

STRATEGIC HEALTH PLANNING AND DATA-DRIVEN STUNTING REDUCTION IN SUMEDANG REGENCY

Nanang Suparman

UIN Sunan Gunung Djati Bandung, Indonesia

Email: nanang.suparman@uinsgd.ac.id

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Abstract

Stunting reduction requires not only nutrition programmes but also strategic health service planning supported by reliable local data. This study aims to analyse how stunting data are used in strategic health service planning to support stunting reduction in Sumedang Regency. The study is informed by Strategic Planning, Evidence-Based Decision Making, and Collaborative Governance, which explain the links between data, priority setting, institutional coordination, and service control. A qualitative descriptive case study was employed using documentary analysis of government reports, health office data, child weighing records, BPS publications, regulatory documents, the SIMPATI platform, open datasets, and previous studies published no later than 30 March 2025. The findings show that stunting data in Sumedang support problem mapping, territorial priority setting, service coordination, and intervention monitoring. However, the strategic value of data depends on input quality, user capacity, inter-agency integration, and consistent follow-up across priority areas for more adaptive local health service decisions.

Keywords: Stunting; Strategic Health Service Planning; Data-Driven Governance.

A. INTRODUCTION

Stunting remains a critical public health problem because it is not merely associated with chronic undernutrition, but also reflects social vulnerability, the quality of basic services, and the effectiveness of human development governance (Black et al., 2013). Its consequences extend to cognitive development, long-term productivity, learning capacity, and the quality of human capital, which makes stunting reduction dependent on consistent multisectoral action from the preconception period to early childhood (Victora et al., 2008). In Indonesia, stunting reduction has been positioned as a national development priority through specific and sensitive interventions that require coordination among central government, local governments, health facilities, families, and community actors (Kementerian PPN/Bappenas, 2018). Stunting reduction cannot rely solely on nutrition programmes, as it also requires reliable target data, accurate intervention loci, and institutional capacity to interpret risks across territories (WHO, 2014). This need becomes increasingly important because interregional variations in stunting prevalence indicate that programme success depends on the ability of local governments to translate data into targeted service decisions (Kementerian Kesehatan Republik Indonesia, 2023).

Strategic planning in health services provides an essential framework for linking stunting reduction goals with problem mapping, priority setting, intervention design, resource

allocation, and performance evaluation (Bryson, 2018). Accurate, timely, and integrated health data enable local governments to identify target groups, monitor service achievements, and adjust interventions according to changing field conditions (AbouZahr & Boerma, 2005). Digital transformation in public services strengthens the potential for evidence-based decision-making because information systems can accelerate data flows from community-level service points to managerial and policy levels (Mergel et al., 2019). In the context of stunting, anthropometric data, nutritional status, intervention coverage, access to health services, sanitation, health insurance, and household risk determinants are essential inputs for formulating more precise service strategies (Kementerian Kesehatan Republik Indonesia, 2022). The integration of health data into regional planning can reduce the distance between case identification, intervention implementation, and performance control in stunting reduction programmes (World Bank, 2020).

Sumedang Regency is a relevant locus because it has recorded an aggregate decline in stunting while still facing uneven achievements across subdistricts. Data from the Sumedang Health Office show that stunting among children aged 0–59 months decreased from 12.05% in 2020 to 7.32% in September 2024. This decline has not been evenly distributed, as several subdistricts, including Cimanggung, Situraja, Darmaraja, Jatigede, and Tomo, still experienced increases in stunting prevalence. Jatigede recorded the highest stunting percentage in 2024, whereas Tanjungmedar showed the most notable decline. This condition indicates that strategic planning for health services in Sumedang needs to move beyond district-level aggregate figures toward micro-level analysis based on subdistricts, villages, at-risk families, and primary health service capacity.

