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Factors Influencing Capitation Fund Utilization in Public Health Centers

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ABSTRACT

This study examines the effects of the National Health Insurance (Jaminan Keseh Nasional/JKN) program socialization, service accessibility, service quality, and he workforce competence on the utilization of capitation funds at the Mayamuk Pu Health Center, Sorong Regency, Indonesia. It also investigates whether health ce characteristics, community characteristics, and internal policies moderate t relationships. A quantitative approach was applied using a survey method. The s population comprised JKN outpatient participants within the service coverage are the Mayamuk Public Health Center. Samples were selected through probab sampling based on predefined inclusion criteria. Data analysis was conducted u Structural Equation Modeling–Partial Least Squares (SEM-PLS) with the suppo SmartPLS software. The findings reveal that JKN program socialization, ser quality, and health workforce competence have a positive and statistically signifi effect on the utilization of capitation funds. In contrast, service accessibility does demonstrate a significant effect. Simultaneously, the independent varia collectively exert a significant influence on capitation fund utilization. How health center characteristics, community characteristics, and internal policies are found to moderate the relationships between the independent variables and capita fund utilization. These results indicate that the effectiveness of capitation utilization in public health centers is primarily determined by institutional and hu resource factors rather than by accessibility or contextual moderating fac Therefore, policy interventions should prioritize strengthening JKN prog socialization, enhancing service quality, and improving health workforce compet to optimize capitation fund management, particularly in resource-constrained reg such as Sorong Regency.

INTRODUCTION

The National Health Insurance program (Jaminan Kesehatan Nasional/JKN), launched on January 1, 2014, was designed to accelerate Universal Health Coverage (UHC) by ensuring access to essential, quality health services without creating financial hardship (Ministry of Health of the Republic of Indonesia, 2014b; WHO, 2010). In line with Sustainable Development Goals (SDGs) target 3.8, JKN coverage has expanded substantially and is reported to reach approximately 96% of the Indonesian population by 2023. JKN incorporates promotive, preventive, curative, and rehabilitative services and positions primary health care particularly Community Health Centers (Puskesmas) as the frontline for delivering comprehensive services. In this context, primary care financing relies heavily on capitation, governed through key national regulations, including Presidential Regulation No. 32 of 2014 and Ministerial Regulation No. 21 of 2016 (Ministry of Health of the Republic of Indonesia, 2016; Republic of Indonesia, 2014).

Despite this institutional progress, evidence suggests that the utilization of capitation funds at Puskesmas remains inconsistent and often suboptimal. A recurring indicator is the persistence of budget surpluses (SiLPA), implying that allocated capitation funds are not fully translated into service improvements or operational needs (Nuraini & Lestari, 2020; Oktapianti et al., 2024). Prior empirical studies identify several determinants that may constrain effective utilization, including limited program socialization (Anwar et al., 2025; Rahayu et al., 2022), inadequate service accessibility (Shofiyah & Bastian, 2020), service quality deficiencies (Ginting et al., 2025), and gaps in health workforce competence (Geodesi & Wardani, 2022). Conceptually, these factors represent both demand-side mechanisms (e.g., awareness and perceived value shaped through socialization) and supply-side mechanisms (e.g., service readiness, quality delivery, and workforce capability) that jointly influence whether capitation funds are operationalized into effective service provision.

However, the existing literature remains fragmented in at least two critical ways. First, many studies predominantly emphasize administrative compliance and regulatory arrangements of capitation management, while providing limited empirical evidence on how behavioral and service-delivery drivers such as program socialization, accessibility, service quality, and workforce competence simultaneously shape capitation fund utilization outcomes (Pertiwi et al., 2025). Second, there is a lack of integrative evidence from geographically constrained and resource-limited settings, where contextual constraints may alter the effectiveness of capitation financing. These gaps indicate that current knowledge is insufficient to explain why capitation funds remain underutilized even when financing

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mechanisms and regulations are formally in place.

This study addresses these gaps by developing and testing an integrative model of capitation fund utilization in primary health care. Specifically, it examines the relationships between JKN program socialization, service accessibility, service quality, and health worker competence and their effects on capitation fund utilization. In addition, this study extends prior work by assessing whether contextual conditions health center characteristics, community characteristics, and internal policy moderate these relationships. Such moderators are theoretically important because capitation utilization is not solely determined by individual perceptions or service factors, but may also depend on institutional readiness, population profiles, and internal governance arrangements that shape how resources are planned and executed (Mentari & Susilawati, 2022).

