

The Success of the Health Cadre Empowerment Program in Improving the Health Status of Toddlers in Malnutrition-Vulnerable Areas

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ABSTRACT

This study aimed to examine emergency department nursing service quality using the SERVQUAL model and its influence on patient satisfaction. A qualitative approach with a case study design was selected to capture lived experiences and explain how satisfaction is constructed under time pressure, uncertainty, and fluctuating patient loads. The study was conducted in the Emergency Department of “Harapan Sehat” Hospital (pseudonym) in Indonesia. Eighteen informants ED nurses, patients, and accompanying family members were purposively recruited to represent diverse care experiences and workload contexts. Findings indicated that reliability and responsiveness were the strongest satisfaction drivers, reflected in triage accuracy, consistent adherence to procedures, and timely responses to pain, anxiety, and urgent requests. Assurance and empathy reinforced trust through calm professionalism, clear explanations, respectful interaction, and brief but attentive communication that preserved dignity. Tangibles, including cleanliness, organization, signage, and basic facility availability, operated as credibility cues that shaped perceptions of overall quality, particularly in crowded waiting areas. The study recommends institutionalizing standardized brief patient updates, strengthening triage communication practices, and implementing supportive supervision to sustain empathy and assurance behaviors during peak demand. Operational refinements to patient flow and staffing allocation are also suggested to protect responsiveness and consistency.



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INTRODUCTION

Child undernutrition remains one of the most persistent public health challenges globally and continues to concentrate among populations facing structural vulnerability. In many low- and middle-income settings, improvements in child survival have not been matched by equal progress in growth and development outcomes, leaving stunting, wasting, and micronutrient deficiencies as enduring burdens. These conditions are not merely biomedical phenomena; they reflect the cumulative impacts of food insecurity, suboptimal infant and young child feeding, recurrent infections, limited access to quality primary health services, and constrained caregiving environments. Toddlers and young children are particularly sensitive to these risks because the first years of life represent a critical window of growth and neurodevelopment (Fleischhacker et al., 2024). When nutritional deprivation and preventable illness overlap during this period, the consequences can include delayed cognitive development, reduced educational attainment, and diminished productivity later in life. Therefore, efforts to improve the health status of children under five in nutritionally vulnerable areas require strategies that address both immediate determinants such as feeding practices and disease prevention and underlying factors including caregiver knowledge, household resilience, and the responsiveness of community-based health services (Duhalde et al., 2025).

In Indonesia and similar contexts, the community health system has long relied on lay health workers or community health cadres (kader kesehatan) to extend preventive and promotive services beyond formal facilities (Veldhuis, P Gouma, et al., 2024). These cadres operate at the interface between households and the primary healthcare system, supporting maternal and child health programs through growth monitoring, nutrition counseling, immunization mobilization, early detection of health problems, and referral facilitation. The rationale for cadre involvement is compelling: cadres often reside within the communities they serve, share cultural and linguistic familiarity with caregivers, and can conduct repeated interpersonal engagement that would be difficult for overstretched facility-based staff.

In nutritionally vulnerable areas characterized by poverty, limited food access, low maternal education, geographic constraints, or poor sanitation cadres can function as an adaptive workforce that helps reduce barriers to health information and basic services. However, cadre performance is not automatically optimal (Naik et al., 2024). Many programs face challenges related to inconsistent training quality, limited supervision, high turnover, variable motivation, and inadequate tools for counseling and tracking. These weaknesses can dilute the impact of community-based interventions, particularly when cadres are asked to manage complex behavior change tasks related to feeding and caregiving (Bekele et al., 2025).

Against this backdrop, empowerment-based cadre programs have gained prominence as a strategy to enhance the effectiveness of community health work. Empowerment in this context is not limited to knowledge transfer; it refers to a broader process of strengthening cadres' competencies, self-efficacy, decision-making capacity, problem-solving skills, and supportive working conditions so they can deliver higher-quality services and sustain engagement (Vivanco, 2025). Empowerment approaches may include structured training modules with practical counseling simulations, supportive supervision models, peer learning, recognition and incentive schemes, community accountability mechanisms, and the use of simple digital or paper-based tools for monitoring growth and follow-up. The underlying theory is that when cadres are supported as capable agents rather than treated merely as volunteers executing instructions they are more likely to provide accurate messages, build trust with caregivers, detect risk earlier, and stimulate timely care-seeking. Ultimately, an empowered cadre workforce is expected to contribute to improved child health indicators, including better nutritional status, fewer episodes of common childhood illness, improved immunization coverage, and enhanced caregiver practices (Veldhuis, Patrick Gouma, et al., 2024).

Tabel 1. Health cadre empowerment for toddlers in malnutrition-vulnerable areas

Valid data	Matters Background
Indonesia stunting prevalence 19.8% (SSGI 2024) (down from 21.5% in 2023)	Quantifies the national burden that community programs (including cadres/posyandu strengthening) aim to reduce.
Global under-5 burden (2024): 150.2M stunted, 42.8M wasted, 35.5M overweight	Shows child malnutrition is still a large global problem and multi-form, supporting the relevance of community interventions.
Stunting definition: height-for-age >2 SD below WHO growth standards median	Gives you a valid technical definition to anchor how "health status" is measured in toddler nutrition contexts.

Source: Indonesia Ministry of Health news release on SSGI 2024

Despite the widespread adoption of cadre empowerment initiatives, evidence on their "success" in improving child health status in nutritionally vulnerable areas remains uneven. Many studies report positive outcomes such as improved caregiver knowledge, higher attendance at growth monitoring sessions, or increased referrals. Yet improvements in intermediate outcomes do not always translate into measurable changes in child anthropometry or morbidity, especially within short observation periods. Furthermore, a substantial portion of the literature evaluates programs in relatively stable communities or uses outcomes that are not directly aligned with "health status" as understood in child nutrition such as stunting prevalence, wasting, or underweight while fewer studies focus explicitly on high-risk, nutritionally vulnerable settings where baseline constraints may limit impact. Another common limitation is the variability in how empowerment is operationalized: some studies label a single training workshop as "empowerment," whereas others deploy multi-component models incorporating mentorship, community mobilization, and structured follow-up. This heterogeneity makes it difficult for practitioners and policymakers to identify which empowerment elements are essential, how they interact with contextual factors, and under what conditions they yield meaningful improvements in toddler health status (Karstila et al., 2024).

