

Determinants of Household Health Expenditure in Indonesia: A Systematic Literature Review and Evidence Synthesis

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Abstract. Universal health coverage (UHC) requires not only access to essential services but also effective financial protection against out-of-pocket (OOP) payments and catastrophic health expenditure (CHE). This review aims to synthesize empirical evidence on the determinants of household health expenditure in Indonesia and to identify the factors most consistently associated with higher OOP and CHE. A systematic literature review was undertaken using PRISMA-oriented procedures and targeted searches across PubMed, SpringerLink, PLOS, Frontiers, Wiley Online Library, BMJ Open, and indexed Indonesian journals for studies published from 2015 to 2025. Fourteen eligible studies were included in the final narrative synthesis. The evidence indicates that household health expenditure in Indonesia is shaped by five interacting domains: socioeconomic status and capacity to pay, insurance coverage and benefit design, morbidity burden and multimorbidity, healthcare utilization and provider choice, and residential-contextual factors. Poor households were more likely to experience CHE, whereas better-off households often incurred higher absolute OOP because of greater service use and stronger reliance on private providers. National Health Insurance (JKN) generally reduces direct payments, but its protective effect remains incomplete in settings marked by medicine stock-outs, private provider use, limited contracting, and supply-side constraints. Chronic disease, hospitalization, multimorbidity, and the presence of elderly members further increased financial vulnerability. The findings suggest that household health expenditure in Indonesia reflects the interaction between health need, health system design, and unequal service availability rather than income alone. Policy responses should therefore prioritize high-need households, strengthen financial protection under JKN, improve medicine availability, and expand equitable primary care capacity across regions.

Keywords: Universal health coverage, Out-of-pocket expenditure, Catastrophic health expenditure, National Health Insurance, Indonesia, systematic review.

INTRODUCTION

Universal health coverage (UHC) is achieved when all people receive the health services they need without experiencing financial hardship. Within the global monitoring framework, financial protection remains one of the most important indicators because direct payments to households continue to push many people into poverty or force them to delay care [WHOa, 2025; WHOb, 2025]. Although global progress has been recorded, recent WHO–World Bank monitoring shows that progress in service coverage and financial protection has slowed since 2015 [WHO, 2025].

Indonesia offers an important context for examining household health expenditures, as it operates one of the world's largest national social health insurance systems through the National Health Insurance (JKN). The expansion of JKN coverage has improved access and strengthened the role of public financing. However, national health accounts indicate that out-of-pocket (OOP) spending remains substantial, reaching 28.3% of current health expenditures in 2024, suggesting that financial risk protection is improving but remains incomplete [WHO, 2024; WGB, 2025].

At the household level, financial burdens persist in several forms. Previous studies in Indonesia have documented persistent catastrophic health expenditures (CHE), poverty due to health payments, direct costs related to childbirth, disease-specific catastrophic costs, and substantial OOP expenditures among insured households [Aji et al, 2013 ; Aizawa, 2019]. These patterns suggest that insurance expansion alone does not automatically eliminate household vulnerability.

This issue is analytically important because high household health expenditures can be expressed in at least two related but distinct ways. The first is absolute out-of-pocket (OOP) expenditure, which reflects the level of direct payments. The second is household health expenditure (CHE), which reflects whether health expenditures exceed a certain share of household resources. Richer households may spend more in absolute terms without experiencing disaster, while poorer households may spend less in nominal terms but face severe financial hardship due to limited ability to pay [WHO, 2025; Aji et al, 2013; Couturier et al, 2022].

Another challenge relates to methodological heterogeneity. Studies in Indonesia use different

denominators, thresholds, and outcome definitions, including levels of out-of-pocket expenditure (OOP), health expenditure (CHE) at 10% or 25% of household expenditure, catastrophic maternity expenditure, and total catastrophic costs associated with specific diseases such as tuberculosis [WHO, 2025; Aizawa, 2019; Anindya 2021; Couturier et al, 2022]. This variation complicates comparisons between studies and hampers the direct translation of findings into policy design.