Empirically, this study focuses on the Mayamuk Community Health Center in Sorong Regency, West Papua an area characterized by geographical constraints and infrastructure limitations that may intensify barriers to effective fund utilization. Evidence from Mayamuk indicates that, despite available capitation resources, utilization remains limited due to weak planning capacity, constrained human resources, and administrative bottlenecks. Furthermore, the high surplus in the 2024 Health Operational Assistance (BOK) fund highlights a persistent mismatch between allocations and realizable spending within the health center's operational environment (Rahmad Hidayat et al., 2025). These contextual conditions provide a relevant setting to test whether service-related factors remain dominant drivers of capitation utilization, or whether local characteristics condition these relationships.

Despite the growing body of literature on capitation-based financing under Indonesia's National Health Insurance (JKN) scheme, empirical evidence on the determinants of capitation fund utilization remains fragmented. Most existing studies predominantly emphasize administrative compliance, regulatory frameworks, and financial governance, while providing limited integrative analysis of how service-related and human resource factors jointly influence the effective utilization of capitation funds at the primary health care level. In addition, empirical studies that explicitly incorporate contextual conditions such as health center characteristics, community characteristics, and internal policy environments remain scarce, particularly in geographically constrained and resource-limited settings.

This study addresses these gaps by developing and empirically testing an integrative model that examines the effects of JKN program socialization, service accessibility, service quality, and health worker competence on capitation fund utilization, while simultaneously assessing the moderating roles of health center characteristics, community characteristics, and internal policies. By focusing on a Community Health Center in Sorong Regency, West Papua an underrepresented context in health financing research this study offers novel insights into how institutional capacity, workforce competence, and contextual factors interact to shape the effectiveness of capitation-based financing in primary health care systems.

Accordingly, the objective of this study is to examine how JKN program socialization, service accessibility, service quality, and health worker competence influence capitation fund utilization in primary health care settings in Sorong Regency, and whether health center characteristics, community characteristics, and internal policies strengthen or weaken these effects. The study is expected to contribute theoretically by clarifying the relative importance of demand-side and supply-side determinants in capitation fund utilization and by extending evidence from underrepresented regions. Practically, it provides implications for Puskesmas management, local governments, and BPJS Kesehatan to improve the effectiveness of capitation financing through strengthened socialization strategies, service quality enhancement, and workforce capacity building, while recognizing contextual constraints in resource-limited settings (Rahmad Hidayat et al., 2025; Novyandina et al., 2025).

LITERATURE REVIEW

Socialization of the National Health Insurance Program (X1)

The socialization of the National Health Insurance (Jaminan Kesehatan Nasional/JKN) program constitutes a fundamental mechanism in public policy implementation that shapes public awareness, understanding, and behavioral engagement with health services. From a policy communication and diffusion perspective, effective socialization enhances individuals' knowledge of entitlements, service pathways, and procedural requirements, which subsequently influences health service utilization patterns. In the context of capitation-based financing, such utilization is essential for translating allocated funds into operational service delivery at Community Health Centers.

Empirical studies consistently indicate that inadequate or fragmented JKN socialization constrains public comprehension of program benefits and procedures, thereby limiting service uptake (Anindita et al., 2024; Anwar et al., 2025; Raharni et al., 2021). Dewanto et al (2021) further demonstrate that the absence of dedicated personnel and structured communication strategies results in inconsistent information dissemination, weakening the demand-side stimulation necessary for effective program implementation. As a consequence, health facilities may experience low service utilization despite the availability of capitation funds.

Theoretically, effective socialization increases service utilization by reducing informational barriers and uncertainty among participants, which in turn enhances the absorption and functional use of capitation funds. Therefore, stronger JKN program socialization is expected to positively influence capitation fund utilization by encouraging greater engagement with primary health care services.

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Service Accessibility (X2)

Service accessibility refers to the extent to which individuals are able to obtain needed health services without excessive physical, financial, or procedural barriers. Accessibility encompasses multiple dimensions, including geographical distance, transportation availability, affordability, travel time, and administrative simplicity (Ouma et al., 2021). Within a capitation-based system, accessibility determines whether services financed through capitation are practically reachable by the target population.

Previous studies suggest that limited accessibility remains a critical constraint on health service utilization, particularly in geographically dispersed or infrastructure-limited regions (Ramadina et al., 2021). Nugraha et al. (2025) emphasize that accessibility is not solely determined by physical proximity but is also shaped by patients' understanding of service procedures, referral mechanisms, and digital platforms such as the Mobile JKN application. When administrative complexity and informational gaps persist, service access may remain limited even when facilities and funding are formally available.

From a conceptual standpoint, improved accessibility is expected to facilitate higher service utilization, thereby increasing the operational use of capitation funds. However, empirical findings across contexts remain mixed, suggesting that accessibility alone may be insufficient to drive utilization in the absence of complementary factors such as service quality and workforce competence. This indicates the need to empirically test the extent to which accessibility contributes to capitation fund utilization within specific local contexts.

