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Sustainable Health Education Management for Community Heart Disease Prevention in Manado, Indonesia: A Qualitative Study and Integrated Model

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ABSTRACT

Episodic educational campaigns may expand awareness without sustaining cardiovascular-prevention behavior. To examine the organization of community heart-health education in Manado and formulate an integrated, locally responsive educational-management model. A qualitative descriptive drew on semistructured interviews, observations, focus group discussions, and documentary review involving health administrators, primary-care and hospital personnel, community leaders, volunteers, and residents. Thematic analysis and source/method triangulation guided interpretation. Educational delivery was often event-based; cross-sector collaboration lacked permanent coordination, staffing and funding constrained follow-up, and administrative monitoring did not consistently assess behavioral outcomes. Supporting conditions included municipal policy commitment, primary-care infrastructure, health cadres, educational partners, and mapalus-based mutual assistance. The model connects participatory needs assessment, multistakeholder organization, interactive education, monitoring, and Plan, Do, Check, Act improvement within an input–process–output–outcome architecture. A sustainable approach requires continuing governance and measurement rather than isolated information campaigns. The model is a qualitative design proposal, not evidence of reduced cardiovascular incidence, and requires prospective implementation testing.

Keywords: cardiovascular disease prevention, collaborative governance, community participation, health education management, sustainability.

INTRODUCTION

Preventing cardiovascular disease is simultaneously a clinical, educational, institutional, and social challenge. Public health systems can identify risk factors and communicate preventive recommendations, yet information rarely becomes durable practice without supportive environments and repeat engagement. In Manado, North Sulawesi, community education operates within an urban setting marked by diverse neighborhoods, strong social networks, changing diets, smoking, uneven physical activity, and differentiated access to reliable health information. The central issue is therefore not simply whether residents can receive health messages. It is whether those messages are organized as continuing learning opportunities that connect everyday choices, local relationships, primary-care services, and collective responsibility. A management perspective is essential because an educational intervention that ends with a single event cannot reasonably be expected to support lasting behavioral adjustment.

Health education in the study setting has been provided through health centers, community activities, counseling, and promotional campaigns. Yet program continuity, strategic coordination, and outcome measurement have remained uneven. Activities may be scheduled according to annual administrative requirements while insufficient attention is directed to participants' readiness to change, barriers to practice, or the next encounter after the initial presentation. The distinction between a completed activity and a meaningful educational outcome matters. Attendance records can establish that a session occurred; they cannot establish sustained dietary improvement, smoking cessation, long-term medication adherence, or reduced cardiovascular events. The study therefore treats the management of continuity as a research problem rather than assuming that a greater number of campaigns will necessarily produce stronger prevention.

The institutional environment provides both opportunities and constraints. Community health centers, locally known as Puskesmas, have primary-care relationships with residents and established health-promotion responsibilities. Schools and universities can contribute instructional design, capacity building, and evaluation skills. Community leaders, voluntary health cadres, social organizations, local media, and businesses can contribute trust, meeting spaces, outreach networks, resources, and public communication. However, participation by multiple organizations does not automatically create collective governance. When roles, budgets, evidence standards, feedback schedules, and responsibility for follow-up are unclear, a large set of potential partners can remain an intermittent collection of separate activities. The relevant managerial question concerns the conditions under which these actors function as a learning system rather than as isolated event organizers.

The empirical context described in the study includes a preliminary appraisal of 120 adult residents in three Manado districts, in which 22% reportedly recognized early warning symptoms and 18% reported actively practicing selected healthy-lifestyle behaviors. These figures are contextual material reported in the research background, not estimates from a probability-based citywide sample. Other background records described substantial gaps in education exposure and the continuity of prior programs. They justify closer examination of local educational arrangements but should not be interpreted as a causal evaluation of a particular intervention. The qualitative investigation instead examined the organization and experience of existing community education and identified design principles for improving continuity.

Educational management offers a useful means of connecting policy ambition with activities that residents can experience repeatedly. Planning can align messages with local risk profiles and social circumstances; organizing can assign sustained responsibilities; implementation can make education accessible and participatory; controlling and evaluation can identify whether learning

becomes action. These managerial functions must work together with health-behavior theories explaining perceived risk, motivation, capability, and social influence. The study's emphasis on locally grounded participation adds an additional dimension: a program may be technically sound but fail to persist when the community perceives it as an external project rather than an activity it owns.

Accordingly, the article examines the current condition of education for heart-disease prevention in Manado, the enabling and constraining factors affecting implementation, stakeholder roles, and the structure of a proposed sustainable educational-management model. Its distinctive contribution lies in connecting the planning–organizing–implementation–evaluation sequence with continuous quality improvement, participatory governance, and the regional tradition of mapalus, understood here as an ethic of mutual assistance. The model is presented as a qualitative, evidence-informed proposal. It is not presented as a demonstrated reduction in heart-disease incidence because such a claim would require a separate longitudinal evaluation and appropriate health outcome data.