Previous studies have examined stunting reduction in Sumedang Regency through the perspectives of digital innovation and programme governance. Arief et al. (2023) found that good practices in reducing stunting in Sumedang were supported by local leadership, the use of SIMPATI as a monitoring instrument, the involvement of posyandu cadres, the provision of anthropometric equipment, human resource strengthening, and digital collaboration with Telkomsel. Rivalgi and Suratha (2024) showed that the SIMPATI application in Sukajaya Village, South Sumedang Subdistrict, was relatively effective in supporting stunting management, although several challenges remained in programme understanding, target accuracy, system maintenance, and optimal application use. Fabialismaya et al. (2025) emphasized that SIMPATI provides real-time data access, improves transparency, and supports data-based policymaking, although its implementation still faces constraints related to internet access, health worker training, and interinstitutional data integration. These studies provide an important foundation for understanding how digitalized stunting data in Sumedang has contributed to monitoring, coordination, and intervention effectiveness.

This study shares several points of similarity with previous research because it also places Sumedang as the empirical locus, stunting as the main policy problem, and SIMPATI as an important instrument in local health data management. Another similarity lies in its attention to multi-actor collaboration, the use of information technology, and the need to strengthen data-driven health services. The distinction lies in the analytical focus, which does not stop at application effectiveness, programme good practices, health communication, or the sustainability of digital technology. This study positions data as the basis of strategic planning for health services, particularly in determining territorial priorities, interpreting risk determinants, formulating intervention directions, and strengthening service performance control. This distinction places the study closer to the public administration perspective because it examines how data are transformed into strategic decisions within local health service

governance.

The decline in stunting in Sumedang and the presence of SIMPATI indicate progress in data governance, yet previous studies have not fully explained how digital data are translated into strategic health service planning that connects community needs, data quality, and local policy decisions (Mergel et al., 2019). The practical-knowledge gap is the most relevant gap because evidence on the benefits of health information systems is already available, while explanations of how data are used to determine service priorities, allocate resources, define intervention loci, and control performance remain limited in local health administration practice (AbouZahr & Boerma, 2005). Fabialismaya et al. (2025) showed that SIMPATI provides real-time access, enhances transparency, and supports data-based policymaking, but their study still focused mainly on application sustainability, digital infrastructure limitations, health worker training, and interinstitutional data integration. Existing studies have not sufficiently connected prevalence data, household risk determinants, posyandu–puskesmas capacity, and local government managerial decisions within a unified framework of strategic health service planning (Kruk et al., 2018). The growing body of research has also tended to treat applications as technological instruments rather than as information nodes that shape strategy formulation, implementation consistency, and accountability in evidence-based health services (Gillespie et al., 2015).

Sumedang Regency offers an important empirical case because the use of SIMPATI is not only related to case monitoring, but also to health communication, actor coordination, and the acceleration of stunting management through digital media (Suminar et al., 2024). Aggregate reductions may conceal micro-level disparities across territories when data are not analysed down to the level of subdistricts, villages, at-risk households, and primary service capacity (Victora et al., 2008). Prasetyo et al. (2023) emphasized that integrated stunting governance requires institutional capacity to connect systems, coordinate actors, and direct interventions through regional service governance. Hadid et al. (2023) positioned SIMPATI digitalization as an instrument for stunting prevention in Sumedang, but their discussion did not specifically elaborate the relationship between data, service priority setting, and regional health strategy design. This study extends empirical and practical understanding of how local health data can be directed into adaptive, measurable, and responsive service planning for addressing variations in local stunting risk (Ruel & Alderman, 2013). This study aims to analyse how stunting data are used in strategic health service planning to support stunting reduction in Sumedang Regency.

B. LITERATURE REVIEW

Strategic Planning

Strategic Planning explains how public organizations formulate policy direction through a systematic process involving problem mapping, priority setting, strategy formulation, implementation, and performance evaluation (Bryson, 2018). In the context of health services, this concept emphasizes the capacity of local governments to align programme objectives with institutional resources, community needs, and available service capacities. Strategic planning does not merely function as an administrative document, but operates as a decision-making mechanism that enables public organizations to respond to complex problems in a more structured and purposeful manner. In stunting reduction, this concept is relevant because effective intervention requires clear targets, accurate intervention loci, and consistency between data, programmes, and resource allocation. Therefore, Strategic Planning can be used to analyse how the Government of Sumedang Regency transforms stunting data into more

measurable, responsive, and strategically directed health service planning.

