as uninsured women in the poorest quintile in Eastern Indonesia (Lee et al., 2023). In Papua, however, women with lower education and without partners were less likely to give birth in a facility even when insured, and institutional delivery was only 50.1% (Putri et al., 2025). Across nine small island developing states, reaching contraceptive and maternal health targets would have required modest additional investment and returned a 15- to 24-fold economic benefit (Kelly et al., 2023). Insurance creates a legal claim, but the claim is empty if the service it pays for is a sea crossing away.

3.3.6 Theme 6: Autonomy, Gender Equity and Respectful Care

Acceptability concerned who makes decisions and how women are treated. On Nias Island, marriage customs and religious interpretation constrained women's

control over their own health (Zaluchu & Meher, 2025). In coastal Kenya, deference to a senior female relative shaped decisions about facility birth (Mochache et al., 2020), and among women who inject drugs, stigma from health workers deterred care (Ndimbii et al., 2018). In Honiara, shared family-planning decisions were associated with lower odds of unintended pregnancy, and 84.7% of women booked antenatal care late (Kluckow et al., 2018). In Papua New Guinea, household decision-making power was associated with skilled birth attendance (Shen et al., 2023), which was more common in the Islands region (Seidu et al., 2022). In Vanuatu, clinic staff labelled mothers "good" or "lazy" for failing to follow advice they could not afford to follow, an example of individual blame for structural constraints (Wentworth & Blalock, 2025). Pacific policymakers saw male involvement as a way to improve access but noted that clinic layout and staff attitudes worked against it (Davis et al., 2016). Cultural safety and community participation were recommended in Papua (Situmorang et al., 2022), and cultural and distance barriers were reported in coastal Bangladesh (Al-Mamun et al., 2025). In Timor-Leste, patriarchal family structures, lack of privacy and short opening hours compounded poor roads (King & Jones, 2019). In Southwest Sumba, a preference for traditional birth attendants reflected their proximity and providers' lack of responsiveness to local traditions (Nasir et al., 2016). On Coron Island in the Philippines, a maternal and child health handbook co-developed with the Indigenous Tagbanua community improved mothers' knowledge and attitudes (de los Reyes et al., 2024). In Indonesia, improvements in breastfeeding after policy reform were unevenly distributed across island regions (Saputri et al., 2020).

3.3.7 Cross-Cutting Theme: Disasters Amplify Every Gap

Storms, earthquakes and tsunamis exposed and deepened each of the six themes. After the 2011 tsunami, emergency obstetric transport on Japan's Miyagi coast rose about 1.4-fold and prehospital births tripled, and the authors called for disaster management systems that recognise pregnant women as people with special needs (Sugawara et al., 2016). After Hurricanes Irma and Maria, women in Puerto Rico lost access to basic services (Lafarga Previdi et al., 2022), and women in the US Virgin Islands also lost a functioning hospital (Jeffers et al., 2022). Puerto Rican vital statistics suggested that colonial status worsened the maternal effects of disasters (Valentín-Cortés et al., 2025). In Fiji, unclear roles slowed the sexual and reproductive health response after a cyclone, while Tonga's prior investment allowed a faster one. The authors called for these responsibilities to be institutionalised in national policy and accountability mechanisms (Beek et al., 2021).

3.4. Case Study Findings: South Buton Regency

The district's population grew by 2.9% between 2023 and 2025, from 101,635 to 104,538, while the registered health workforce fell by 13.7%, from 1,233 to 1,064 (Table 5). Overall density fell from 12.1 to 10.2 health workers per 1,000 population. Midwives, the backbone of MNCH services, fell from 396 to 320 (−19.2%). Their density fell by 26.4% in the four island sub-districts (from 3.86 to 2.84 per 1,000), compared with 17.3% in the three mainland sub-districts (from 3.93 to 3.25 per 1,000) (Figure 2). Medical staff were concentrated in the capital: in 2025, 27 of the district's 49 doctors and dentists were recorded in Batauga, giving the island sub-districts 2.7 medical staff per 10,000 population against 6.4 on the mainland.