CONCEPTUAL FRAMEWORK

The first foundation is educational management. Bush (2018) describes educational administration and leadership as context-dependent efforts to align organizational structures, values, actors, and learning objectives. In the familiar planning–organizing–actuating–controlling perspective associated with Terry (2003), administrative functions are mutually dependent rather than separate checklists. Planning establishes objectives and allocates resources. Organizing converts intentions into responsibilities and networks. Actuating mobilizes personnel and communication. Controlling identifies deviations and generates corrective action. In community health education, the meaning of each function expands beyond school administration: the learning environment is distributed across households, health facilities, public spaces, and digital channels. Management must therefore coordinate organizations that do not always share the same authority or incentive structures.

Strategic management contributes the longer time horizon that event-based health promotion often lacks. A strategy identifies the population groups that should be reached, the behaviors that require support, the partners and resources required, and the conditions under which an approach should be adjusted. In this setting, an annual lecture calendar is not a sufficient strategy unless linked to local risk information, a theory of learning and behavior, and indicators of sustained engagement. The distinction between output and outcome is particularly important. The number of posters distributed or sessions conducted is an output; the ability to identify cardiovascular symptoms, seek appropriate care, or maintain a healthier routine is a different type of result. Confusing these levels can lead organizations to optimize activity volume rather than prevention relevance.

Total quality management offers a second organizational lens. Deming (1986) emphasizes systems thinking and repeated improvement rather than assigning success or failure only to front-line workers. The Plan–Do–Check–Act cycle provides a practical discipline: plan an intervention with evidence, deliver it consistently, measure what occurred, and modify the next round using observations and participant feedback. For community education, this cycle is valuable because educational effects may decay after initial exposure, and interventions must adapt to changing risks and local availability of resources. It also makes it possible to distinguish program fidelity, whether the planned session was delivered, from program effectiveness, whether the learning process

supported the desired behavioral pathway. The proposed model integrates these distinctions in its monitoring component.

Research on educational leadership strengthens this interpretation. Rawis, Tambingon, and Lengkong (2024) identify the relationship between institutional leadership, staff engagement, and productivity, emphasizing clear direction, constructive feedback, and professional development. Their work concerns educational organizations rather than cardiovascular prevention, but its transferable managerial implication is that sustained participation by frontline facilitators depends partly on supportive leadership and shared operational expectations. Herry Sumual, Lumapow, and Shelty Sumual (2024) examine leadership effectiveness in medical education and highlight the relevance of leadership choices within complex professional-learning environments. These contributions support examination of the leadership arrangements behind health education while not constituting direct empirical proof that one leadership style reduces cardiovascular risk.

Participatory management and collaborative governance address relationships that a conventional command-and-control model may overlook. In a collaborative approach, the public sector retains responsibility for stewardship and accountability while community groups contribute knowledge of daily constraints, culturally appropriate communication, and informal channels of trust. Participation should include more than recruitment into predetermined sessions. It can involve identifying priorities, selecting learning formats, reviewing messages, co-monitoring progress, and deciding which practices should be retained. This distinction is especially significant where health workers are overstretched. Community participation can increase reach, but it should not be used as an argument to transfer professional responsibilities to unpaid volunteers without adequate training, supervision, and support.

The local concept of mapalus adds a culturally meaningful basis for collective ownership. Rather than being treated as a decorative cultural reference, mutual assistance can shape the concrete architecture of a program: neighborhood groups can organize recurring sessions, share practical reminders, coordinate transportation to screening opportunities, support older adults, and provide feedback on which recommendations are feasible. The model nevertheless avoids romanticizing community solidarity. Participation may be uneven across socioeconomic or age groups; social expectations can become exclusionary; and community trust cannot substitute for clinically validated information. Institutional arrangements should protect inclusion, privacy, and scientific accuracy while using local networks to make preventive learning routine.

Behavioral theory clarifies why information alone is insufficient. The Health Belief Model relates preventive action to perceived susceptibility, severity, benefits, barriers, and cues to action (Rosenstock, 1974). A person may understand that smoking increases risk yet continue smoking because immediate barriers outweigh the perceived benefit of stopping. The Theory of Planned Behavior explains intentions through attitudes, perceived social norms, and perceived behavioral control (Ajzen, 1991). These concepts direct facilitators to address practical barriers and household influences, not merely repeat biomedical definitions. The Transtheoretical Model frames change as movement through stages that may include relapse (Prochaska & DiClemente, 1983), while Social Cognitive Theory emphasizes self-efficacy, observational learning, and interaction between individuals and their environment (Bandura, 1986).