Indicators:

- Stunting problem mapping
- Territorial priority setting
- Health service strategy formulation
- Resource allocation
- Programme implementation
- Performance evaluation and control

Evidence-Based Decision Making

Evidence-Based Decision Making emphasizes that high-quality public decisions should be grounded in data, empirical evidence, and accountable information rather than bureaucratic intuition or routine administrative procedures (Brownson et al., 2009). In health services, this concept explains how epidemiological data, service data, and social data can be used to identify target groups, design interventions, and evaluate programme achievements. Evidence-based decision making requires accurate, relevant, timely, and accessible data for both frontline implementers and policy-level decision makers. In the context of stunting, this concept is particularly relevant because successful intervention depends on the ability of local governments to interpret prevalence data, risk determinants, service coverage, and changing household conditions. Evidence-Based Decision Making can therefore be used to assess the extent to which stunting data in Sumedang Regency function as a basis for health service policy decisions rather than merely as administrative reporting instruments.

Indicators:

- Data availability
- Data quality and accuracy
- Use of data in decision-making
- Accuracy of intervention targeting
- Evidence-based monitoring
- Feedback for service improvement

Collaborative Governance

Collaborative Governance explains how complex public problems require the involvement of multiple governmental and non-governmental actors in decision-making, programme implementation, and collective oversight (Ansell & Gash, 2008). This concept is highly relevant to public health issues because many service problems cannot be addressed by a single institution, but require coordination across sectors, levels of government, and community actors. In stunting reduction, collaboration is essential because the determinants of stunting involve health, nutrition, sanitation, social protection, family behaviour, education, and household economic conditions. Effective collaboration requires clear role distribution, open communication, mutual trust, shared commitment, and coordination mechanisms that are able to connect data with field-level action. Collaborative Governance can be used to analyse how actors in Sumedang Regency, including the health office, puskesmas, posyandu, village governments, cadres, and other local agencies, work together in managing data-driven health services to reduce stunting.

Indicators:

- Multi-actor involvement
- Clarity of role distribution
- Communication and coordination
- Mutual trust among actors

- Shared commitment
- Data-driven collaborative follow-up

C. RESEARCH METHODOLOGY

This study employed a qualitative approach with a descriptive case study design to analyse data-driven strategic health service planning for stunting reduction in Sumedang Regency. A qualitative approach was selected because the study does not aim to test statistical relationships among variables, but to develop an in-depth understanding of how stunting data are used by local government to interpret problems, determine priority loci, guide health service interventions, and control programme performance. The case study design is relevant because Sumedang Regency offers a strong empirical context, marked by a declining stunting trend, the use of SIMPATI as a digital data platform, the availability of subdistrict-level stunting data, and regulatory support for targeted intervention loci. A case study enables the examination of a contemporary phenomenon within its real-life context, particularly when the boundaries between the phenomenon, actors, data systems, and policy processes are not clearly separable (Yin, 2018). Therefore, this method is appropriate for explaining how stunting data function not merely as administrative records, but as a basis for evidence-informed strategic planning in local health services.

Data were collected through documentary study of relevant secondary sources, including local government documents, Health Office data, child weighing month records, BPS publications, regulatory documents, the SIMPATI platform, open datasets, policy reports, and journal articles published no later than 30 March 2025. Documentary study was used because policy documents, statistical data, and programme reports provide systematic empirical traces of policy processes, programme achievements, and health service directions (Bowen, 2009). The sampling technique applied in this study was purposive sampling of documents, with selection criteria based on direct relevance to stunting, strategic planning, data-driven health services, Sumedang Regency, and the availability of verifiable sources; this technique is suitable for identifying information-rich sources that directly correspond to the research focus (Patton, 2015). Data were analysed using thematic analysis through the stages of data condensation, data display, and conclusion drawing/verification, allowing evidence from multiple sources to be classified into key themes such as problem mapping, territorial priority setting, data utilization, service coordination, and intervention control (Miles et al., 2014). Data validity was strengthened through source triangulation by comparing policy documents, statistical data, digital platform information, and previous studies to ensure that the resulting interpretation remained consistent, critical, and academically accountable.