Service Quality (X3)

Service quality represents a core determinant of health service utilization and sustainability. According to Donabedian's framework, quality in health services is reflected through structural readiness, service delivery processes, and health outcomes (Geodesi & Wardani, 2022). High-quality services are characterized by safety, effectiveness, efficiency, timeliness, patient-centeredness, and equity (Alhur et al., 2022). In primary health care settings, service quality directly influences patient satisfaction and repeat utilization.

Empirical evidence indicates that deficiencies in service quality discourage service use and contribute to underutilization of capitation funds, often manifested through persistent budget surpluses (Feeley, 2020; Goltz et al., 2022; Sudirman et al., 2024) highlight responsiveness as a critical quality dimension, emphasizing the ability of health workers and administrative staff to address patient needs promptly and appropriately. When services fail to meet patient expectations, utilization declines regardless of funding availability.

Theoretically, higher service quality increases patient trust and perceived value, encouraging greater service uptake and continuity of care. This increased utilization directly enhances the functional absorption of capitation funds at Community Health Centers. Consequently, servicequality is expected to have a positive and significant influence on capitation fund utilization.

Competence of Health Workers (X4)

Health worker competence encompasses the knowledge, technical skills, and professional attitudes required to deliver services in accordance with established standards. Competent health personnel are essential for ensuring service safety, effectiveness, and patient satisfaction, particularly within primary health care systems (Faida, 2019; Hermawati et al., 2019). In Indonesia, regulatory frameworks mandate that Community Health Centers maintain adequate numbers and categories of health workers to meet service demands.

Empirical studies consistently demonstrate that limited competence among health workers leads to substandard service delivery, reduced patient satisfaction, and declining utilization rates (Nuraini & Lestari, 2020; Zhang et al., 2021). Conversely, investments in training, supervision, and professional development have been shown to improve service quality and operational efficiency in capitation-funded facilities (Indrawan, 2019;Mohiuddin, 2020). These improvements facilitate more effective use of available financial resources.

From a theoretical perspective, health worker competence functions as a critical supply-side driver that enables capitation funds to be converted into tangible health services. Higher competence enhances service delivery capacity and supports sustained utilization, thereby strengthening capitation fund absorption. Accordingly, health worker competence is expected to positively affect the utilization of capitation funds in primary health care facilities.

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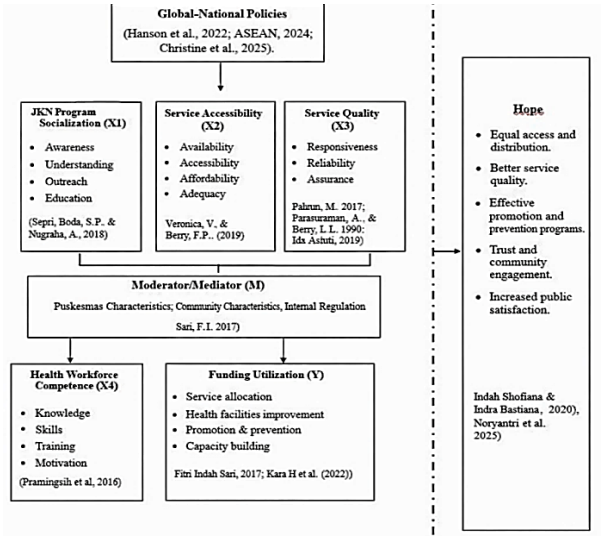


Figure 1. Research Framework

H1: There is a relationship between the socialization of the National Health Insurance (JKN) program and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.
H2: There is a relationship between service accessibility and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.
H3: There is a relationship between service quality and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.
H4: There is a relationship between health worker competence and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.
H5: There is a relationship between the socialization of the National Health Insurance (JKN) program, service accessibility, service quality, and health worker competence simultaneously and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.
H6: There is a relationship between health center characteristics, community characteristics, or internal policies that moderate the relationship between the socialization of the National Health Insurance (JKN) program, service accessibility, service quality, and health worker competence and the utilization of capitation funds at the Mayamuk Community Health Center in Sorong Regency.

METHOD

This study uses an associative method. According to Sugiyono (2024), quantitative research is a research method based on the philosophy of positivism, by examining a specific population or sample, sampling is carried out using certain techniques, data collection using research instruments, and data analysis is statistical. The quantitative research paradigm emphasizes the causal relationship between variables. The object of this study is the Mayamuk Community Health Center in Sorong Regency and patients who are participants in the National Health Insurance (JKN) in the Puskesmas's working area. This location selection is based on several scientific considerations.