Combining these perspectives suggests a layered educational design. Information on blood pressure, smoking, diet, inactivity, and warning symptoms can address risk perception; group discussions can reveal beliefs and barriers; demonstrations and simple goal-setting can improve confidence; peer groups can normalize healthier routines; and follow-up contacts can help individuals maintain change. The learning sequence should avoid promising that awareness translates immediately into lower clinical risk. Knowledge is a potentially useful intermediate

outcome, whereas changes in blood pressure, smoking status, and disease incidence require careful measurement over longer periods. Sustainable management concerns the conditions that make both learning and measurement possible.

Digital educational channels provide further reach but also introduce an important quality-control task. Umbase (2023), writing on technological pedagogical and content knowledge in learning management, underscores the need to integrate technology, pedagogy, and content rather than assuming that an online channel automatically creates effective learning. Although her study addresses social studies education, this conceptual lesson applies to health-promotion message design: accurate cardiovascular content, accessible pedagogy, and suitable technology must be aligned. A video or messaging application can reinforce face-to-face encounters, but information credibility, connectivity, accessibility for older adults, and feedback mechanisms remain critical design requirements. Digital outreach is therefore one component of a mixed-delivery system, not a replacement for community relationships.

METHOD

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RESULTS AND DISCUSSION

Current educational practice and the continuity gap

Health education in the study setting was delivered through lectures, counseling, community activities, and emerging digital communication. Local health centers retained an important role in preventive information, and some sessions or group activities generated immediate interest. The central weakness was the fragmented learning pathway. Activities were often organized as discrete events, sometimes in response to an annual budget or a scheduled campaign, with limited assurance that participants would receive reinforcement, practical support, or follow-up assessment. This pattern is not equivalent to the absence of health education: services were active, and personnel described relevant initiatives. Instead, the evidence points to a mismatch between recurring health risks and episodic instructional arrangements. See table 1.

Table 1. Study Setting and Documentary Context

Contextual element	Source-grounded information	Interpretive relevance
Puskesmas Sario	Seven urban subdistricts; 2024 profile reports 23,449 residents	Primary-care setting for preventive education
Puskesmas Paniki Bawah	Seven kelurahan; 2024 profile reports 30 Posyandu and 60 active cadres	Existing community-volunteer networks
Puskesmas Ranomuut	Seven kelurahan; 2025 profile lists four auxiliary centers and 30 Posyandu	Potential reach through decentralized service points
Historical contextual appraisal	Rapid appraisal of 120 adults in three districts; 22% symptom recognition; 18% selected healthy-lifestyle behavior	Background description only; not a representative program-effect estimate

The study identified uneven pedagogical methods. Lecture-dominated encounters could efficiently convey basic information to large groups but were less suited to identifying the practical reasons people struggled to alter everyday habits. Focus-group material indicated stronger interest

when learning included interaction, demonstrations, simple activities, games, or shared discussion. Observations also highlighted the potential of community exercise events and peer-based education to place preventive messages in everyday social settings. The managerial consequence is that program design requires more than dissemination of content. It requires a planned sequence of understanding, practice, reinforcement, and opportunities to seek clarification. Educators must be able to adjust language and examples without sacrificing clinical accuracy.

A second pattern concerned the difference between information exposure and action. Study participants and documents described rising awareness after selected educational encounters, yet a lack of consistency in behavior over time. This should be interpreted carefully: the qualitative evidence supports a perceived knowledge-to-practice gap, not a measured citywide effect size. Conditions identified as relevant included food preferences, smoking, limited exercise, stress, and the availability of trusted guidance. Preventive choices are shaped by household routines, financial and time constraints, social expectations, and local opportunities. Consequently, education centered solely on individual responsibility would not fully address the circumstances in which cardiovascular risks are reproduced. The findings support practical, supportive forms of health literacy rather than one-way persuasion. See table 2.

Table 2. Thematic Summary of Current Practice

Theme	Reported observation	Educational-management meaning
Delivery	Lectures and periodic campaigns; some interactive initiatives	A planned sequence of active learning and follow-up is needed
Behavior	Awareness after sessions is not consistently maintained as action	Barriers and self-efficacy should guide educational design
Coordination	Collaboration occurs but is not permanently structured	Roles and shared schedules should be formalized
Monitoring	Reports emphasize activities more than participant outcomes	Behavior-related indicators require practical collection protocols
Continuity	Personnel and annual funding remain limiting conditions	Recurring work plans and sustainable financing are necessary

Program organization and managerial weaknesses

The planning function appeared strongly connected to existing administrative schedules and national program guidance, with less systematic use of neighborhood-specific risk information and participant input. Program priorities and messages were therefore at risk of remaining generic. A more responsive planning process would distinguish participants by needs and preferred learning channels, determine which risks were most actionable, and establish outcome indicators before delivery begins. Local epidemiological profiles and community consultations were available as potential inputs but were not consistently integrated into a continuing educational strategy.