D. RESULT AND DISCUSSION

Stunting Data as the Basis for Problem Mapping and Territorial Priority Setting

Data from the Sumedang Regency Health Office indicate that the prevalence of stunting among children aged 0–59 months declined from 12.05% in 2020 to 7.32% in September 2024. The coverage of child growth measurement in 2024 reached 100% of 69,336 registered children, providing a strong empirical basis for mapping stunting conditions in greater detail. Disaggregated territorial data show that the aggregate decline was not evenly distributed, as Cimanggung, Situraja, Darmaraja, Jatigede, and Tomo still recorded increases in stunting prevalence. Jatigede recorded the highest stunting prevalence in 2024, whereas Tanjungmedar showed the most notable decline from 12.50% to 8.38%. These findings indicate that stunting should not be interpreted solely through district-level aggregate figures, but through territorial

variations in risk and service needs.

Table 1. Mapping Stunting Data as a Basis for Territorial Priority Setting in Sumedang Regency

Data Aspect	Key Finding	Strategic Meaning for Health Service Planning
District-level stunting trend	Declined from 12.05% in 2020 to 7.32% in September 2024	Indicates aggregate programme progress, while still requiring more detailed territorial analysis
Child growth measurement coverage	69,336 registered children were measured, reaching 100% coverage	Strengthens the validity of the data basis for problem mapping and service targeting
Subdistricts with increasing stunting	Cimanggung, Situraja, Darmaraja, Jatigede, and Tomo	Signals the need to sharpen interventions in areas that have not shown consistent improvement
Subdistrict with the highest prevalence	Jatigede reached 11.37% in 2024	Indicates the need to define priority loci based on territorial risk
Area with a notable decline	Tanjungmedar declined from 12.50% to 8.38%	Provides a comparative basis for identifying potentially effective service practices or coordination patterns
Function of micro-level data	Subdistrict data reveal risk variations that are not visible in district-level aggregate figures	Shifts planning from a general approach toward more context-sensitive service strategies

Source: Processed by the author (2025).

The decline in district-level stunting indicates programme progress, yet variation across subdistricts shows that aggregate achievements may conceal concentrated problems in specific areas. Stunting data are therefore essential because they enable local government to shift from a general reading of the problem toward more specific risk mapping. Territorial priority setting needs to consider subdistricts with the highest prevalence, areas experiencing increases, and locations showing significant decline as comparative references for service practices. This mode of interpretation strengthens planning capacity because interventions are not distributed uniformly, but adjusted to the characteristics of the problem and the needs of each territory. Micro-level data subsequently become a basis for assessing whether health services have moved from administrative reporting toward strategic mapping that guides programme decisions.

Strong health information systems constitute an essential foundation for public health because data enable governments to identify population needs, monitor service achievements, and formulate evidence-based responses (AbouZahr & Boerma, 2005). Digital transformation in public services expands the possibility of data-driven decision-making when information from community-level service points can flow more rapidly to managerial and policy levels (Mergel et al., 2019). High-quality health systems require the capacity to identify service inequalities, recognize vulnerable groups, and direct resources toward areas with the greatest needs (Kruk et al., 2018). Effective nutrition interventions also require sensitivity to territorial context because the determinants of stunting do not operate uniformly across communities (Ruel & Alderman, 2013). The use of SIMPATI in Sumedang demonstrates that digital media can accelerate health communication, actor coordination, and local data-based stunting management (Suminar et al., 2024).

Stunting data in Sumedang show that territorial priority setting should be constructed through a combination of declining trends, subdistricts with increasing prevalence, and areas with the highest risk burden. Subdistricts experiencing increases should not be treated as statistical anomalies, but as signals of service needs that have not been fully addressed. Areas

with substantial decline also hold strategic value because they may indicate more effective service practices, coordination mechanisms, or follow-up actions. Comparisons between improving and worsening subdistricts help local government develop a more operational map of the problem. This pattern shows that stunting data function as a policy diagnostic instrument that connects field conditions with service priority decisions.