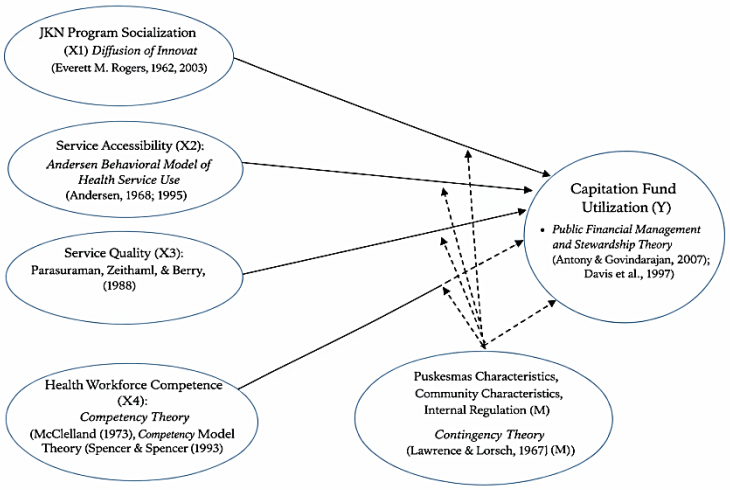


Figure 2. Research Model

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First, the Puskesmas is a first-level health facility (FKTP) that directly receives and manages capitation funds from BPJS Kesehatan in accordance with the provisions of Presidential Regulation No. 32 of 2014 and Ministerial Regulation No. 21 of 2016, so it is very relevant to the research variables regarding the utilization of capitation funds. The data or analysis supporting the research is as follows:

Population and Sample

According to Arikunto (2019), population is the entirety of research objects which can be humans, animals, plants, air, symptoms, values, events, or attitudes to life which are the source of research data.
In this study, the population was all JKN participants who registered and utilized health services at the Mayamuk Community Health Center in Sorong Regency, Southwest Papua, with a population of 11,000 people.

Table 1. Research Population of JKN Participants Mobile Data 2025

NO	RESEARCH POPULATION	AMOUNT
1	Population in the Mayamuk area of Sorong Regency	11.250
2.	JKN participants at the Mayamuk Community Health Center, Sorong Regency	11.000

According to Arikunto (2019), a sample is understood as a portion or representative of the population being studied.

This study used a non-probability sampling technique with an accidental sampling approach. This technique was chosen because the researcher took samples from anyone who happened to come to the Community Health Center and agreed to be a respondent during data collection. The accidental sampling technique was used because the number of people visiting the Community Health Center each day could not be determined with certainty. Therefore, the sample size was not calculated using the Slovin formula but was instead adjusted to field conditions during the data collection process. The data collection process was planned to last one week, until a sufficient number of respondents was obtained to reflect the population's condition, depending on the frequency of community visits to the Community Health Center during the study period.

Data Analysis Method and Hypothesis Testing

The data analysis process in this study involved several stages: editing, coding, and tabulation. The questionnaire data was first checked (edited) to ensure completeness and consistency. Next, each respondent's answer was coded according to the Likert scale used. The data was then tabulated to facilitate further analysis (Sugiyono, 2019). The collected data was then processed and analyzed to produce a conclusion.

$$RS = \frac{n(m-1)}{m}$$

Description:
• n = number of samples
• m = number of alternative answers

To determine the ranking of each research variable, a comparison between the actual score and the ideal score is used. The actual score is obtained from respondents' answers, while the ideal score is the highest possible score (number of items × highest weight × number of respondents). Therefore, the percentage classification of respondents' scores can be done by comparing the two according to predetermined criteria.

Structural Equation Modeling (SEM) is a statistical analysis method widely used in the social and behavioral sciences. SEM is a development of a combination of three main techniques: factor analysis, regression analysis, and path analysis (Hair et al., 2014). In practice, SEM is divided into two approaches: Covariance-Based SEM (CB-SEM), which focuses more on theory testing and confirmation, and Variance-Based SEM or Partial Least Squares SEM (PLS-SEM), which emphasizes prediction (Wong, 2013).

The selection of the PLS-SEM method in this study was based on data characteristics, model assumptions, and its advantages. According to Hair et al. (2014), there are several reasons for using PLS-SEM, including: first, this method is able to explain variance in key constructs, such as organizational performance or customer satisfaction; second, PLS-SEM still produces good statistical power even despite relatively small sample sizes; Third, this method is effective for testing complex models with many indicators and relationships between latent constructs. Furthermore, PLS-SEM is more flexible because it is less restrictive about data distribution assumptions, making it suitable for use in exploratory research.

RESULT

This research began with data collection from 101 respondents. After a rigorous screening process based on relevant criteria, the valid sample size for further analysis was 101 respondents. Respondent profiles were collected by including several screening questions at the beginning of the questionnaire to ensure that respondents who would complete the research questionnaire met the specified criteria.