The available literature is also fragmented. Existing studies tend to focus separately on household surveys, maternal delivery care, multimorbidity, tuberculosis, cardiovascular disease, or the COVID-19 period [Aizawa, 2019; Maulana et al, 2022; Hafidz et al, 2023; Ramadani, 2024]. What is still lacking is an Indonesia-focused synthesis that compares these various aspects within a single analytical framework and clarifies which determinants are consistent, which are context-dependent, and how these factors operate through health needs, insurance design, and the service environment.

Based on these gaps, this review has two novelties. First, it integrates general household expenditure studies with disease- and service-specific evidence into a comparative synthesis. Second, it distinguishes the determinants of absolute out-of-pocket (OOP) expenditure from those of household health expenditure (CHE), thus avoiding conceptual conflation. Thus, this study aims to systematically review and critically synthesize the determinants of household health expenditure in Indonesia during 2015–2025 and to derive policy implications for strengthening financial risk protection under Universal Health Coverage (UHC).

METHODS

Review design and guidelines

This study was designed as a systematic literature review with a comparative narrative synthesis. The review was prepared in accordance with the PRISMA reporting principles for identification, screening, eligibility assessment, and synthesis. Meta-analysis was not performed because the included studies used heterogeneous outcomes, thresholds, and analytical models. Therefore, the synthesis emphasized the consistency, directionality, and contextual variation of associations across studies.

Search strategy

An electronic search was conducted in PubMed, SpringerLink, PLOS, Frontiers, Wiley Online Library, BMJ Open, and an indexed Indonesian journal platform. The search terms included “Indonesia,” “household health expenditure,” “out-of-pocket expenditure,” “out-of-pocket health expenditure,” “financial protection,” “JKN,” “childbirth costs,” “multimorbidity,” “COVID-19,” and “tuberculosis.” The publication period was limited to January 2015 to April 2025. Backward citation tracking was also used to identify relevant empirical studies.

Eligibility Criteria

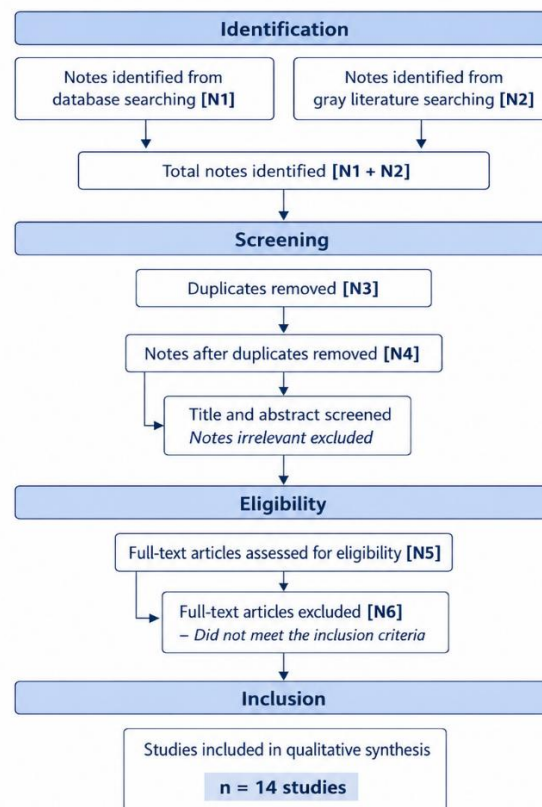
Studies were included if they were empirical quantitative or mixed methods articles; focused on household-level health expenditure, out-of-pocket expenditure (OOP), out-of-pocket health expenditure (CHE), or closely related financial hardship outcomes; were conducted in Indonesia; published in a peer-reviewed journal between 2015 and 2025; and were available in full text. Editorials, commentaries, protocols, macro-level financing studies without household-level outcomes, and articles lacking sufficient information for extraction were excluded.