Organizing was constrained by the absence of a permanent cross-sector coordination mechanism. Health officials, schools, community networks, and other actors could participate in individual initiatives, yet joint planning, responsibility allocation, and shared evaluation were not sufficiently institutionalized. This fragmentation created risks of duplicated activities, uneven workloads, and dependence on particularly motivated individuals. Clear governance arrangements

would not eliminate the need for clinical judgment or local autonomy; rather, they would specify which organization validates educational content, recruits participants, supplies facilities, monitors implementation, and follows up after activities. The findings indicate that these responsibilities were often implicit rather than documented.

Implementation depended substantially on available health-promotion personnel, consumable resources, suitable media, and the ability to secure participant involvement. Staff workload and constrained budgets limited the frequency and reach of repeated education. Financial dependence on time-bound project allocations created uncertainty after an initial campaign ended. Informants nevertheless described viable methods such as cadre training, community exercise, digital reinforcement, and use of accessible meeting spaces. These options are best viewed as a portfolio adapted to different population groups: they cannot substitute for each other entirely, and each requires appropriate facilitation and safeguarding.

Controlling and evaluation were particularly important weaknesses. Routine reports commonly emphasized activity completion, attendance, and administrative accountability. Far less systematic attention was directed to change in knowledge, intention, everyday behavior, and sustained participation. Without defined baseline measures, follow-up schedules, and responsibilities for interpreting results, an organization may repeatedly implement the same strategy without learning whether it addresses residents' barriers. The study accordingly identifies evaluation not as a terminal report but as a continuous feedback process that must inform the next planning cycle. This insight connects the observed POAC gaps with the proposed PDCA-based management structure. See table 3.

Table 3. POAC Diagnostic Matrix

Function	Observed condition	Principal gap	Proposed improvement
Planning	Activity plans commonly follow administrative guidance	Insufficient neighborhood-specific needs analysis	Local risk and community-informed action plans
Organizing	Multiple capable partners, weak continuing coordination	No permanent joint governance arrangement	Shared roles, forum and formal agreements
Actuating	Educational activities delivered, often as discrete events	Limited reinforcement and tailoring	Interactive learning, cadres and repeat contacts
Controlling	Administrative reporting occurs	Insufficient outcome and behavior tracking	Continuous indicators, review and correction

Supporting factors and environmental assets

The investigation documented enabling conditions alongside constraints. Health Office policy commitment provided formal legitimacy for prevention programs. Community health centers supplied service infrastructure, clinical personnel, and relationships that could be used for referrals and risk assessment. Health cadres and community organizations represented potential intermediaries between technical expertise and neighborhood life. Educational institutions could contribute instructional design and evaluation capacity, while media could extend exposure to validated messages. These assets mattered because the desired educational system would not need to be built as an entirely separate institution; it could connect existing services and partners through clearer agreements.

The value of locally trusted networks was a prominent finding. Community and faith-based organizations could make health discussions acceptable within familiar settings, provided that medical content remained evidence-based and participation was voluntary. Mapalus, as a recognizable form of mutual support, offered a social language for collective responsibility and regular participation. Yet this asset carries operational conditions. Facilitators require training, community groups need practical educational tools, and program planners must account for residents who do not belong to organized networks. Reliance on existing social capital alone could leave isolated or digitally disconnected residents behind. The findings therefore suggest culturally adapted engagement with explicit equity safeguards.

The same study recognized digital communication as both opportunity and risk. Online channels could reach younger residents, distribute reminders, support follow-up, and provide a route to verified materials. However, some participants relied heavily on sources of uncertain credibility, and access to devices, connectivity, and skills was not uniform. A sustainable program would thus need designated scientific review of digital content, mechanisms for correcting misinformation, and non-digital alternatives. Health-center personnel could use digital tools to complement direct education and data management, but resource investment should match actual users' capabilities rather than platform novelty. See figure 1 and table 4.

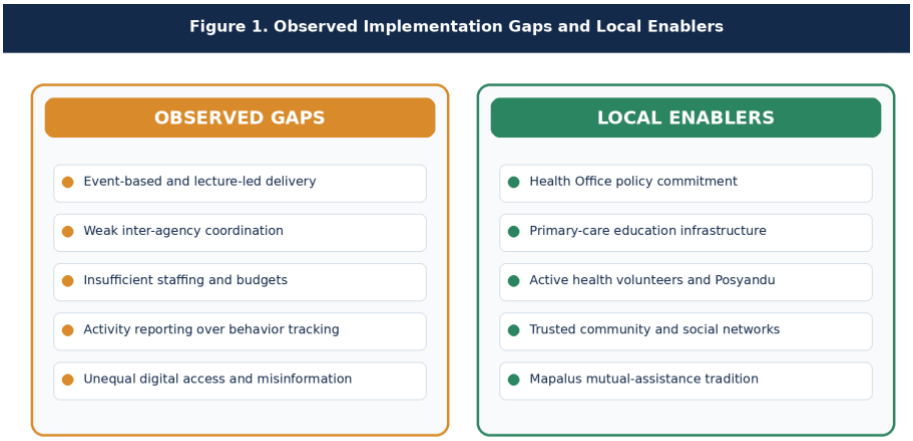


Figure 1. Implementation gaps and enabling conditions reconstructed in English from the qualitative synthesis.