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Respondent Criteria

This was followed by several behavioral questions.

Table 2. Respondent Gender

No.	Gender	Amount	Presentation (%)
1.	Man	30	**29.7%**
2.	Woman	71	**70.3%**
Total		**101**	**100%**

Source: Processed primary data, 2025

Based on the table above, it can be seen that respondents' gender is divided into two categories: male and female. Data collection resulted in 30 male respondents, or approximately 29.7%, and 71 female respondents, or approximately 70.3%. The predominance of female respondents in completing the questionnaire indicates that women play a more active role in accessing and utilizing health services at the community health center.

Table 3. Respondents' Age

No.	Age (Years)	Amount	Presentation (%)
1.	18 – 39	68	**67.3%**
2.	40 – 59	29	**28.7%**
3.	≥ 60	4	**4%**
Total		**100**	**100%**

Source: Processed primary data, 2025

Based on the table above, it can be explained that the majority of respondents were in the 18–39 age group (67.3%), followed by those aged 40–59 (28.7%), and only a small proportion were aged ≥60 (4%). This condition indicates that respondents were predominantly from the productive age group who were relatively active in accessing health information and services at community health centers.

Table 4. Distance

No.	Distance	Amount	Presentation (%)
1.	Near	34	**33.7%**
2.	Currently	48	**47.5%**
3.	Far	19	**18.8%**
Total		**101**	**100%**

Source: Processed primary data, 2025

Based on the distribution of distances from respondents' residences to community health centers, it was found that the majority of respondents were in the medium distance category (47.5%), followed by short distances (33.7%), and long distances (18.8%). This indicates that the majority of respondents still have a relatively adequate level of accessibility to community health center services.

Table 5. Respondent Access

No.	Access	Amount	Presentation (%)
1.	Motor	94	**93.1%**
2.	Car	5	**5%**
3.	Walk	2	**2%**
Total		**101**	**100%**

Source: Processed primary data, 2025

Based on the distribution of respondents' transportation access to the community health center, it was found that the majority of respondents used motorized vehicles (93.1%), while a small proportion used cars (5%) and walked (2%). This indicates that motorized vehicles are the primary means of access for the community to reach community health center services.

Table 6. Respondents' Monthly Income/Economics

No.	Monthly Income/Economy	Amount	Presentation (%)
1.	< Rp. 2.000.000	55	**54.5%**
2.	Rp. 2.000.001 – Rp. 3.600.000	36	**35.6%**
3.	> Rp. 3.600.001	10	**9.9%**
Total		**101**	**100%**

Source: Processed primary data, 2025

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Based on the distribution of respondents' monthly income levels, it is known that the majority of respondents have an income of < Rp2,000,000 (54.5%), followed by an income of Rp2,000,001–Rp3,600,000 (35.6%), and only a small portion with an income of > Rp3,600,001 (9.9%). This indicates that the majority of respondents are in the lower-middle economic group.

Table 7. Respondents' Education

No.	Education	Amount	Presentation (%)
1.	No school	7	**6.9%**
2.	elementary school	13	**12.9%**
3.	Junior High School	16	**15.8%**
4.	Senior High School	50	**49.5%**
5.	Studying	15	**14.9%**
	Total	**101**	**100%**

Source: Processed primary data, 2025

Based on the distribution of respondents' education levels, the majority had a high school education (49.5%), followed by those attending college (14.9%), junior high school (15.8%), elementary school (12.9%), and no education (6.9%). These findings indicate that most respondents have a relatively adequate level of secondary education to understand information related to health services and the National Health Insurance (JKN) program.

Table 8. Respondents' Occupations

No.	Work	Amount	Presentation (%)
1.	Unemployed	18	**17.8%**
2.	Civil Servant	8	**7.9%**
3.	Self-Employed	11	**10.9%**
4.	Housewife	38	**37.6%**
5.	Etc.	26	**25.7%**
	Total	**101**	**100%**

Source: Processed primary data, 2025

Based on the distribution of respondents' occupations, the majority were housewives (37.6%), followed by others (25.7%), unemployed (17.8%), self-employed (10.9%), and civil servants (7.9%). This composition indicates that most respondents have activities relatively close to their residential environment and the community health center.