Selection process

Titles and abstracts were screened first, followed by a full-text review of potentially eligible studies. A database search identified [N1] records, and additional [N2] records were identified through backward citation tracking. After removal of [N3] duplicates, [N4] records were screened. A total of [N5] full-text articles were assessed for eligibility, with [N6] excluded for not meeting the inclusion criteria. Fourteen studies were included in the final qualitative synthesis. Highlighted values should be supplemented from the original database export and screening log before submission.

Data extraction and synthesis

Data were extracted regarding publication year, study design, data source, study population, expenditure outcomes, operational definitions, analytical approach, and reported determinants. The synthesis grouped determinants into six domains: (1) economic status and ability to pay; (2) insurance coverage and benefit design; (3) morbidity burden and health needs; (4) health service utilization and provider choice; (5) residential and regional context; and (6) household composition and sociodemographic factors. The narrative synthesis then assessed whether the direction of associations was consistent, mixed, or context-dependent.



Quality assessment

A 12-item assessment checklist was applied to assess clarity of objectives, transparency of sampling, adequacy of data sources, definition of outcomes, specification of determinants, appropriateness of statistical analyses, control of confounding factors, transparency of limitations, and policy relevance. Studies were categorized as high-quality (10–12), moderate-quality (7–9), or low-quality (≤ 6). Based on this assessment, nine studies were classified as high-quality and five as moderate-quality. No studies included in this assessment were rated as low-quality.

RESULTS AND DISCUSSION

Results

Characteristics of included studies

Fourteen studies were included in the final synthesis. Most studies used secondary datasets, primarily the Indonesian Family Life Survey (IFLS), the National Socioeconomic Survey (SUSENAS), national health insurance claims, or facility-based household surveys. Outcome measures varied, including annual out-of-pocket expenditures, major health expenditures (CHE), emergency delivery expenditures, total emergency tuberculosis costs, and COVID-19-related household expenditures. Most analyses employed multivariate regression techniques such as logistic regression, quantile regression, multilevel modeling, panel analysis, and difference-in-differences approaches.

Table 1. Characteristics of included studies

Study	Data/source	Results	The main determining factor
Aji et al., 2017	Panel household data	Terrible and impoverishing health expenditure	Insurance status, income, poverty transition
Fuady et al., 2018	Households affected by TB	The total cost of TB is enormous	Poverty, loss of income, burden of disease
Aizawa, 2019	Survey data related to shipping	Cash on delivery	Type of insurance, utilization of services
Nugraheni et al., 2020	IFLS-5	Out-of-pocket (OOP) shipping costs and huge shipping expenses.	JKN usage, facility type, geography

Anindya et al., 2021	IFLS-5 adults ≥ 40 years	Expenditure and use of services outside the budget (OOP).	Multimorbidity, age, utilization
Husna and Sukartini, 2021	IFLS 2007 and 2014	CHE	Occupation, household size, age, insurance, visits, residence
Marthias et al., 2021	Population-based panel data	CHE and lost productivity	Non-communicable diseases, multimorbidity, education, expenditure
Maulana et al., 2022	SUSENAS 2018–2019	OOP Household	JKN, wealth quintile, region, provider type
Couturier et al., 2022	Facility-based survey	OOPE under JKN	Patient flow, provider experience
Hafidz et al., 2023	Quick online survey	Personal expenses and disaster costs related to COVID-19	Income shocks, pandemic care costs
Fattah et al., 2023	Household panel survey	Huge health expenditure	JKN, wealth, rural residence, use of private facilities
Ramadani et al., 2024	NHI claims data	Outpatient and inpatient costs	Cardiovascular disease with multimorbidity, availability of primary health care services.
Afrizal et al., 2025	IFLS Wave 5	CHE	Expenses, working members, insured members, chronic illness
Wijayati and Handayani, 2025	SUSENAS 2013–2014 and 2019–2020	OOP Household	Implementation of BPJS, disease, utilization

Socioeconomic status and ability to pay

Economic status was the most consistent determinant across the reviewed literature. In studies using a threshold of large health expenditure (CHE) or very large health expenditure, poorer households were more likely to face financial hardship because even modest out-of-pocket payments represent a large portion of available resources [Aizawa, 2019; Couturier et al, 2022; Fuady, 2018; Ramadani et al, 2024].