Table 4. Enablers, Constraints, and Management Responses

Domain	Supporting factor	Constraining factor	Response proposed by the analysis
Policy	Municipal health commitment	Short-term program cycles	Multiyear objectives and institutional stewardship
Personnel	Puskesmas staff and community cadres	Workload, training and incentives	Defined roles and facilitator development
Community	Mapalus and trusted groups	Inconsistent participation and established risk habits	Inclusive co-design and peer reinforcement

Communication	Existing media and digital channels	Misinformation and uneven digital access	Clinical review, mixed-channel learning
Measurement	Routine administrative reports	No consistent behavior evaluation	Short indicator set, follow-up and audit

Inhibiting factors and operational vulnerability

The recurring barriers included limited health-promotion staffing, insufficient or uncertain financing, incomplete interagency coordination, social and behavioral challenges, and the lack of standardized outcome monitoring. These factors interacted. Staff shortages made follow-up difficult; weak follow-up reduced the evidence needed to justify sustained funding; unstable funding discouraged long-term coordination; and a lack of agreed responsibilities compounded the burden on individual workers. The obstacles should therefore be understood as an organizational configuration rather than a set of isolated failures. Strengthening only one input, such as producing more posters, would not remove the reinforcing constraints.

Operational vulnerability also appeared in the treatment of local culture. Food habits and smoking practices could conflict with preventive advice, while community solidarity could enable collective support for change. These are not contradictory descriptions. The same social setting can both reproduce familiar habits and provide channels for discussing alternatives. Educators therefore need to engage respectfully with actual practices, involve families and trusted facilitators, and avoid stigmatizing individuals with elevated cardiovascular risk. The quality of communication is a management issue because appropriate training, materials, scheduling, and quality review determine how safely and consistently messages are delivered.

Stakeholder structure and participation

The stakeholder mapping placed municipal authorities and the Health Office in coordinating and regulatory roles, Puskesmas and hospitals in technical provision, universities and schools in knowledge production and teaching, community networks in mobilization and peer support, and businesses and media in selected resources and communication. The respective interests were complementary but not automatically aligned. Administrative reporting periods, educational calendars, organizational mandates, and funding cycles could differ. Stakeholder participation was therefore more visible at the level of particular activities than through a formally agreed joint program with a shared evaluation framework.

An effective collaborative arrangement would require an agreed decision-making forum, designated local focal points, written schedules, communication procedures, and transparent accountability for resources. The proposed forum described in the findings is not evidence that such a permanent body was already operating successfully. It is a design response to the documented coordination gap. Similar caution applies to proposed digital dashboards and pooled financing: they are plausible institutional mechanisms requiring authorization, data governance, capacity development, and resource commitments. The findings justify their inclusion as components of a model, not assertions of measured implementation success. See figure 2 and table 5.



Figure 2. Stakeholder governance structure, rendered in English and proposed for implementation.

Table 5. Proposed Stakeholder Responsibilities

Actor	Core contribution	Necessary accountability
Municipal government / Health Office	Policy stewardship, priority setting and funding coordination	Equity, financial transparency and implementation review
Puskesmas / hospitals	Clinical accuracy, screening, education and referral	Safe protocols, trained personnel and follow-up
Schools / universities	Learning design, training, evaluation and research	Appropriate pedagogy and independent assessment
Community cadres / local leaders	Recruitment, culturally relevant learning and peer support	Voluntary participation and inclusive outreach
Business / media partners	Selected logistics, financing and dissemination	Conflict-of-interest rules and validated messaging

Synthesis into a proposed management model

Drawing on the qualitative patterns, the study formulated an integrated sequence of local needs assessment, participatory planning, multi-actor organization, interactive education, monitoring, evaluation, and corrective improvement. The input–process–output–outcome structure connects policy commitment, trained personnel, community resources, financing, and participation with educational practice. The process combines managerial functions with a continuous quality-improvement cycle. Intended outputs include stronger health literacy, community involvement, facilitator competence, and adoption of selected preventive practices. The longer-term outcomes proposed for evaluation include institutional continuity, community ownership, healthier routines, and ultimately improvement in cardiovascular risk indicators. See figure 3.