Validity Test

The following presents the results of the outer loading for each indicator owned by the exogenous and endogenous variables obtained from the results of data processing using SmartPLS:

Table 9. Outer Loading Values

Variables	Indicator	Payload	Information
	M1	0,632	Valid
	M10	0,802	Valid
Moderation (M)	M2	0,621	Valid
Program Socialization (X1)	M3	0,692	Valid
Service Accessibility (X2)	M4	0,701	Valid
Service Quality (X3)	M5	0,735	Valid
Health Worker Competence (X4)	M6	0,771	Valid
	M7	0,611	Valid
	M8	0,797	Valid
	M9	0,744	Valid
Capitation Utilization (Y)	X1.1	0,230	Invalid
Moderation (M) x Program Socialization (X1)	X1.10	0,702	Valid
Moderation (M) x Service Accessibility (X2)	X1.2	0,631	Valid
Moderation (M) x Service Quality (X3)	X1.3	0,766	Valid
Variables Moderation (M) Program Socialization (X1)	X1.4	0,686	Valid
	X1.5	0,723	Valid
	X1.6	0,733	Valid
	X1.7	0,670	Valid
	X1.8	0,760	Valid
	X1.9	0,591	Valid

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Variables	Indicator	Payload	Information
Service Accessibility (X2)	X2.1	0,667	Valid
	X2.10	0,562	Valid
Service Quality (X3)	X2.2	0,743	Valid
	X2.3	0,743	Valid
Health Worker Competence (X4)	X2.4	0,775	Valid
	X2.5	0,652	Valid
Capitation Utilization (Y)	X2.6	0,700	Valid
	X2.7	0,798	Valid
Moderation (M) x Program Socialization (X1)	X2.8	0,741	Valid
	X2.9	0,503	Valid
	X3.1	0,719	Valid
Moderation (M) x Service Accessibility (X2)	X3.2	0,873	Valid
Moderation (M) x Service Quality (X3)	X3.3	0,792	Valid
Variables	X3.4	0,857	Valid
	X4.1	0,735	Valid
	X4.2	0,783	Valid
Moderation (M)	X4.3	0,763	Valid
Program Socialization (X1)	X4.4	0,850	Valid
Service Accessibility (X2)	X4.5	0,819	Valid
Service Quality (X3)	X4.6	0,841	Valid
	X4.7	0,853	Valid
	X4.8	0,875	Valid
	Y1	0,576	Valid
Health Worker Competence (X4)	Y10	0,825	Valid
Capitation Utilization (Y)	Y2	0,660	Valid
Moderation (M) x Program Socialization (X1)	Y3	0,730	Valid
	Y4	0,812	Valid
Moderation (M) x Service Accessibility (X2)	Y5	0,762	Valid
Moderation (M) x Service Quality (X3)	Y6	0,825	Valid
Variables	Y7	0,679	Valid
Moderation (M)	Y8	0,735	Valid
	Y9	0,752	Valid
	Moderation (M) x Program Socialization (X1)	1,000	Valid
Program Socialization (X1)	Moderation (M) x Service Accessibility (X2)	1,000	Valid
	Moderation (M) x Service Quality (X3)	1,000	Valid
Service Accessibility (X2)	Moderation (M) x Health Worker Competence (X4)	1,000	Valid

Source: Processed primary data, 2025

From the results above, all loading model indicators have values greater than 0.50, indicating that the construct is acceptable.

The next step in evaluating convergent validity, in addition to factor loadings, is the Average Variance Extracted (AVE) value, which is considered valid if its value is greater than 0.50.

Table 10. AVE (Average Variance Extracted) Value

Constructs	AVE	KET
Service Accessibility (X2)	0,514	Valid
Healthcare Worker Competence (X4)	0,666	Valid
Service Quality (X3)	0,660	Valid
Moderation (M)	0,510	Valid
Capitation Utilization (Y)	0,547	Valid
Program Socialization (X1)	**0,515**	Valid

Source: Processed primary data, 2025

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The Average Variance Extracted (AVE) value table shows the ability of each construct in the study to explain the variance of the indicators that form it. In the table, all research constructs have met the convergent validity criteria because they have an Average Variance Extracted (AVE) value ≥ 0.50. Service Accessibility (X2) has an AVE value of 0.514, which indicates that its indicators are able to explain more than 50% of the construct's variance and are therefore declared valid. Health Worker Competence (X4) obtained the highest AVE value of 0.666, which indicates the indicator's excellent ability to represent the construct. Service Quality (X3) also shows a high AVE value, namely 0.660, so it can be declared to have strong convergent validity.

Table 11. Composite Reliability and Cronbach Alpha

Variables	Cronbach's Alpha	Composite Reliability
Service Accessibility (X2)	0,880	**0,904**
Healthcare Worker Competence (X4)	0,928	**0,941**
Service Quality (X3)	0,826	**0,885**
Moderation (M)	0,892	**0,911**
Capitation Utilization (Y)	0,906	**0,923**
Program Socialization (X1)	**0,864**	**0,894**

Source: Processed primary data, 2025

Based on the reliability test results in the table above, all research variables demonstrated Cronbach's Alpha and Composite Reliability (CR) values above the minimum threshold of 0.70. This indicates that the measurement instrument used has excellent internal consistency.