In contrast, studies that focus on absolute OOP values often show higher monetary expenditures among wealthier households. This pattern is largely explained by higher service utilization and greater use of private providers among wealthier groups [Aji et al, 2017; Maulana et al, 2022]. Therefore, evidence suggests that poverty increases disaster risk, while prosperity can increase nominal expenditures.

Insurance coverage and benefit design

Insurance coverage, particularly the National Health Insurance (JKN), is generally associated with lower out-of-pocket (OOP) expenditures and lower disaster risk [Aji et al, 2013; Aji et al, 2017; Anindya et al, 2021; Fuady et al, 2018]. Previous Indonesian evidence has shown that public insurance reduces out-of-pocket (OOP) expenditures, and more recent studies confirm that JKN members are less likely than uninsured households to make out-of-pocket payments or experience out-of-pocket health expenditures (CHE) [Aji et al, 2013; Aji et al, 2017; Maulana et al, 2022; Fuady, 2018].

However, the effect of insurance coverage is neither complete nor absolute. Studies on childbirth have found that out-of-pocket (OOP) expenditures persist even among insured mothers due to limited drug availability, limited facilities, and service components that are not fully covered [Nugraheni et al, 2020; Anindya et al 2021]. Facility-based evidence also suggests that some JKN users still make payments at the point of service [Couturier, 2022]. Furthermore, a recent difference-in-differences study found that BPJS implementation increased observed household out-of-pocket expenditures, likely because insurance expansion stimulated service use rather than because coverage failed mechanically [Ramadani et al, 2024].

Morbidity burden and health needs

Health needs are another dominant determinant. Multimorbidity, chronic diseases, cardiovascular disease, tuberculosis, COVID-19, and repeated hospitalizations are associated with higher expenditures or higher risk of disaster [Aizawa, 2019; Husna, 2021; Marthias et al, 2021; Fattah et al, 2023; Ramadani et al, 2024].

Studies on multimorbidity show very strong and consistent effects. Anindya et al. reported that multimorbidity increases utilization and out-of-pocket expenditures (OOP), while Marthias et al. found that multimorbidity with non-communicable diseases increases healthcare expenditures (CHE) and lost productivity [Marthias et al, 2021; Maulana et al, 2022]. Ramadani et al. further showed that cardiovascular disease combined with multimorbidity results in significantly higher costs [Fattah et al, 2023]. These findings suggest that disease burden is not a peripheral factor but one of the main pathways

pushing households into financial stress.

Utilization of health services and choice of service providers

Healthcare utilization emerges as a direct determinant linking need, insurance coverage, and payment. Outpatient visits, inpatient care, and intensive treatment pathways consistently increase out-of-pocket (OOP) and ongoing healthcare expenditures (CHE) [Nugraheni et al, 2020; Husna, 2021; Couturier et al 2023; Fuady et al, 2018; Ramadani et al, 2024]. Households requiring inpatient care are particularly vulnerable because the intensity and continuity of care often result in recurring out-of-pocket payments.

The choice of service provider is also important. The use of private facilities is generally associated with higher out-of-pocket expenses and a higher risk of disaster compared to the use of public primary care facilities [Nugraheni et al, 2020; Anindya et al, 2021; Maulana et al, 2022; Fuady et al, 2018]. These findings imply that the financial protection obtained through insurance depends not only on membership status but also on the actual provider pathway through which care is sought.

Place of residence, household composition, and contextual factors

Residential and contextual factors show more diverse patterns. Some studies have found higher risks among rural households and geographically disadvantaged areas [Maulana et al, 2022; Fuady et al, 2018]. However, the lower expenditures observed in remote areas may partly reflect underutilization or limited availability of services rather than better financial protection [Maulana et al, 2022; Fattah et al, 2023].

Household composition also contributes to spending patterns. Larger households, older members, and greater dependency burdens are often associated with higher financial vulnerability [Aizawa, 2019; Marthias et al, 2021; Ramadani et al, 2024]. Education, household head occupation, and the number of employed or insured members are significant in some models, although the direction of the effect varies depending on whether the outcome is absolute out-of-pocket spending or health spending [Aizawa, 2019; Ramadani et al, 2024].