Data-based mapping provides local government with a foundation for organizing health interventions more selectively, particularly in areas that show increasing figures or maintain relatively high prevalence. Broad child measurement coverage strengthens the opportunity to identify target groups, assess the consistency of posyandu–puskesmas services, and interpret the need for assistance among at-risk families. Service planning grounded in disaggregated data can reduce the risk of overly general policies that are insufficiently sensitive to local problem variation. Accurate territorial mapping also creates space for multi-actor coordination because each service unit can position its role based on field evidence. The strength of this mapping depends on how digital data, particularly SIMPATI and other supporting data sources, are used to connect case recording, service coordination, and intervention control.

Digital Data Utilization in Strategic Health Service Planning

Field findings indicate that Sumedang Regency has developed SIMPATI as a digital platform to support stunting prevention through child data collection, reporting, monitoring, and coordination across service levels. The platform enables data from posyandu and local health service units to be connected with puskesmas, village governments, and district-level decision makers. The development of SIMPATI JITU/G2 also shows an effort to strengthen the system by integrating upstream and downstream stunting targets, including adolescent girls, prospective brides and grooms, pregnant women, and children. This digital infrastructure places stunting data within a broader service planning cycle rather than limiting it to child growth measurement records. The field pattern therefore indicates that digital data have begun to function as an operational bridge between case identification, service targeting, and intervention monitoring.

The use of SIMPATI changes the logic of health service planning because data can be read closer to the level where problems occur. Local government no longer depends only on periodic aggregate reports, but can use more granular information to identify service gaps, territorial risks, and target groups requiring follow-up. This condition strengthens planning capacity because programme priorities can be formulated from documented field evidence rather than from general assumptions about stunting prevalence. Data integration also supports coordination because actors at different service levels can refer to the same information base when determining roles, targets, and follow-up actions. The strategic value of SIMPATI lies not only in its technological function, but in its ability to organize information into a more actionable basis for health service planning.

Previous studies confirm that health information systems are essential for strengthening public health because they provide the informational foundation for population monitoring, service planning, and evidence-based decision-making (AbouZahr & Boerma, 2005). Digital transformation in public administration also enables governments to redesign decision processes when data flows, organizational routines, and public service practices are connected through digital systems (Mergel et al., 2019). Suminar et al. (2024) found that the use of SIMPATI in Sumedang supports health communication and accelerates stunting management through digital media. Fabialismaya et al. (2025) showed that SIMPATI provides real-time data access, increases transparency, and supports data-based policy, although challenges remain in infrastructure, training, and interinstitutional integration. Prasetyo et al. (2023)

emphasized that stunting convergence requires integrated regional service governance capable of connecting data systems, institutional coordination, and targeted intervention processes.

The empirical pattern in Sumedang suggests that digital data utilization has begun to reshape strategic health service planning through three interconnected functions. First, SIMPATI strengthens problem identification by making child growth and stunting information more visible across service levels. Second, the platform supports territorial and household targeting because data can guide actors toward areas and groups that require more intensive intervention. Third, digital data create a coordination base that allows posyandu, puskesmas, village governments, and district agencies to align follow-up actions more systematically. These functions show that the strategic value of SIMPATI depends on the extent to which data are transformed into differentiated service decisions, not merely on the availability of the application itself.