Hypothesis Test Results

The validity test of the indicators was analyzed using degrees of freedom (df) with the formula: df = n – k. n is the number of observations (sample size) and k is the number of variables (independent and dependent) (Hudin & Riana, 2016). The number of observations in the study was 101 samples, while the number of variables studied was 4. Therefore, the result obtained was df = 101 – 6 = 95. The T-table value with a 5% significance level using a two-tailed test and 95 degrees of freedom was 1.9853.

The following table shows the coefficients for each hypothetical path (Path Coefficients) and the T-Statistics values obtained from the SmartPLS bootstrapping output.

Table 12. Coefficients and Path T-Statistics

Hypothesis	Influence	*Original Sample* (O)	*Sample Mean* (M)	*Standard Deviation* (STDEV)	*T Statistics* (|O/STERR|)	*P Value*
H1	**Program Socialization (X1) -> Capitation Utilization (Y)**	0,315	0,329	0,088	3,586	**0,000**
H2	**Service Accessibility (X2) -> Capitation Utilization (Y)**	0,029	0,024	0,091	0,321	**0,749**
H3	**Service Quality (X3) -> Capitation Utilization (Y)**	0,165	0,172	0,112	1,475	**0,140**
H4	**Health Worker Competence (X4) -> Capitation Utilization (Y)**	0,184	0,183	0,083	2,222	**0,026**
H5	**Moderation (M) -> Capitation Utilization (Y)**	0,264	0,263	0,109	2,412	**0,016**
H6	**Moderation (M) x Program Socialization (X1) -> Capitation Utilization (Y)**	0,306	0,276	0,114	2,697	**0,007**
H7	**Moderation (M) x Service Accessibility (X2) -> Capitation Utilization (Y)**	-0,241	-0,212	0,170	1,414	**0,157**
H8	**Moderation (M) x Service Quality (X3) -> Capitation Utilization (Y)**	-0,225	-0,219	0,173	1,302	**0,193**
H9	Moderation (M) x Health Worker Competence (X4) -> Capitation Utilization (Y)	**0,204**	**0,188**	**0,155**	**1,317**	**0,188**

Source: Processed primary data, 2025

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DISCUSSION

This study provides empirical insights into the determinants of capitation fund utilization in primary health care settings under Indonesia's National Health Insurance (JKN) scheme. The findings demonstrate that program socialization and health worker competence play a decisive role in driving capitation fund utilization, while service accessibility and service quality do not exert a direct significant influence. In addition, contextual moderating factors selectively shape the effectiveness of capitation utilization, particularly by strengthening the role of program socialization. These results suggest that capitation-based financing effectiveness depends more on institutional capacity, human resources, and policy implementation mechanisms than on service availability alone.

The significant effect of JKN program socialization highlights the central role of policy communication in stimulating health service utilization. Effective socialization reduces informational asymmetry, increases public understanding of service entitlements and procedures, and encourages greater engagement with primary health care services. This finding is consistent with previous studies showing that improved understanding of JKN mechanisms enhances participation and utilization of health services (Rahmad Hidayat et al., 2025; Shofiyah & Bastian, 2020). From a stewardship perspective, clear communication of policy objectives and procedures strengthens accountability and supports more effective use of public resources, including capitation funds (Alhur et al., 2022; Feeley, 2020). In the context of the Mayamuk Community Health Center, direct and interpersonal socialization approaches appear particularly effective in translating allocated capitation funds into actual service delivery.

Health worker competence also emerges as a key determinant of capitation fund utilization. Competent health workers possess the knowledge, technical skills, and professional attitudes required to plan and implement promotive, preventive, and curative services funded through capitation. This finding supports prior evidence indicating that workforce capacity is a critical supply-side factor influencing service performance and financial absorption in primary health care systems (Yanti, 2020; Zhang et al., 2021). In resource-limited settings, such as Sorong Regency, the ability of health workers to adapt service delivery and manage limited resources effectively becomes particularly important. Consequently, capitation utilization is strongly shaped by human resource capacity rather than by structural availability alone.

In contrast, service accessibility does not show a significant direct effect on capitation fund utilization. This result suggests that, under the JKN scheme, access-related barriers may no longer be the primary constraint on utilization when financial coverage is already provided. Previous studies have similarly reported that managerial and governance factors often outweigh physical or geographical access in determining capitation fund effectiveness (Veronica & Rahmayanti, 2019; Mokodompit et al., 2020). In the Mayamuk context, relatively homogeneous geographic conditions and widespread use of motorized transportation likely reduce variability in accessibility among service users, thereby diminishing its explanatory power.