An additional challenge in the current state of knowledge is that program evaluations often emphasize coverage and process indicators while under-examining mechanisms. Cadre empowerment is frequently treated as a black box implemented and then assessed for outcomes without sufficient

attention to causal pathways. In reality, empowerment likely influences child health through multiple linked mechanisms: strengthening cadres' technical accuracy in growth monitoring and counseling; improving communication quality and caregiver engagement; increasing continuity of follow-up for children with faltering growth; promoting adherence to recommended feeding and hygiene practices; and accelerating referrals for illness or malnutrition (Rukhama et al., 2025). Contextual moderators such as household food availability, maternal mental health, community norms, and local health system responsiveness may amplify or constrain these pathways. Moreover, in nutritionally vulnerable areas, structural determinants may be so dominant that even well-implemented empowerment programs require complementary interventions such as food supplementation, water and sanitation improvements, or social protection to achieve changes in anthropometric outcomes. Without clarifying these pathways and contextual interactions, it remains challenging to define what "successful" empowerment looks like and how to replicate it (Kwak et al., 2025).

The main problem addressed in this research is the persistent suboptimal health status of children under five in nutritionally vulnerable areas despite the presence of community-based services. While cadres are positioned to support maternal and child health initiatives, their contributions may be limited when they lack empowerment in the form of adequate skills, confidence, tools, and supportive systems. Consequently, toddler health outcomes remain vulnerable to preventable risks, including inadequate diet diversity, delayed care-seeking, and poor adherence to growth monitoring and immunization schedules (Carey et al., 2024). This problem is especially urgent in communities where facility access is limited and where health services rely heavily on community outreach. If cadre empowerment programs can be shown to improve toddler health status meaningfully, they would offer a scalable and context-appropriate solution for strengthening primary healthcare performance in high-risk settings.

The research gap arises from at least three interrelated issues. First, empirical evidence specifically linking cadre empowerment programs to measurable improvements in toddler health status in nutritionally vulnerable areas is still limited, particularly when outcomes include both nutritional indicators and broader health measures. Second, the literature lacks consistent conceptual and operational definitions of empowerment and program success, leading to difficulty in synthesizing findings and identifying effective components (Mustonen et al., 2024). Third, many evaluations under-address context and mechanisms, making it unclear which elements drive outcomes and how local constraints shape effectiveness. This study seeks to fill these gaps by focusing on nutritionally vulnerable settings and by framing "success" not only through participation metrics but through tangible improvements in child health indicators and plausible program pathways (Sebai et al., 2025).

The novelty of this research lies in its integrative evaluation of cadre empowerment as a multi-dimensional intervention and its emphasis on nutritionally vulnerable contexts. Rather than treating empowerment as a single activity, this study conceptualizes empowerment as a set of reinforcing components capacity building, supportive supervision, motivation and recognition, and practical monitoring tools whose combined implementation may influence toddler health outcomes. Additionally, the study positions toddler health status as a comprehensive outcome domain, potentially incorporating anthropometric measures (such as weight-for-age, height-for-age, and weight-for-height), morbidity patterns, and service utilization behaviors (such as growth monitoring attendance and immunization adherence). By examining empowerment programs within areas facing high nutritional risk, the study contributes evidence that is directly relevant to the populations most likely to benefit and to the health system conditions where cadres are most relied upon.

Based on this background, the research is guided by the following central research question: How successful is the empowerment program for community health cadres in improving the health status of toddlers in nutritionally vulnerable areas? This question can be elaborated into key inquiry dimensions: What changes occur in toddler health status following the implementation of cadre empowerment? Which empowerment components are most strongly associated with improved outcomes? How do caregiver practices and service utilization mediate the relationship between cadre empowerment and toddler health status? What contextual factors enable or hinder program effectiveness in nutritionally vulnerable communities? These questions aim to generate evidence that is both evaluative and explanatory, supporting decisions about program design, resource allocation, and scaling.

The objective of the study is to assess the effectiveness of a cadre empowerment program in improving toddler health status in nutritionally vulnerable areas and to identify the program components and pathways that contribute to these outcomes (Kürtüncü et al., 2024). More specifically, the study aims to evaluate changes in key child health indicators associated with the program, to analyze improvements in cadre performance and caregiver engagement, and to interpret how local context shapes implementation and results (Oniunaite et al., 2025). The study also aims to generate actionable recommendations for strengthening cadre empowerment strategies within primary healthcare systems.

The expected benefits of this research are threefold. Theoretically, the study contributes to public health and health promotion literature by refining the conceptualization of empowerment within community health work and by linking empowerment processes to measurable child health outcomes in high-risk contexts. Academically, it enriches evidence for maternal and child health research by providing a structured evaluation model that can be compared across settings and by highlighting mechanisms and contextual moderators that are often underreported. Practically, the study offers guidance to health managers, policymakers, and community organizations on designing and implementing cadre empowerment programs that are feasible, scalable, and responsive to the needs of nutritionally vulnerable populations (Peta & Carrasco, 2026). Insights from the research can inform training curricula, supervision frameworks, monitoring systems, and community engagement strategies, potentially improving program efficiency and impact. In addition, the findings may support local health offices in prioritizing interventions for communities with the highest burden of nutritional risk, thereby contributing to more equitable health outcomes (Mattson & Berry, 2026).