Table 5

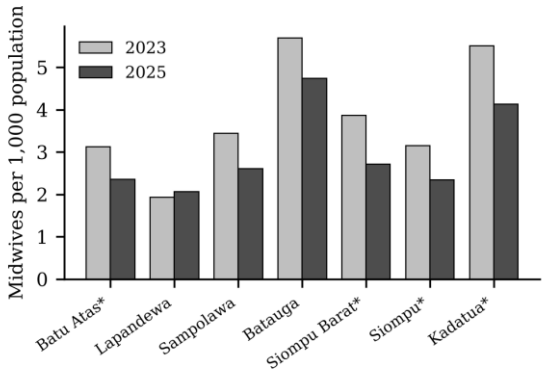
Population, Health Workforce and Facilities, South Buton Regency, 2023–2025

Indicator	2023	2024	2025
Population	101,635	102,881	104,538
Puskesmas (inpatient / non-inpatient)	13 (5/8)	14 (5/9)	14 (5/9)
Registered health workers, total	1,233	990*	1,064
Health workers per 1,000 population	12.1	9.6*	10.2
Midwives	396	379	320
Midwives per 1,000, island sub-districts	3.86	3.70	2.84
Midwives per 1,000, mainland sub-districts	3.93	3.67	3.25
Nurses	430	316*	362
Doctors and dentists	50	27*	49
of which recorded in Batauga	27	4*	27

Note. Source: *(BPS Kabupaten Buton Selatan, 2024–2026); authors' calculations. Island sub-districts: Batu Atas, Siompu, Siompu Barat, Kadatua; mainland: Batauga, Sampolawa, Lapandewa. *2024 Batauga counts appear to exclude hospital-based staff; interpret with caution.*

Figure 2

Midwives per 1,000 population by sub-district, South Buton Regency, 2023 and 2025



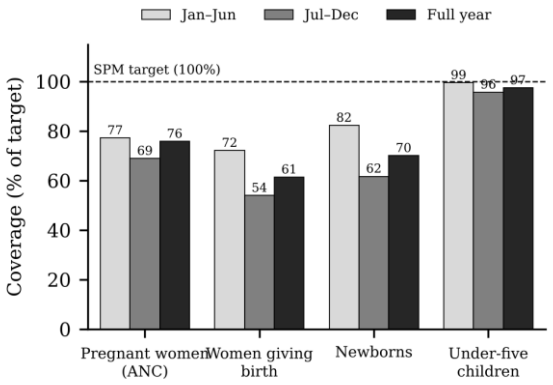
Note. Asterisk marks island sub-districts. Source: (BPS Kabupaten Buton Selatan, 2024–2026).

Civil-service staffing data for individual puskesmas showed 15 doctors and 3 dentists across 14 centres. Two centres had no civil-service doctor: Batuatas Barat, on Batu Atas island, and Bukit Kangka, on Siompu island. The Ministry of Health recorded only one of the 14 centres as meeting the minimum standard of nine types of health personnel (Minister of Health Regulation No. 43 of 2019; Ministry of Health of the Republic of Indonesia, 2026).

In 2024 the Batauga health centre, located in the district capital on the mainland, reached 75.8% of its annual SPM target for pregnant women (319/421), 61.3% for women giving birth (257/419) and 70.0% for newborns (259/370), compared with 97.3% for children under five (UPTD Puskesmas Batauga, 2025). About 162 women in the target group did not receive SPM-standard childbirth care. Coverage fell in the second half of the year: childbirth care dropped from 72.1% of the January–June target to 53.9% of the July–December target, and newborn care from 82.2% to 61.7% (Figure 3). The data cannot establish the cause. Seasonal weather that disrupts sea travel is one plausible explanation to test, since adverse weather was the main threat to maternal transport from small islands in Japan (Sumikawa et al., 2020). Because these figures come from the best-staffed centre in the district, coverage on the outer islands is unlikely to be higher; this should be verified with centre-level SPM data.

Figure 3

Coverage of maternal, newborn and under-five SPM services at Batauga health centre, 2024, by half-year (% of target for the period) and full year (% of annual target)



Note. **Source:** (UPTD Puskesmas Batauga, 2025).

4. DISCUSSION

4.1. Principal Findings

This review brings together evidence from island and coastal settings on five continents and finds a consistent pattern. MNCH outcomes in these places depend less on what women are formally entitled to than on whether skilled personnel, emergency referral and quality assurance are physically within reach. The South Buton case shows the same pattern within a single Indonesian district. Its workforce shrank while its population grew, the losses were steeper on the islands, two island puskesmas had no civil-service doctor, and even the capital's health centre fell well short of its legally binding childbirth target.