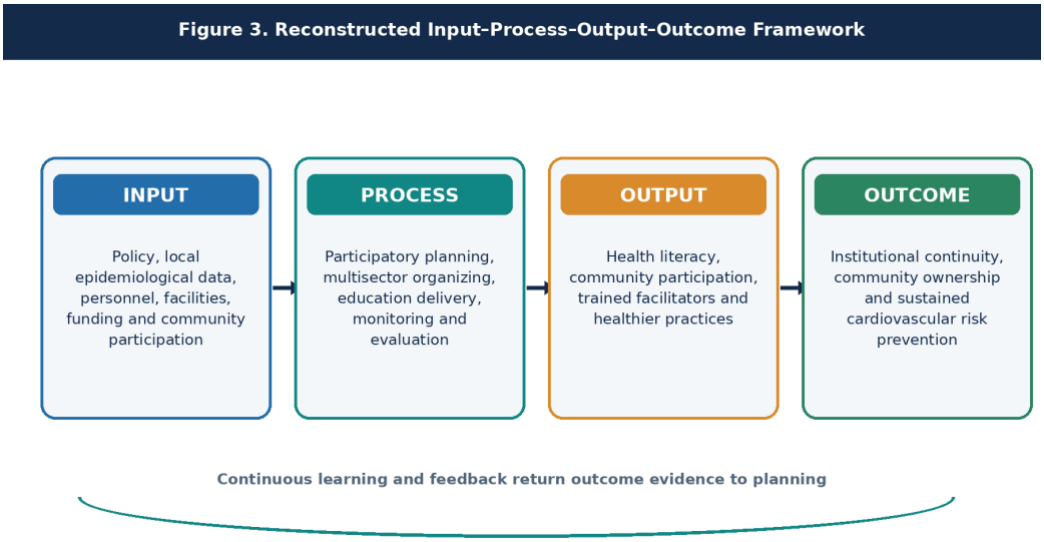


Figure 3. Input–process–output–outcome structure adapted from the source conceptual model, with English labels.

A distinctive feature of the model is the relationship between formal stewardship and distributed implementation. Municipal institutions would establish priorities and standards, while primary-care teams and community partners would deliver learning through locally appropriate channels. Educational institutions could validate content and help assess results; media partners could disseminate reviewed materials; and organized residents could help sustain groups between professional encounters. Local health-risk data would return to planning through a feedback system so the next activity responds to observed gaps. This architecture would combine community participation with technical oversight and avoid portraying either sector as able to carry the system alone.

The proposed PDCA cycle provides a repeatable operational rhythm. Planning starts with epidemiological review and practical consultation. Doing includes training, health-literacy activities, peer support, and appropriate referrals. Checking measures implementation quality, reach, knowledge, participant feedback, and where feasible, behavior indicators. Acting uses this information to improve targeting, training, materials, and schedules. Organizing remains an enabling function across the entire cycle. The model also distinguishes sustainability dimensions: continued program delivery, supportive public policy, stable or diversified funding, social ownership, and practical information-system capacity. None of these is assumed to arise automatically from an initial pilot. See figure 4 and table 6.

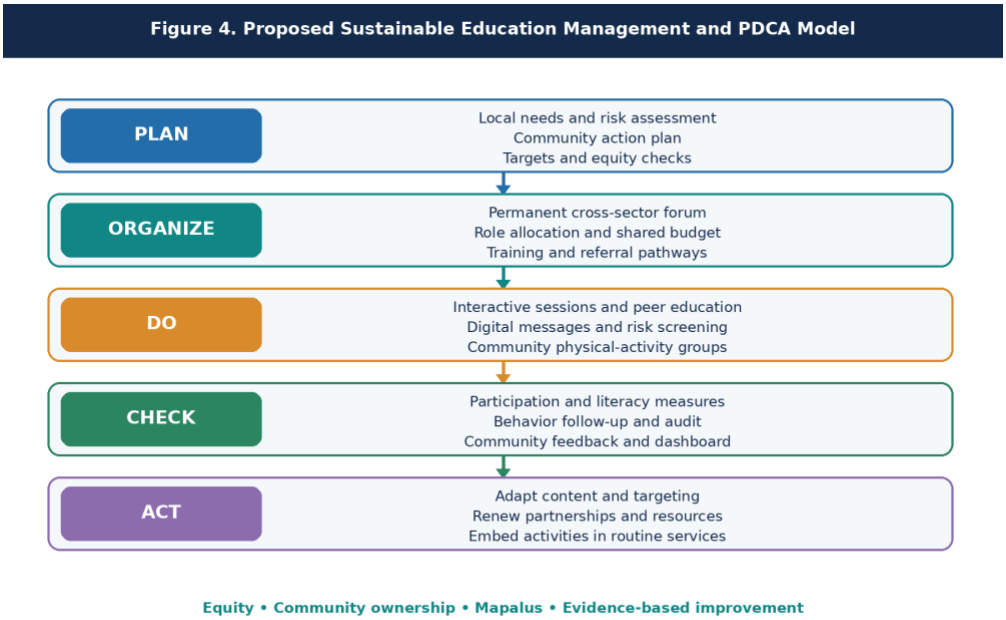


Figure 4. English rendering of the proposed management stages and continuous-improvement loop.