Several limitations should be acknowledged from the outset. First, changes in toddler health status particularly anthropometric indicators like stunting may require longer time horizons than typical program evaluation periods, and short-term improvements may be more visible in service utilization or caregiver practices than in growth outcomes (Hetherington et al., 2024). Second, the complexity of nutritional vulnerability means that improvements cannot be attributed solely to cadre empowerment; concurrent programs, seasonal food availability, household economic shocks, and disease outbreaks may influence outcomes. Third, measurement challenges may arise from variability in growth monitoring accuracy, reporting bias in caregiver practices, and inconsistencies in routine health records. Fourth, cadre performance may vary widely depending on individual motivation and community support, which can introduce heterogeneity in implementation fidelity. Recognizing these limitations is essential for interpreting findings cautiously and for designing robust analytical strategies that account for confounding factors and contextual variability (Huayta et al., 2024).

Future research should build on this study by testing empowerment models across diverse settings and by using designs that strengthen causal inference, including longitudinal follow-up and mixed-method approaches that integrate quantitative outcome measurement with qualitative exploration of mechanisms and implementation experiences. Further studies could examine how empowerment interacts with complementary interventions such as food supplementation, cash transfers, water and sanitation initiatives, or maternal mental health support. Additionally, research is needed to evaluate the cost-effectiveness and sustainability of empowerment programs, including the balance between volunteerism and appropriate incentives, and the role of digital tools in strengthening supervision and data quality. By advancing evidence in these directions, subsequent work can contribute to more effective and equitable strategies for improving toddler health in communities facing nutritional vulnerability.

LITERATURE REVIEW

The literature on child health improvement in nutritionally vulnerable settings consistently shows that undernutrition among children under five is shaped by a tight interaction between caregiving behaviors, infectious disease exposure, and the strength of primary health systems at community level. Nutrition vulnerability is rarely driven by a single factor; it typically emerges from a combination of limited dietary diversity, inadequate infant and young child feeding, poor sanitation and hygiene, constrained household resources, and delayed care-seeking (Zaboli & Turcato, 2026). Global evidence syntheses emphasize that community engagement and delivery platforms especially those that reach households repeatedly are central to improving maternal and child nutrition and related health outcomes,

because they can influence feeding practices, prompt early detection of growth faltering, and increase uptake of preventive services (Dowdell et al., 2025).

Within this landscape, community-based health volunteers or cadres are widely used to bridge the gap between families and health facilities. In Indonesia, this role is embodied by community health cadres in integrated service posts (Posyandu), who support growth monitoring, counseling, referral, and service mobilization. The effectiveness of these cadres is strongly contingent on the quality of training, supportive supervision, job aids, community trust, and workable incentive structures. The World Health Organization's guidance on community health worker (CHW) programmes underscores that optimizing CHW performance requires coherent system support particularly supportive supervision, appropriate training, and motivating conditions rather than relying solely on volunteerism or one-off training events. These system-support elements align closely with what empowerment-oriented cadre programmes attempt to deliver: strengthening capability (knowledge and skills), confidence and agency (self-efficacy and decision latitude), and enabling conditions (tools, mentoring, performance feedback, and recognition).

Empirical studies in Indonesia and comparable settings suggest that cadre-focused capacity building can improve counseling quality and caregiver practices, especially when training is structured and paired with follow-up support. For example, evidence from cadre training in infant and young child feeding counseling (often framed as PMBA Pemberian Makan Bayi dan Anak) indicates that cadres can improve counseling competencies and support behavior change in caregivers, which is frequently positioned as a pathway toward improved child nutritional status (Yu et al., 2023). Recent local studies also report improved cadre knowledge for stunting prevention following targeted nutrition education, although the degree to which such changes translate into measurable improvements in anthropometry can vary with study duration, baseline vulnerability, and the availability of complementary resources (food access, sanitation, and health service responsiveness). This variability points to a key implication for the present research topic "success" of empowerment programmes should be conceptualized not merely as improved cadre knowledge or service attendance, but as a chain of effects that plausibly reaches toddler health indicators (growth outcomes, morbidity patterns, and preventive service utilization) in high-risk environments (Martinez, 2026).

To ground such a chain of effects, this study draws on three complementary theoretical lenses: Social Cognitive Theory, Empowerment Theory, and Diffusion of Innovations. Each theory contributes a distinct explanation for how empowered cadres can influence caregiver actions and, ultimately, child health status in nutritionally vulnerable areas while also clarifying why programme success may differ across contexts and why research gaps persist.

Social Cognitive Theory (SCT) was popularized by Albert Bandura in 1986, while he was a professor at Stanford University, United States, notably through his book *Social Foundations of Thought and Action: A Social Cognitive Theory*. SCT proposes that human behavior is produced by reciprocal determinism among personal factors (knowledge, beliefs), environmental influences (social norms, access), and behavior itself. In cadre empowerment programmes, SCT provides an explanatory framework for how caregivers adopt improved feeding, hygiene, and care-seeking practices when cadres enhance behavioral capability (practical knowledge and skills), strengthen outcome expectations (belief that recommended actions improve child health), and build self-efficacy (confidence to carry out feeding routines, attend services, or seek care early) (Howard et al., 2026). SCT also clarifies the practical importance of observational learning and modeling: cadres can demonstrate portion sizes, responsive feeding, or hygiene routines in ways that written messages alone cannot achieve, especially in communities with limited literacy. Bandura's work further implies that repeated reinforcement and supportive feedback are essential for sustaining behavior change thereby supporting an empowerment model that prioritizes continued mentoring, home visits, and performance feedback over single-session training (Delao, 2025).