4.2. Ethical Analysis

From the standpoint of distributive justice, island residence is a morally arbitrary characteristic, so the inequities documented in Theme 1 call for compensatory allocation rather than equal per-capita allocation. Indonesian census modelling predicted that equalising access to doctors and hospitals would avert maternal deaths (Cameron et al., 2019). In South Buton, however, midwife losses were steepest in the island sub-districts, the opposite of compensatory allocation. Beneficence and non-maleficence require that services, once offered, can be completed safely. The high shares of preventable maternal deaths and stillbirths (Theme 4) and the Samoan screening analysis (Kaspar et al., 2020) show that offering a first step of care without a functioning pathway behind it can cause harm. Respect for autonomy requires more than individual consent. Where custom, gender norms or clinic culture limit women's choices (Theme 6), providers have a duty to create conditions in which women can decide freely, without blaming them for constraints they did not create (Wentworth & Blalock, 2025).

4.3. Legal Analysis: Indonesian Obligations in Island Districts

Indonesian law turns these ethical claims into enforceable duties, summarised in Table 6. The Constitution guarantees everyone the right to health services (Constitution of the Republic of Indonesia, 1945). The 2023 Health Law consolidated earlier laws, including the 2014 Health Workers Law and the 2019 Midwifery Law, and assigns central and regional governments responsibilities for health resources, including health personnel (Government Regulation No. 28 of 2024; Law No. 17 of 2023). The SPM regime is the sharpest instrument. Government Regulation 2/2018 makes basic health services for pregnant women, women giving birth and newborns a mandatory district obligation, and Ministerial Regulation 6/2024 sets their technical standards (Government Regulation No. 2 of 2018; Minister of Health Regulation No. 6 of 2024). Because SPM targets are defined as 100% of the target population, the 61.3% childbirth coverage in Batauga is a shortfall in a statutory duty, not merely a programme gap. Ministerial Regulation 43/2019 likewise sets minimum staffing for puskesmas, which 13 of the 14 centres in South Buton did not meet (Minister of Health Regulation No. 43 of 2019).

Table 6

Indonesian Legal Framework Relevant to Island MNCH and Its Implications

Instrument	Relevant content	Implication for island districts
1945 Constitution, Art. 28H(1), 34(3) (Constitution of the Republic of Indonesia, 1945)	Right of everyone to health services; state responsibility for health service facilities	Island shortfalls are rights issues, not only programme gaps
Law 17/2023 on Health (Law No. 17 of 2023); GR 28/2024 (Government Regulation No. 28 of 2024)	Consolidated health law (revokes Law 36/2014 on Health Workers and Law 4/2019 on Midwifery); government responsibilities for health resources, including personnel	Legal basis for compensatory, island-specific workforce allocation and retention measures
GR 2/2018 on Minimum Service Standards (Government Regulation No. 2 of 2018)	Basic health services for pregnant women, childbirth and newborns as mandatory regional obligations	District accountable for 100% coverage of each target group, including on outer islands
MoH Reg. 6/2024 on SPM technical standards (Minister of Health Regulation No. 6 of 2024)	Service standards, targets and reporting for SPM health services	SPM planning and reporting should be disaggregated by island
MoH Reg. 43/2019 on Puskesmas (Minister of Health Regulation No. 43 of 2019)	Minimum types of health personnel per puskesmas	13 of 14 South Buton puskesmas below standard; staffing priority for island centres
CESCR General Comment No. 14 (UN Committee on Economic, Social and Cultural Rights, 2000)	AAAQ elements of the right to health	Normative framework for assessing island MNCH services

Three legal implications follow. First, district SPM planning and budgeting should be disaggregated by island so that island-specific shortfalls become visible, budgeted and reportable, rather than averaged away. Second, the duty of care during referral should be written into local regulation through protocols that assign responsibility at each handover, specify sea-transport arrangements and set standards for maternity waiting homes, drawing on the Lampedusa and East Nusa Tenggara experience (Rambu Ngana & Eka Karyawati, 2021; Sansosti et al., 2025;

Wulandari et al., 2025). Local experience points the same way. In South Konawe, also in Southeast Sulawesi, a puskesmas programme that combined 24-hour standby midwives, free ambulance transport and partnerships with traditional birth attendants was followed by 100% facility births in 2022 and no recorded maternal deaths from 2017 to 2022. The study was descriptive and cannot establish causation, and it reported lapsed midwife registrations among its implementation problems (Damis et al., 2023). Third, workforce policy should treat island postings as a legal and contractual matter. Incentives, career recognition and clear scope of practice for midwives working alone on small islands address the retention and recognition problems documented in Theme 2 (Burhin et al., 2024; Homer et al., 2017; Wenang et al., 2024).