Table 2. Summary of determining patterns

Domain of determination	Direction	Consistency	Interpretation
Low economic status	Increases the risk of CHE	Tall	Decreased ability to pay makes even moderate out-of-pocket expenses (OOP) a disaster.
Higher income/wealth	Can increase absolute cash outlay.	Currently	Higher utilization and wider use of private services
JKN / insurance coverage	Generally reduce OOP and CHE	High but context dependent.	Protection depends on provider access and service readiness.
Chronic disease / multimorbidity	Improving OOP and CHE	Tall	The strongest driving factor related to the need
Inpatient/outpatient use	Increase the expense burden	Tall	The main path translates needs into payments
Use of private facilities	Increased off-budget (OOP) and disaster expenditure.	Tall	Higher risk of costs beyond optimal insurance coverage.
Rural/remote residences	Often increases the risk	Currently	Reflecting vulnerability and uneven availability of services
Large household / many elderly	Usually increases the risk	Currently	Higher dependency burden and intensity of needs

Discussion

This review shows that household health expenditure in Indonesia is shaped by the interaction of health needs, financial protection, and the service environment. The strongest determinants are not isolated socioeconomic characteristics, but rather a combination of poverty, multimorbidity, hospitalizations, and provider pathways. Poor households with high clinical needs remain the most vulnerable to dire consequences.

The main finding is that insurance is protective but incomplete. The literature consistently shows that JKN reduces the risk of out-of-pocket payments, but does not eliminate the burden on households. Persistent out-of-pocket (OOP) expenditures among insured households appear to be due to drug shortages, incomplete provider contracts, uncovered components, and increased service utilization enabled by insurance [Nugraheni et al, 2020; Anindya et al, 2021; Maulana et al, 2022; Couturier et al,

2022; Ramadani *et al*, 2024]. This explains why some studies report lower catastrophic risk with insurance while others observe stable or even higher absolute out-of-pocket expenditures after insurance expansion.

This review also clarifies a paradox apparent in geographically disadvantaged settings. Lower out-of-pocket (OOP) spending in remote areas does not necessarily indicate better financial protection. In some contexts, it may instead reflect missed care, poor service availability, or limited access to diagnostics. For this reason, low spending should not be interpreted in isolation from service access and unmet needs.

Methodologically, the reviewed studies underscore the importance of distinguishing absolute out-of-pocket expenditure (OOP) from out-of-pocket household expenditure (CHE). These two outcomes capture different dimensions of household burden and can yield different associations for the same determinants. This is particularly evident for economic status, where wealthier households often spend more in absolute terms, while poorer households face higher disaster risks.

The policy implications are clear. Financial protection should be targeted not only based on income but also on health needs. Households with chronic diseases, multimorbidity, hospitalizations, and elderly members require stronger protection. Therefore, JKN reform must be accompanied by increased drug availability, better engagement with private providers, stronger referral compliance, and more equitable strengthening of primary care across provinces. The monitoring system should also report out-of-pocket expenditures (OOP) and health expenditures (CHE) by wealth quintile, region, provider type, and disease profile.

CONCLUSION

Household health expenditure in Indonesia is determined by a multidimensional interaction between economic capacity, insurance coverage, morbidity burden, service utilization, provider choice, and regional context. The most consistent determinants of financial vulnerability are low socioeconomic status, chronic diseases and multimorbidity, hospitalization, and dependence on private providers.

Although the National Health Insurance (JKN) has strengthened financial protection, out-of-pocket payments remain large and unevenly distributed. Evidence in Indonesia suggests that household financial hardship cannot be explained by income alone. It arises through a combination of health needs and health system design. Therefore, future policies should prioritize households in greatest need, strengthen supply-side preparedness, and standardize monitoring of out-of-pocket (OOP) and uninsured health expenditures (CHE) to better support universal health coverage (UHC).

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