Empowerment Theory, as a foundational concept in community psychology, was strongly advanced and popularized by Julian Rappaport through his work on empowerment as a social policy orientation, notably in 1981 and further elaborations in 1987, associated with the University of Illinois at Urbana-Champaign, United States. Rappaport's framing emphasizes empowerment as a shift away from

purely deficit-oriented prevention toward strengthening people's and communities' capacity to exert influence over the conditions affecting their lives (Jensen et al., 2025). In the context of health cadres, this translates into seeing cadres not as passive implementers but as agents who need access to competence, resources, legitimacy, and supportive structures to act effectively. A widely used contemporary articulation of empowerment's conceptual framework is provided by Marc A. Zimmerman, especially his 1995 work, developed at the University of Michigan, United States, which distinguishes empowerment as both process and outcome, and conceptualizes psychological empowerment as comprising intrapersonal, interactional, and behavioral components. Applied to cadre programmes, these components map onto (1) intrapersonal changes such as cadre confidence and perceived control when counseling families; (2) interactional competencies such as navigating health system resources, communicating effectively, and problem-solving with caregivers; and (3) behavioral expressions such as consistent outreach, accurate growth monitoring, timely referral, and follow-up. This theoretical lens is particularly relevant to nutritionally vulnerable areas where cadres may face social and logistical barriers, because it suggests that capability without agency (or agency without system support) is insufficient. It also highlights why "success" must be judged by strengthened cadre functioning and community-level effects, not only by whether training occurred (Scannell et al., 2026).

Diffusion of Innovations (DOI) was popularized by Everett Mitchell Rogers with the publication of *Diffusion of Innovations* in 1962, during his appointment at The Ohio State University, United States. DOI explains how a new idea or practice spreads through a social system over time via communication channels. For cadre empowerment programmes, DOI is useful for two reasons. First, it explains how improved practices exclusive breastfeeding, complementary feeding routines, growth monitoring adherence, or early referral for illness can spread from early-adopting households to others when cadres and respected community members function as opinion leaders and credible messengers (Alidokht et al., 2025). Second, it strengthens implementation thinking: empowerment packages (training-plus-supervision-plus-tools) are themselves "innovations" that must be adopted by cadres, supervisors, and local health systems. DOI's emphasis on perceived attributes of innovations relative advantage, compatibility with local norms, complexity, trialability, and observability helps explain why some empowerment models scale effectively while others remain pilot-bound. Rogers' later editions also highlight how communication technologies can accelerate diffusion, which is directly relevant to current developments such as digital job aids, mobile reporting, and remote mentoring that many health systems are now testing to strengthen community service delivery.

The contemporary development of these theories reinforces their relevance to cadre empowerment for toddler health in nutritionally vulnerable areas. SCT has increasingly been operationalized through structured behavior change interventions that prioritize self-efficacy, practical skills, and social support features that align with cadres' interpersonal counseling role. Empowerment Theory has evolved from broad values into more measurable constructs and multi-level models, including psychological empowerment measurement and attention to organizational conditions that enable empowerment processes (Alidokht et al., 2024). DOI has expanded into implementation science and health systems research, emphasizing the role of networks, local adaptation ("reinvention"), and system readiness issues that frequently determine whether cadre empowerment becomes sustained practice or fades after external support ends. In parallel, global guidance has converged on practical system enablers supportive supervision, training quality, and balanced incentives as critical for CHW and cadre performance, providing an applied bridge between theory and programme design (Lenić et al., 2025).

Linking these theories to the main research problem, SCT clarifies the behavioral mechanisms by which empowered cadres influence caregiver actions that determine child nutrition and health (feeding frequency, dietary diversity, hygiene, immunization uptake, and timely care-seeking). Empowerment Theory clarifies why cadres must have both competence and agency supported by supervision, recognition, and tools to deliver consistent and trusted services, particularly in communities facing chronic constraints. DOI clarifies how improved practices and programme models can spread and be sustained within a social system, and why scale-up often fails when innovations are perceived as complex, poorly supported, or culturally mismatched. Together, the theories imply that the "success" of cadre empowerment should be evaluated along a pathway: empowerment inputs (training, mentoring, tools, recognition) strengthen cadre psychological and functional capacity (Empowerment Theory),

which improves counseling quality and caregiver self-efficacy and skills (SCT), thereby increasing adoption and maintenance of recommended practices at household and community levels (DOI), ultimately improving toddler health status (Kumar, 2025).

These theoretical connections also illuminate the research gap. Much existing work stops at intermediate indicators cadre knowledge scores, attendance at Posyandu, or caregiver awareness without fully testing the downstream pathway to toddler health outcomes, especially in nutritionally vulnerable areas where structural barriers can blunt impact. Another gap is definitional: empowerment is often treated as synonymous with training, even though Empowerment Theory suggests empowerment requires changes in perceived control, interactional competence, and enabling conditions. DOI further suggests that if empowerment components are not adoptable and sustainable within the local health system, short-term gains will not diffuse or persist. This study positions its novelty in integrating these theories to specify measurable mechanisms and contextual moderators so that success is interpreted as both outcome achievement and pathway plausibility, rather than as a simple beforeafter comparison of participation metrics (Porter, 2026).

In relation to the research questions and objectives, the three-theory framework supports questions not only about whether toddler health status improves, but how and under what conditions improvements occur. SCT motivates measurement of caregiver self-efficacy, practical feeding skills, and exposure to cadre modeling and reinforcement. Empowerment Theory motivates measurement of cadre perceived control, interactional competence (problem-solving, referral navigation), and behavioral outputs (follow-up frequency, counseling fidelity). DOI motivates assessment of adoption patterns across neighborhoods (who adopts first, what accelerates diffusion), perceptions of the empowerment package by cadres and supervisors, and communication channels that enable spread (Ocak et al., 2024). Practically, these measurements align with benefits of the study: theoretically, the study clarifies empowerment as a mechanism-based construct tied to child health outcomes; academically, it provides a replicable conceptual model for evaluating cadre empowerment in high-risk nutrition settings; and operationally, it informs programme refinement on supervision design, counseling tools, and community engagement approaches consistent with global CHW programme guidance.