Likewise, service quality does not exhibit a significant direct relationship with capitation fund utilization. This finding indicates that perceived service quality is more closely associated with patient satisfaction than with internal financial utilization mechanisms. According to Donabedian's framework, improvements in service processes or patient experience do not automatically translate into better financial utilization if structural and managerial systems such as planning, budgeting, and internal governance are not aligned (Donabedian, 1988). Similar conclusions have been drawn in studies showing that capitation utilization is primarily influenced by internal management and policy arrangements rather than by service quality perceptions alone (Agustina et al., 2019; Mokodompit et al., 2020).

The moderating analysis further reveals that contextual factors play a selective role in shaping capitation fund utilization. The moderating variables significantly strengthen the relationship between program socialization and capitation utilization, indicating that effective socialization depends on supportive organizational conditions, internal policies, and community responsiveness. This finding aligns with contingency theory, which emphasizes that policy effectiveness is contingent upon organizational alignment and contextual readiness (Sudirman et al., 2024). However, moderation does not significantly influence the relationships involving service accessibility, service quality, and health worker competence, suggesting that these factors operate more independently of contextual variation or are constrained by managerial and governance limitations.

Overall, these findings indicate that optimizing capitation fund utilization requires a strategic focus on strengthening program socialization and enhancing health worker competence, supported by conducive organizational policies and governance structures. Improving accessibility and service quality alone may be insufficient without parallel improvements in planning capacity, internal management, and human resource development. For policymakers, local governments, and BPJS Kesehatan, the results underscore the importance of aligning capitation financing strategies with institutional readiness and workforce capacity, particularly in geographically constrained and resource-limited regions such as Sorong Regency.

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Table 13. Hypothesis Results

	Hypothesis	Description
H1	Program Socialization (X1) -> Capitation Utilization (Y)	Supported / Accepted
H2	Service Accessibility (X2) -> Capitation Utilization (Y)	Not Supported / Rejected
H3	Service Quality (X3) -> Capitation Utilization (Y)	Not Supported / Rejected
H4	Health Worker Competence (X4) -> Capitation Utilization (Y)	Supported / Accepted
H5	Moderation (M) -> Capitation Utilization (Y)	Supported / Accepted
H6	Moderation (M) x Program Socialization (X1) -> Capitation Utilization (Y)	Supported / Accepted
H7	Moderation (M) x Service Accessibility (X2) -> Capitation Utilization (Y)	Not Supported / Rejected
H8	Moderation (M) x Service Quality (X3) -> Capitation Utilization (Y)	Not Supported / Rejected
H9	Moderation (M) x Health Worker Competence (X4) -> Capitation Utilization (Y)	Not Supported / Rejected

Source: Processed primary data, 2025

Future research is recommended to extend the scope of this study by incorporating longitudinal designs to capture changes in capitation fund utilization over time, particularly in relation to policy adjustments and workforce development initiatives. Further studies may also integrate objective administrative and financial data to complement self-reported survey measures, thereby reducing potential response bias. In addition, expanding the analysis to include comparative settings across urban, rural, and remote regions would enhance the generalizability of findings and allow for deeper exploration of contextual differences in capitation fund effectiveness. Future research could also examine the role of digital health innovations, such as the utilization of the Mobile JKN application and health information systems, as potential mediating or moderating variables influencing service utilization and financial absorption. Finally, qualitative or mixed-method approaches are encouraged to explore organizational dynamics, leadership practices, and governance mechanisms that may further explain variations in capitation fund utilization within primary health care systems.

CONCLUSION

This study concludes that the effective utilization of capitation funds in primary health care under Indonesia's National Health Insurance (JKN) scheme is primarily driven by program socialization and health worker competence, rather than by service accessibility or perceived service quality. The findings indicate that clear and effective dissemination of JKN information enhances public understanding and service utilization, while competent health workers play a crucial role in translating allocated capitation funds into promotive, preventive, and curative services. In contrast, accessibility and service quality do not directly influence capitation fund utilization in contexts where financial barriers are largely mitigated and service standards are relatively homogeneous. The moderating analysis further demonstrates that contextual factors—such as health center characteristics, community characteristics, and internal policies—selectively strengthen the impact of program socialization, underscoring the importance of organizational readiness and governance alignment. Overall, these results suggest that optimizing capitation fund utilization requires a strategic focus on strengthening policy communication, enhancing workforce capacity, and improving internal management systems, particularly in geographically constrained and resource-limited regions such as Sorong Regency. By clarifying the relative importance of institutional, human resource, and contextual factors, this study contributes to the literature on capitation-based financing and provides practical insights for policymakers, health center managers, and BPJS Kesehatan in improving the effectiveness of primary health care financing.

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