Table 6. Proposed Implementation and Evaluation Framework

Stage	Operational activity	Suggested indicator	Evidence level
Plan	Local needs and risk mapping with public consultation	Approved priorities and community action plan	Implementation readiness
Organize	Stakeholder roles, shared budgets and facilitator training	Agreed responsibilities and trained cadres	Process
Do	Interactive sessions, digital reinforcement, peer groups	Reach, retention and content fidelity	Output
Check	Short knowledge and behavior follow-up measures	Knowledge change and feasible behavior proxies	Intermediate outcome
Act	Adjust materials, targets and budgets	Documented changes after feedback	Quality-improvement process
Long-term test	Link follow-up to defensible risk indicators	Changes in cardiovascular risk under a suitable design	Unmeasured prospective outcome

The central finding is a disjunction between the existence of health education activities and the existence of a sustained education-management system. This distinction matters theoretically because educational management is sometimes reduced to administrative scheduling. The Manado findings show why a broader view is required. A system must keep a learning trajectory alive after individual sessions, distribute responsibility across organizations, and accumulate information that can improve subsequent action. The approach corresponds with the idea of management as a set of

connected processes (Terry, 2003) and with continuous quality improvement (Deming, 1986). The study does not establish that the proposed integration has already produced long-term cardiovascular benefits; it establishes a practical rationale for testing a better-organized approach.

The planning gap illustrates why national prevention messages must be translated into local educational decisions. Standardized guidance remains important for scientific accuracy, but people differ in risk perception, age, economic constraints, work routines, and communication preferences. A needs assessment should therefore identify subgroups, preferred formats, language, anticipated barriers, and feasible follow-up points. A locally grounded plan could connect primary-care screening opportunities to education without making health education conditional upon medical attendance. It could also ensure that residents at higher risk receive appropriate referral rather than being treated solely as learners in a community campaign. Such decisions make planning a mechanism for equity as well as a managerial tool.

Organizing requires attention to authority and capacity. Collaboration can appear attractive while masking uncertain accountability: which partner approves a medical message, which entity stores participant information, and who responds when a resident reports concerning symptoms? These questions cannot be answered simply by naming a multi-sector forum. Formal agreements should distinguish clinical responsibilities from educational and logistical roles, assign a contact person for each activity, and clarify the funding and reporting pathway. Rawis et al. (2024) support the relevance of leadership and staff engagement to organizational performance, while Sumual et al. (2024) illuminate leadership concerns within health-professional education. Applied here, these studies help justify investment in facilitator preparation, supervision, and respectful collaboration, without implying that their outcomes directly measured community heart-health programs.

From a behavior-change perspective, the findings are consistent with theories that distinguish knowledge from motivation and action. An individual may recall a warning about cholesterol but lack control over household meals; may intend to exercise but have few safe spaces; or may understand tobacco harms while confronting strong social habits. Ajzen (1991) and Bandura (1986) provide mechanisms for examining perceived control, norms, modeling, and self-efficacy, while Rosenstock (1974) directs attention to perceived barriers. The educational implication is not to assign a theory label to each brochure. Rather, facilitators can diagnose practical obstacles, invite manageable goals, provide follow-up, and use credible role models. A model for sustainable education should measure whether these processes occur and whether residents find them usable.

Participatory implementation also needs to be distinguished from unpaid program labor. The study recognizes volunteer cadres and community leaders as valuable partners, but sustainability would be compromised if institutions assumed limitless volunteer time. Training, accessible materials, opportunities for recognition, responsive professional contacts, and equitable task distribution are therefore necessary. Participation should include some voice in agenda setting and evaluation, not only attendance. Mapalus can provide a culturally resonant form of solidarity, yet implementation must remain inclusive of citizens who participate through different social and cultural networks. An authentic participatory model respects local agency while retaining public institutions' duty to provide safe and equitable services.

The public-health benefit pathway is indirect and should be modeled explicitly. Education can influence understanding and intention, which may support behavior changes such as physical activity, healthier food choices, or smoking cessation. These practices can influence risk factors, but changes in clinical endpoints occur within a broader environment that includes treatment access, socioeconomic circumstances, and underlying disease. Measuring workshop attendance or immediate post-test improvement cannot demonstrate a reduction in cardiovascular morbidity. Future evaluation needs multiple levels of evidence, a comparison or counterfactual strategy when

feasible, and sufficiently long observation periods. Transparent indicators would protect the program from overstated success claims and help direct resources to interventions that actually work.