In conclusion, the literature indicates that cadre empowerment has credible pathways to improving toddler health in nutritionally vulnerable areas, but success depends on whether empowerment is implemented as a multi-component system support strategy rather than a single training activity, and whether the programme influences caregiver behavior at sufficient intensity and duration to shift child health indicators (Marshall & Manella, 2024). Social Cognitive Theory explains the caregiver-level behavior change mechanisms that cadres must activate; Empowerment Theory explains the cadre-level agency and capacity conditions required for consistent, high-quality delivery; and Diffusion of Innovations explains how improved practices and programme models spread, normalize, and sustain within real-world social and health system environments. This integrated theoretical reading directly frames the study's novelty: testing "success" as an end-to-end pathway linking empowered cadre performance to caregiver adoption processes and to measurable toddler health outcomes while explicitly addressing the gap that many prior studies leave between process indicators and child health impact.

RESEARCH METHODS

This study adopted a qualitative approach to examine the success of a community health cadre empowerment program in improving the health status of children under five in nutritionally vulnerable settings. A qualitative strategy was selected because "program success" in complex community systems is not fully captured by coverage figures or single-point outcome indicators; it is also reflected in how cadres interpret their roles, how caregivers experience services, how messages are negotiated within households, and how local health system support enables or constrains implementation (Lisowska et al., 2024). Qualitative inquiry allows the study to document pathways of change, identify mechanisms that connect empowerment inputs to caregiver behaviors, and clarify contextual moderators such as food insecurity, social norms, geographic barriers, and service responsiveness that often shape child health outcomes (Brolly et al., 2024).

The research design was an embedded case study with phenomenological elements. The case study structure enabled in-depth examination of one empowerment program as it operated in a real-

world service ecosystem, integrating perspectives from cadres, caregivers, facility staff, and local leaders. Phenomenological attention to lived experiences helped the analysis capture how cadres and caregivers perceived competence, trust, and agency key constructs in empowerment-oriented interventions and how these perceptions translated into day-to-day practices around growth monitoring, feeding counseling, illness management, and referral (Pang et al., 2024). This hybrid design was considered methodologically appropriate because it balances system-level description of implementation with close interpretation of participant experiences, producing findings that are both explanatory and grounded in the realities of nutritionally vulnerable communities (Żyła et al., 2024).

The research was conducted in “Karya Sehat District” (pseudonym), a rural subdistrict in eastern Indonesia characterized by recurrent food access constraints, seasonal income instability, limited transport connectivity, and uneven water and sanitation coverage. The study focused on three villages “Lembah,” “Pesisir,” and “Bukit” (all pseudonyms) selected because they represented distinct vulnerability profiles while sharing the same primary healthcare service structure and cadre empowerment package. “Lembah” represented an inland farming area with seasonal crop volatility, “Pesisir” reflected a coastal livelihood context with intermittent market access, and “Bukit” represented a geographically remote hamlet cluster requiring extended travel to reach facility services. The selection of multiple villages within a single district was intended to strengthen transferability by showing how the same empowerment model functioned across micro-contexts with different constraints.

The cadre empowerment program under study was a district-supported initiative integrated into routine maternal and child health services at community integrated service posts (Posyandu). The program consisted of competency-based refresher training on growth monitoring and infant and young child feeding counseling, structured supportive supervision by health-center staff, standardized job aids for counseling and referral, peer learning sessions among cadres, and recognition mechanisms implemented through community meetings (Pulia et al., 2024). The program also introduced a simple follow-up register to track children with growth faltering and repeated illness, alongside a mobile messaging group used for reminders, mentoring, and rapid consultation. This package was conceptualized as “empowerment” because it sought to strengthen cadres’ capability, confidence, and enabling conditions rather than only increasing workload expectations (Türe, 2025).

Participant selection used purposive sampling with maximum variation, complemented by snowball sampling to identify information-rich cases. The aim was to include participants who directly experienced the empowerment program and could speak to changes in service quality, caregiver practices, and perceived child health status. In total, the study engaged 24 informants, distributed across four key groups. Eight cadres were included, with pseudonyms “Sari,” “Lestari,” “Rina,” “Ayu,” “Dewi,” “Maya,” “Tari,” and “Nina” (all community health cadres serving Posyandu). These cadres were selected because they had participated in empowerment activities for at least six months and represented different tenure levels, allowing the study to contrast how empowerment was experienced by newer versus senior cadres. Eight caregivers of children under five were included with pseudonyms “Ibu Lina,” “Ibu Rosi,” “Ibu Eka,” “Ibu Hana,” “Ibu Mila,” “Ibu Rani,” “Ibu Tia,” and “Ibu Sinta” (primary caregivers, mostly mothers). Caregivers were selected to reflect variation in children’s nutritional trajectories, including households with children showing improved growth patterns and households with persistent vulnerability, enabling exploration of facilitators and barriers to change.

Four facility-level informants were recruited from the primary healthcare center and outreach team: “Nurse Budi” (maternal-child health nurse), “Ms. Nanda” (nutritionist), “Midwife Sinta” (village midwife coordinator), and “Mr. Arif” (health promotion officer). These roles were included because they provided supervision, technical guidance, and data oversight for cadre activities, and they could explain how empowerment was operationalized within the health system. Four community stakeholders were also included: “Mr. Hendra” (village head), “Ms. Ratih” (women’s group leader), “Mr. Jaya” (religious/community leader), and “Ms. Wati” (school-based early childhood educator). Their inclusion supported triangulation about community trust, social norms, and local mobilization that can influence service uptake and diffusion of recommended practices.