4.4. Implications for Practice and Education

For district health offices, the review supports island-disaggregated monitoring of the SPM indicators for pregnancy, childbirth and newborn care; a written referral and sea-transport protocol for every island puskesmas; investment in maternity waiting homes; and staffing priority for centres without a doctor. For midwifery and nursing schools serving archipelagic regions, it supports teaching the legal basis of SPM and referral duties, training in emergency obstetric and newborn care for providers working alone, and teaching respectful care that avoids blaming women for structural barriers.

4.5. Strengths and Limitations

The review combined two complementary search systems, applied explicit criteria in two stages, and linked a systematic synthesis to verifiable local data. It also has limitations. The protocol was not registered. Screening was conducted by a single reviewer with AI assistance, and eligibility was judged from complete bibliographic records and abstracts rather than full texts, so some misclassification is possible. Quality appraisal was limited to MMAT design categories. Only two search systems were used, so studies indexed only in Scopus, Web of Science or Indonesian national databases may have been missed. The case data were cross-sectional and aggregated. The 2023 and 2025 workforce counts for Batauga probably included hospital staff while the 2024 count did not, so Batauga's figures were not interpreted as a trend. Sub-district population is not the same as puskesmas catchment population, and SPM data were available for only one health centre. Finally, the coincidence between lower second-half coverage and seasonal sea conditions is a hypothesis to be tested, not a finding.

5. CONCLUSION

In island and coastal settings, the right to maternal, newborn and child health is decided at the water's edge, by whether a skilled provider, a safe referral and a functioning service can be reached in time. The international evidence and the South Buton case agree that formal entitlements such as insurance and minimum service standards are necessary but not sufficient. Districts should treat island-specific workforce, referral and quality obligations as binding legal duties, plan and report them island by island, and be held accountable for meeting them.

AUTHOR CONTRIBUTIONS

The CRediT taxonomy: conceptualisation, methodology, data curation, formal analysis, writing – original draft, writing – review and editing.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

This study analysed published literature and aggregated secondary data without personal identifiers, so it did not involve human participants directly. Use of the aggregated 2024 SPM report of UPTD Puskesmas Batauga was permitted from UPTD Puskesmas Batauga and the Buton Selatan District Health Office.

DATA AVAILABILITY STATEMENT

Search strategies are reported in Table 2. The complete screening log, eligibility decisions and extracted data are provided as Supplementary File S1. Population and workforce data are publicly available from BPS Buton Selatan Regency; the aggregated SPM data are available from the corresponding author on reasonable request with permission from the health centre.

DECLARATION OF GENERATIVE AI USE

The authors used an AI assistant (Claude, Anthropic) to support database searching, title and abstract screening, data extraction, language editing and document formatting. All screening decisions, extracted data, references and interpretations were checked by the authors, who take full responsibility for the content of the article.

APPENDIX

Table A1

Included studies (n = 66)