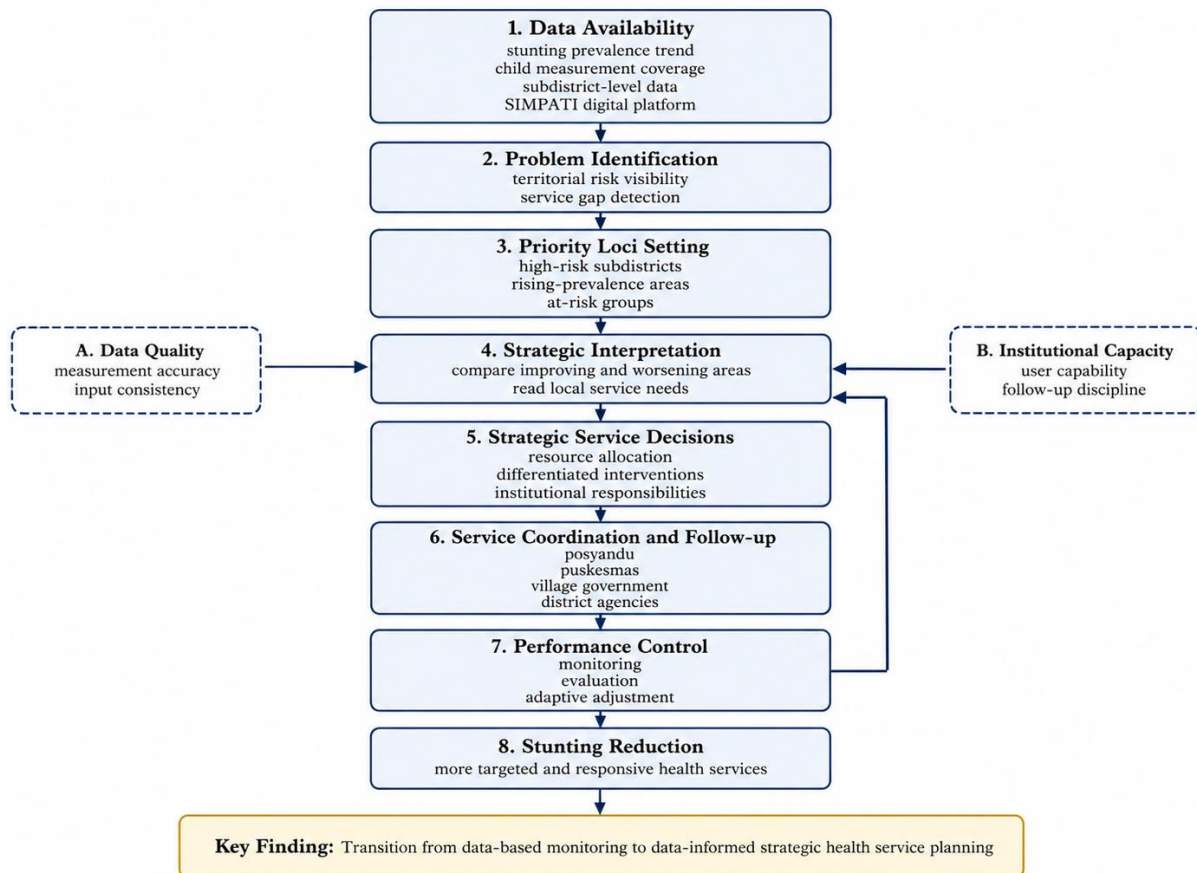
The use of digital data provides an important foundation for strengthening local health service planning, yet its effectiveness depends on the quality of data input, the capacity of users, and the consistency of follow-up after risks are identified. Data that enter the system must be interpreted through managerial decisions that define priority areas, assign institutional responsibilities, and translate information into concrete service actions. Weak linkage between data and action may reduce SIMPATI to an administrative reporting tool, even when the platform already provides rich information for planning. Stronger integration between digital data, service coordination, and intervention control is therefore necessary to ensure that stunting reduction does not rely only on monitoring, but also on adaptive decision-making. This condition leads to the central question of how data availability in Sumedang is transformed into strategic service decisions that shape planning priorities, implementation patterns, and accountability mechanisms.