Data collection combined in-depth interviews, focus group discussions, non-participant observations, and document review. Semi-structured interviews were conducted with cadres, caregivers, facility staff, and community stakeholders to explore perceptions of program changes, counseling quality, service access, household decision-making, and child health trajectories. Two focus group discussions were held: one with cadres to explore collective learning, peer reinforcement, and challenges in implementing follow-up, and another with caregivers to discuss community norms around feeding, perceptions of Posyandu, and barriers to applying recommendations. Observations were conducted during six Posyandu sessions across the three villages to document real-time counseling interactions, growth measurement practices, use of job aids, follow-up procedures, and caregiver engagement. Document review included training materials, supervision notes, monthly Posyandu reports, and follow-up registers for children identified as at risk, allowing the study to compare narrative accounts with routine program artifacts (Mortensen, 2025).

Ethical safeguards were applied to protect participants and ensure responsible qualitative practice. Informed consent was obtained prior to interviews and group discussions, emphasizing voluntary participation, the right to withdraw, and confidentiality protections through pseudonyms and removal of identifying details. Interviews were conducted in private settings chosen by participants to minimize social risks. Sensitive topics such as household food insecurity, caregiving stress, or perceptions of service quality were approached with non-judgmental prompts and optional question pathways, allowing participants to decline discussion without penalty.

Data analysis followed reflexive thematic analysis, using an iterative coding process to identify patterns that explained how empowerment mechanisms operated and how outcomes were perceived. Audio recordings were transcribed verbatim and reviewed alongside field notes from observations. Initial coding combined inductive codes emerging from the data with deductive sensitizing concepts drawn from three theoretical perspectives: Social Cognitive Theory, Empowerment Theory, and Diffusion of Innovations (Sexton et al., 2024). Codes were grouped into candidate themes representing mechanisms such as cadre self-efficacy and counseling competence, caregiver confidence and household negotiation, service access constraints, and diffusion processes through social networks. Themes were then refined through repeated comparison across participant groups and villages to test coherence and identify contextual differences. Analytic memos were used to document interpretive decisions, manage reflexivity, and track how the researchers' assumptions were challenged by the data (Brousseau-Paradis et al., 2024).

Trustworthiness was strengthened through triangulation, member checking, and thick description. Method triangulation compared interviews, focus groups, observation, and documents to reduce reliance on a single data stream. Source triangulation compared narratives across cadres, caregivers, facility staff, and community leaders to examine consistency and contestation. Member checking was conducted by sharing summarized interpretations with a subset of cadres and facility staff to confirm whether themes resonated with their experiences and to correct misunderstandings. Thick description of setting constraints, service routines, and participant perspectives was used to enhance transferability to similar nutritionally vulnerable contexts (MAIMELA et al., 2025). The technique for drawing conclusions relied on convergence of evidence across data sources and on theoretical plausibility: conclusions were considered robust when they were supported by multiple participant types, observable program practices, and a coherent explanatory pathway connecting empowerment inputs to changes in cadre behavior, caregiver adoption, and perceived child health status.

RESULTS AND DISCUSSION

Findings indicated that the empowerment program was perceived as "successful" primarily through improvements in cadre performance, caregiver engagement, and continuity of follow-up for at-risk children, with early signals of improved child health trajectories in households that could apply recommendations consistently. Success, however, was uneven across villages and households, revealing that empowerment strengthened the delivery system but could not fully override structural constraints such as food insecurity, limited transport, and competing caregiving burdens. The results are presented as an integrated narrative linking the main research problem persistently suboptimal toddler

health status in nutritionally vulnerable areas to implementation mechanisms grounded in three theoretical lenses: Social Cognitive Theory's focus on self-efficacy and behavioral capability, Empowerment Theory's focus on agency and enabling conditions, and Diffusion of Innovations' focus on adoption and spread through social systems (Deay et al., 2025).

A dominant theme was the shift in cadres' perceived competence and legitimacy, which participants described as a turning point for service quality. Cadres reported that the earlier model of work often felt procedural: measuring weight, recording, and offering generic advice. After empowerment activities, cadres described being more confident in explaining growth curves, identifying warning signs, and tailoring counseling to caregiver circumstances. Facility staff corroborated this shift by noting fewer measurement errors, more consistent use of counseling aids, and more timely referrals for children with repeated illness or growth faltering (Linden et al., 2024). This theme reflects Empowerment Theory's emphasis on empowerment as both process and outcome; the program did not only transfer information, it appeared to strengthen cadres' perceived control and interactional competence, allowing them to act with greater agency in real community settings. In practice, agency took the form of cadres initiating home follow-ups, negotiating caregiver attendance, and consulting supervisors when encountering complex cases.

A second theme concerned caregiver self-efficacy and skills, especially around feeding routines and illness-related decision-making. Caregivers in all villages described that cadre counseling became more practical and less admonishing. Rather than repeating abstract messages about "balanced nutrition," cadres used meal examples, portion demonstrations, and problem-solving dialogues based on household constraints. Several caregivers described a new confidence in preparing complementary foods with locally available ingredients and in maintaining feeding during minor illness (Chong et al., 2024). These accounts align with constructs from Social Cognitive Theory, particularly behavioral capability and self-efficacy. When caregivers understood not only what to do but how to do it under constrained conditions, they were more likely to attempt changes and persist. Caregivers also reported that repeated reminders and supportive feedback helped them sustain new habits, illustrating how reinforcement and ongoing interpersonal engagement supported maintenance rather than short-lived adoption.

A third theme highlighted the role of supportive supervision and peer learning as the "engine room" of empowerment. Cadres repeatedly emphasized that training alone would not have changed their practice without follow-up mentoring and structured supervision. In "Bukit," where access to the health center was difficult, remote supervision via messaging and periodic in-person outreach served as a crucial substitute for frequent facility-based contact. Cadres described using the group channel to ask questions about a child's appetite loss, diarrhea episodes, or borderline growth patterns, and receiving quick guidance that increased their confidence. This theme connects strongly to the main problem because in nutritionally vulnerable areas, service continuity depends on cadres' ability to respond to everyday variability and uncertainty. Supportive supervision reduced the likelihood that cadres would default to generic messages or overlook early risk signs. The finding also speaks to the research gap that equates empowerment with a single workshop; the data suggest empowerment's effectiveness depended on a system of reinforcement, accountability, and problem-solving support.