Study	Country / setting	MMAT design category	Theme(s)
Adnani et al., 2025	Indonesia	Quantitative non-randomised	2
Al-Mamun et al., 2025	Bangladesh (coast)	Quantitative non-randomised	1,6
Anindya et al., 2020	Indonesia	Quantitative non-randomised	5
Aryastami & Mubasyiroh, 2023	Indonesia	Quantitative non-randomised	5
Babona et al., 2025	Papua New Guinea	Mixed methods	4
Beek et al., 2021	Fiji, Tonga	Qualitative	Disaster
Bermejo et al., 2015	Philippines	Quantitative descriptive	1
Burhin et al., 2024	Solomon Islands	Qualitative	2
Cameron et al., 2019	Indonesia	Quantitative non-randomised	1,2
Chowdhury et al., 2022	Bangladesh	Mixed methods	3,5
Darwitri et al., 2025	Indonesia (Riau Islands)	Quantitative descriptive	3
Davis et al., 2016	5 Pacific island countries	Qualitative	6
Dawson et al., 2016	Papua New Guinea	Mixed methods	2
de los Reyes et al., 2024	Philippines (Coron Island)	Mixed methods	6
De Silva et al., 2020	Solomon Islands	Quantitative descriptive	4
De Silva et al., 2022	Solomon Islands	Quantitative non-randomised	4
Homer et al., 2017	12 Pacific island states	Quantitative descriptive	2
Idris & Anisah, 2024	Indonesia	Quantitative non-randomised	1
Jannat et al., 2024	Bangladesh	Mixed methods	1,3
Jannat et al., 2025	Bangladesh	Quantitative non-randomised	1
Jeffers et al., 2022	US Virgin Islands	Qualitative	Disaster
Karim et al., 2020	Bangladesh	Quantitative non-randomised	4
Kaspar et al., 2020	Samoa	Other	4
Kassim et al., 2017	Comoros	Quantitative descriptive	1
Kelly et al., 2023	9 small island developing states	Other	5
King & Jones, 2019	Timor-Leste	Qualitative	6
Kluckow et al., 2018	Solomon Islands	Quantitative non-randomised	6
Lafarga Previdi et al., 2022	Puerto Rico (US)	Qualitative	Disaster
Laksono et al., 2020	Indonesia	Quantitative non-randomised	1
Lee et al., 2023	Indonesia	Quantitative non-randomised	5
Li et al., 2017	Kiribati	Quantitative non-randomised	3
Mochache et al., 2020	Kenya (coast)	Qualitative	6
Moindi et al., 2016	Kenya (coast)	Mixed methods	1
Moreno-Oliveras et al., 2023	Tanzania (Zanzibar)	Quantitative descriptive	4
Nababan et al., 2017	Indonesia	Quantitative descriptive	1
Nasir et al., 2016	Indonesia (Sumba, Cianjur)	Qualitative	6
Ndimbii et al., 2018	Kenya (coast)	Qualitative	6
Pagalday-Olivares et al., 2017	Ghana (lake islands)	Mixed methods	3
Putri et al., 2025	Indonesia (Papua)	Quantitative non-randomised	5
Rambu Ngana & Eka Karyawati, 2021	Indonesia (East Nusa Tenggara)	Other	3
Reyes, 2021	Puerto Rico (US)	Qualitative	2,Disaster
Rizkianti et al., 2021	Indonesia	Quantitative non-randomised	1,5
Sansosti et al., 2025	Italy (Lampedusa)	Quantitative non-randomised	3
Saputri et al., 2020	Indonesia	Quantitative descriptive	6
Saputri et al., 2024	Indonesia (Riau Islands)	Quantitative descriptive	3
Seidu et al., 2022	Papua New Guinea	Quantitative non-randomised	1,6

* Universitas Pelita Ibu, Kendari, Southeast Sulawesi, Indonesia
Email: sulfiantiayusuf@gmail.com

Study	Country / setting	MMAT design category	Theme(s)
Sharma et al., 2021	India (Andaman & Nicobar)	Quantitative descriptive	3
Shen et al., 2023	Papua New Guinea	Quantitative non-randomised	6
Situmorang et al., 2022	Indonesia (Papua)	Qualitative	6
Ssetaala et al., 2020	Uganda (lake islands)	Quantitative non-randomised	1
Ssetaala et al., 2022	Uganda (lake islands)	Quantitative non-randomised	3
Sugawara et al., 2016	Japan (Miyagi coast)	Quantitative descriptive	Disaster
Sumikawa et al., 2020	Japan (islands)	Quantitative descriptive	3
Titaley et al., 2025	Indonesia (eastern)	Quantitative non-randomised	1
Tjokroprawiro et al., 2024	Indonesia	Other	3
Tosif et al., 2018	Solomon Islands	Quantitative descriptive	2,4
Tosif et al., 2020	Solomon Islands	Quantitative non-randomised	4
Utomo et al., 2025	Indonesia	Other	1
Vadrevu & Kanjilal, 2016	India (Sundarbans)	Other	1,3
Valentín-Cortés et al., 2025	Puerto Rico (US)	Quantitative non-randomised	Disaster
Wenang et al., 2024	Indonesia	Other	2,4
Wentworth & Blalock, 2025	Vanuatu	Qualitative	6
Widyaningsih et al., 2025	Indonesia	Quantitative non-randomised	1
Wulandari et al., 2025	Indonesia (Maluku)	Quantitative non-randomised	3
Yadav et al., 2022	India (Andaman & Nicobar)	Quantitative descriptive	2,3
Zaluchu & Meher, 2025	Indonesia (Nias Island)	Qualitative	6

Note. Themes: 1 geography and inequity; 2 workforce; 3 referral and duty of care; 4 preventable harm and accountability; 5 financial entitlement; 6 autonomy, gender and respectful care; Disaster = cross-cutting disaster theme. Year refers to the journal issue year.

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