From Data Availability to Strategic Service Decisions: Key Findings from Sumedang Regency

Field findings indicate that Sumedang Regency has developed a relatively strong data foundation for stunting reduction through declining prevalence, broad child measurement coverage, subdistrict-level mapping, and the use of SIMPATI as a digital monitoring platform. The available data allow local government to identify areas with persistent risk, distinguish subdistricts with increasing prevalence, and compare them with areas showing stronger improvement. This pattern shows that data have supported the early stages of strategic planning, especially in problem identification and territorial priority setting. Nevertheless, the evidence also indicates that data availability does not automatically ensure differentiated service decisions across territories. The main issue lies in how far data are translated into

resource allocation, service design, institutional coordination, and performance control.

Figure 1. From Data Availability to Strategic Service Decisions in Stunting Reduction: Evidence from Sumedang Regency



Source: Processed by the author (2025)

The strategic value of stunting data depends on the ability of local government to transform information into decisions that change service practices. Data become meaningful for planning when they guide which areas receive stronger intervention, which families require closer assistance, and which service units need additional support. The Sumedang case shows that the existence of digital data has improved visibility over the problem, but the planning process still needs stronger mechanisms to connect data interpretation with concrete service responses. Strategic planning therefore requires more than data collection because it also needs managerial judgement, institutional responsibility, and follow-up discipline. This interpretation places data as an instrument of governance rather than a neutral administrative output.

High-quality health systems require decision-making processes that connect population needs, service capacity, and accountability mechanisms in order to produce better health outcomes (Kruk et al., 2018). Evidence-based public health emphasizes that data must be converted into policies, programmes, and practices through structured institutional processes (Brownson et al., 2009). Strategic planning in public organizations becomes effective when evidence supports priority setting, resource allocation, implementation control, and organizational learning (Bryson, 2018). Collaborative governance strengthens the implementation of complex public programmes because multiple actors need shared understanding, trust, and coordinated action to address cross-sectoral problems (Ansell & Gash,

2008). Integrated stunting governance requires regional service systems that connect data, institutional coordination, and targeted interventions across administrative levels (Prasetyo et al., 2023).

The central finding of this study is that Sumedang has entered a transitional stage from data-based monitoring toward data-informed strategic health service planning. This transition appears in the use of stunting data for mapping territorial risk, identifying priority loci, and supporting coordination among service actors. The transition remains incomplete when data have not yet fully shaped differentiated intervention models, resource distribution, and systematic performance control across subdistricts. SIMPATI functions as an important information node, but its strategic contribution depends on whether local actors use its data to redesign service priorities and strengthen follow-up mechanisms. This finding shows that the effectiveness of data-driven stunting reduction lies in the institutional capacity to convert information into operational decisions.

Data-driven strategic planning in Sumedang therefore needs to strengthen the connection between digital information, territorial analysis, and service accountability. Local health actors need to treat differences among subdistricts not only as statistical variation, but as signals for differentiated intervention intensity and institutional support. The use of SIMPATI can become more strategic when its data inform priority setting, cross-sectoral task distribution, and continuous monitoring of service outcomes. Stunting reduction requires a planning model that links evidence, collaboration, and adaptive service control in a single governance cycle. This analytical position provides a basis for formulating a stronger conclusion on the role of data in shaping strategic health service planning for stunting reduction in Sumedang Regency.

E. CONCLUSION

This study concludes that stunting data in Sumedang Regency have been used as an important basis for identifying problems, mapping territorial risk variations, determining priority loci, and supporting evidence-informed strategic health service planning. The findings indicate that stunting reduction is shaped not only by programme availability, but also by the local government's capacity to transform prevalence data, child measurement coverage, subdistrict-level information, and the SIMPATI platform into more targeted service decisions. The research objective was achieved because the study explains how stunting data operate within strategic planning processes, from problem mapping and territorial priority setting to service coordination and intervention control. The main contribution of this study lies in its emphasis that digital data should not be understood merely as an administrative reporting instrument, but as a strategic node that connects field-level information, institutional capacity, and local health service decision-making. Sumedang Regency needs to strengthen data input quality, SIMPATI user capacity, inter-agency integration, and priority-based follow-up, while future studies should incorporate field interviews, service observation, or spatial analysis to address the limitations of documentary research and provide a stronger policy basis for more adaptive stunting reduction.

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