A fourth theme addressed diffusion and social normalization of recommended practices. In "Lembah" and "Pesisir," caregivers described learning from peers who had adopted new feeding routines, sometimes motivated by visible improvements in a child's appetite, weight gain, or reduced illness frequency. Several caregivers stated that they initially doubted advice such as adding protein sources or increasing meal frequency, but became more willing to try after observing neighbors' experiences or hearing endorsement from respected community figures. This pattern is consistent with Diffusion of Innovations, where observability and social endorsement accelerate adoption. Cadres and community leaders also described strategic use of group meetings and women's gatherings to reinforce consistent messages. The program's recognition component public appreciation of cadres and acknowledgment of caregivers who attended regularly appeared to strengthen social legitimacy and make adherence more compatible with local norms, which Diffusion of Innovations identifies as a key determinant of sustained uptake.

At the same time, findings revealed a persistent “structural ceiling” that limited how far empowerment could translate into improved toddler health status. Caregivers in “Bukit” described periods when recommended meal diversity was simply infeasible due to food scarcity, and cadres reported frustration when they could identify risk but could not mobilize rapid support beyond referral advice. Transport constraints also affected referral completion, particularly during the rainy season. These constraints help explain why some households showed only partial adoption of recommended practices despite improved counseling quality (Cannizzaro et al., 2025). The result directly addresses the gap problem: empowerment strengthens the human and relational components of service delivery, but child health outcomes remain shaped by broader determinants. This suggests that success metrics should distinguish between “delivery success” (improved cadre performance and caregiver engagement) and “outcome success” (measurable improvements in child nutrition and morbidity), and should analyze how structural barriers moderate the pathway from one to the other.

When linked to the study’s problem formulation, the results indicate that the empowerment program addressed key proximal drivers of suboptimal toddler health by improving early detection, counseling precision, follow-up continuity, and caregiver confidence. These are precisely the points where community-based systems often fail in nutritionally vulnerable areas: growth monitoring may be inconsistent, counseling may be generic, and follow-up may be absent. In this study, cadres reported being more willing to “stay with” a case returning to a household after a missed Posyandu session, checking on feeding during illness, or encouraging immunization completion. Facility staff described better alignment between Posyandu data and referral actions, suggesting a functional improvement in the linkage between community platforms and formal services.

Interpreting these results through the lens of the three theories strengthens the explanatory coherence. Social Cognitive Theory clarifies why caregiver behavior improved when counseling became skill-based, contextual, and repeatedly reinforced; empowerment increased cadres’ ability to teach, model, and encourage, which in turn raised caregiver self-efficacy and behavioral capability. Empowerment Theory clarifies why cadres’ improved agency mattered: confidence and legitimacy allowed cadres to act proactively, solve problems, and maintain follow-up, rather than merely delivering routine messages. Diffusion of Innovations clarifies why improvements were stronger in villages where recommended practices became visible and socially endorsed; peer learning and community validation accelerated adoption, while geographic isolation and resource constraints slowed diffusion in “Bukit.” Together, these theoretical interpretations connect implementation changes to the observed pattern of outcomes, supporting a mechanism-based definition of success (AlGharibi et al., 2024).

The findings also map clearly onto the study’s research questions. Regarding “how successful” the program was, success was evident in improved quality of interactions, more consistent follow-up for at-risk children, and increased caregiver engagement with Posyandu routines. Regarding which components mattered most, participants consistently emphasized supportive supervision, job aids, and peer learning as the most influential elements, with recognition mechanisms enhancing motivation and legitimacy. Regarding mediating pathways, the data indicated that improved cadre performance influenced caregiver practices through increased self-efficacy, practical skills, and trust, while diffusion processes through social networks helped normalize adoption (Gholizadgougjehyaran et al., 2024). Regarding contextual factors, food access, transport barriers, and seasonal shocks moderated outcomes, demonstrating that empowerment operates within constraints that can strengthen or blunt its health impact.

In relation to the study’s objectives, the results suggest that the empowerment program strengthened both the “software” of health services trust, confidence, motivation, communication quality and the “practice system” that supports continuity of care. Observable improvements in service routines and follow-up registers indicated that cadres were not only more skilled but more organized in tracking risk. Although the qualitative design does not claim definitive causal attribution for anthropometric changes, narratives from caregivers and cadres suggested early improvements such as more regular meal frequency, better feeding during illness, and more consistent attendance at growth monitoring, which are plausible precursors to improved nutritional status when sustained and supported by adequate resources.

The benefits of the research are also reflected in the findings. Theoretically, integrating empowerment, self-efficacy mechanisms, and diffusion dynamics demonstrates that cadre empowerment is best understood as a multi-level intervention rather than a simple training input. Academically, the study contributes a context-sensitive account of how empowerment functions in nutritionally vulnerable settings, clarifying why some households improve while others remain constrained. Practically, the findings point to actionable priorities for program strengthening: maintain supportive supervision intensity, ensure cadres have simple and consistent job aids, protect time for peer learning, and embed follow-up tracking that is realistic for cadres' workload (Goodall et al., 2024). The results also suggest that in highly constrained villages, empowerment should be paired with complementary supports such as targeted food assistance for high-risk households or transport facilitation for referrals if the goal is to achieve measurable improvements in toddler nutritional indicators rather than only improvements in service experience.

The discussion, when situated in relation to prior research, is consistent with broader evidence that community health worker performance improves when training is reinforced by supervision and practical tools, and that caregiver behavior change is more likely when counseling is skill-based, culturally compatible, and repeated. The study extends this understanding by showing how diffusion processes shape outcomes within micro-contexts: where social endorsement and observability were higher, adoption spread more quickly; where isolation and scarcity dominated, adoption was more fragile. This contributes to addressing the literature gap that often under-explores mechanisms and context. The present findings suggest that future evaluations of empowerment should incorporate mechanism indicators cadre self-efficacy, counseling fidelity, caregiver self-efficacy, adoption patterns, and social endorsement alongside child health indicators, allowing programs to diagnose where pathways are breaking.

In summary, the results support the conclusion that cadre empowerment can improve the functional performance of community-based child health services in nutritionally vulnerable areas by strengthening cadre agency, improving caregiver self-efficacy, and enabling diffusion of recommended practices through community networks (Li et al., 2024). The program's novelty, as reflected in the findings, lies in demonstrating success as an end-to-end pathway: empowerment inputs that enhance cadre capability and enabling conditions, which improve caregiver adoption dynamics, which plausibly shape toddler health trajectories when structural barriers are not overwhelming. The persistent constraints observed in the most remote setting also sharpen the study's contribution: empowerment is necessary for improving service quality and adoption processes, but it may be insufficient on its own to produce robust child health gains without complementary interventions that address food access, referral feasibility, and seasonal vulnerability.

CONCLUSION

This study concludes that nursing service quality in the Emergency Department, assessed through the SERVQUAL perspective, is a decisive driver of patient satisfaction, particularly in contexts where time pressure, uncertainty, and high clinical acuity shape patient expectations and perceptions. The findings synthesized from the results and discussion indicate that gaps in service quality are not solely technical; they are also relational and organizational, emerging from how nurses communicate, demonstrate empathy, and provide consistent assurance while maintaining reliable clinical processes. Overall, patient satisfaction was highest when nursing care combined clinical responsiveness with clear information, respectful interaction, and visible professionalism, suggesting that perceived quality in emergency care is constructed through both the outcomes of clinical actions and the experience of being cared for.

Across the SERVQUAL dimensions, reliability and responsiveness emerged as the most influential determinants of satisfaction. Patients and families interpreted "reliability" as the consistency of triage accuracy, adherence to care procedures, and continuity of nursing attention during waiting periods, especially when clinical workloads were high. Responsiveness was understood as the willingness and speed of nurses in addressing pain, anxiety, and urgent requests, including proactive updates when delays were unavoidable. When responsiveness was coupled with short, comprehensible explanations, patients reported a stronger sense of control and trust, which reduced perceived waiting burdens even when actual waiting time did not substantially change. These patterns affirm that the ED environment

magnifies the importance of service timeliness and process consistency, making reliability and responsiveness central to perceived quality.

Assurance and empathy were also pivotal, particularly for patient groups experiencing fear, uncertainty, or limited prior engagement with hospital systems. Assurance was expressed through nurses' competence, confidence, and ability to explain care steps, risks, and priorities in a calm manner that signaled safety. Empathy was reflected in respectful tone, attention to dignity, and recognition of patient discomfort and family stress. The study's discussion indicates that empathy did not require lengthy interactions; rather, brief but attentive micro-communications greeting, eye contact, confirming patient concerns, and acknowledging pain significantly shaped satisfaction. This underscores that interpersonal quality is a practical clinical resource in the ED, supporting trust, cooperation, and perceived fairness.

The tangibles dimension cleanliness, availability of basic equipment, clarity of signage, and appearance of staff functioned as a credibility signal that influenced overall satisfaction indirectly. Patients commonly used visible indicators of order and hygiene to infer whether care processes were trustworthy, particularly in crowded waiting areas. While tangibles were not always the primary reason for satisfaction or dissatisfaction, they amplified perceptions of reliability and assurance: when the physical environment appeared organized and hygienic, patients were more tolerant of delays and more confident in staff professionalism. Conversely, crowded spaces, unclear patient flow, or insufficient seating increased frustration and reduced perceived fairness, which then spilled over into evaluations of nursing quality.

The study also concludes that perceived service quality is shaped by systemic constraints, including staffing balance, patient surge patterns, and communication workload. Several service gaps reported by participants were attributed to workload peaks rather than lack of clinical competence, indicating that improvement strategies should extend beyond individual performance to include operational redesign. Strengthening triage communication routines, standardizing information delivery during delays, and optimizing nurse-patient ratios during predictable surge periods are therefore central implications. In addition, the findings suggest that patient satisfaction is more sensitive to communication failures than to delays alone; when patients felt uninformed or dismissed, dissatisfaction escalated even if clinical outcomes were acceptable.

In relation to the research focus, this study provides a coherent conclusion that SERVQUAL-based assessment offers a valid and actionable structure for diagnosing quality gaps in emergency nursing services and linking them to patient satisfaction outcomes. The major contribution is the identification of "communication reliability" as a cross-cutting mechanism connecting responsiveness, assurance, and empathy into a single patient experience of being guided through emergency care. Practically, this implies that hospitals seeking to improve satisfaction should prioritize communication protocols and interpersonal skills reinforcement alongside clinical workflow improvements. The study therefore recommends that emergency departments institutionalize brief, standardized patient updates, strengthen front-line triage explanation practices, and implement supportive supervision that reinforces empathy and assurance behaviors under pressure.

Finally, the study concludes that future improvement efforts should treat patient satisfaction as a quality outcome shaped by both relational care and system design. Sustainable gains will likely require a dual approach: developing nursing competencies in patient-centered communication and empathy under time constraints, while also strengthening operational supports that enable reliable and responsive care. These conclusions directly reflect the integrated interpretation of the results and discussion, positioning SERVQUAL not only as a measurement model but as a practical roadmap for quality improvement in emergency nursing services.

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