The model's output–outcome separation supplies a foundation for such evaluation. Immediate indicators can include program reach, participant retention, content fidelity, learning scores, facilitator competence, and the proportion of events followed by a second contact. Intermediate measures can include reported dietary changes, activity participation, smoking attempts, or routine screening, with appropriate attention to self-report limitations. Longer-term measures can include clinical risk measures or routine-service utilization where ethically and methodologically appropriate. Data should be disaggregated to assess whether benefits reach older people, low-income residents, less-connected neighborhoods, and other populations who may be missed by digital campaigns. Without distributional analysis, aggregate improvements may conceal unequal participation.

The digital dimension adds an implementation challenge beyond content creation. Umbase (2023) connects managerial learning capacity with the purposeful integration of technological, pedagogical, and subject knowledge. For cardiovascular education, this suggests that platforms should be selected for accessibility and instructional value, not perceived modernity alone. Content review by qualified health professionals, understandable language, accessible formats, low-bandwidth options, and clear procedures for referral or corrections would be essential. A digital dashboard should collect only information necessary for program management, apply role-based access, and protect participants' privacy. It should support human decision making rather than create a parallel reporting system that overwhelms Puskesmas staff.

Financial sustainability must similarly be treated as an institutional problem rather than a simple appeal for donations. A blended financing approach may combine routine public-health funding, authorized corporate social responsibility support, and selected community contributions where appropriate, but public health responsibility should not depend on residents' ability to pay. Each resource stream would require transparency, conflict-of-interest safeguards, and a multi-year schedule. The proposed financing arrangement would be credible only if partners agreed on which costs recur: facilitator time, material development, communication, evaluation, accessible venues, and data protection. Budget diversification is useful when it supports continuity; it becomes problematic if it fragments accountability or creates promotion incentives unrelated to the community's health needs.

The local value of the proposed model resides in how it joins institutional routines to everyday settings. Health centers can offer clinical support and follow-up, schools can reinforce knowledge across generations, community groups can provide social encouragement, and universities can evaluate interventions and train facilitators. These contributions could make educational contact more regular and familiar. Nevertheless, implementation needs phased introduction, because launching a full program citywide without testing workflow and acceptability could reproduce the very fragmentation identified by the study. A small number of sites could first test whether shared action plans, trained cadres, agreed measures, and repeated educational encounters are operationally feasible.

A phased evaluation design would also clarify which components are essential. In the first phase, a readiness assessment can review local risk profiles, roles, training needs, educational resources, and administrative capacity. The second phase can introduce coordinated learning and identify early implementation problems. The third phase can assess reach, engagement, learning, and feasibility of behavior follow-up. A later phase can use stronger evaluation designs to examine the durability of behavior change and any measurable cardiovascular risk effects. This sequencing

respects the descriptive-exploratory nature of the present evidence while creating a credible route toward efficacy and effectiveness testing.

The findings have implications beyond cardiovascular prevention. They show how the logic of educational management can operate in community settings where no single institution controls all learning conditions. The core challenge is coordinating diverse forms of expertise and motivation across time. The resulting model may offer a useful analytic template for other noncommunicable-disease programs, but replication should follow context analysis rather than simple copying. Different areas have different cultural networks, infrastructure, health-center capacities, and administrative systems. Transferability is strongest at the level of management principles, participatory planning, formal collaboration, instructional reinforcement, and evidence-based improvement, not at the level of assuming identical partners, budgets, or outcomes.

The principal limitations remain important. The study is primarily qualitative and interprets data collected through interviews, observations, discussions, and existing documents. It does not provide a reliable basis for estimating citywide prevalence from the research participants. Contextual background percentages and facility statistics come from different sources and periods and should not be interpreted as results of the management model. The proposed forum, PDCA arrangements, multi-source financing, and digital mechanisms are design recommendations that still require practical assessment and policy authorization. Thus the article offers a context-sensitive model and a detailed evaluation agenda, not definitive evidence of reduced disease burden.

Practical Implications and Recommendations

For municipal leadership, the first operational task is to identify a steward for continuing cardiovascular health education and establish regular cross-sector planning. A designated coordination mechanism could align public-health priorities, assign institutional responsibilities, approve clinical content standards, and review progress across neighborhoods. Such a mechanism should be linked to ordinary planning and budget processes rather than exist only during campaigns. Its effectiveness would be judged by functioning decisions and repeat actions, not the number of organizations formally listed as partners. Transparent reporting to communities would also support trust and enable residents to challenge approaches that do not meet their needs.

For primary-care services, implementation priorities include a realistic educational calendar, training of facilitators, accessible teaching materials, systematic referral for concerning symptoms, and brief follow-up after initial learning encounters. Health workers should be able to use a small, manageable set of indicators rather than an extensive questionnaire that cannot be maintained. A practical monitoring set could track session reach, repeat participation, core knowledge, self-selected behavior goals, and referrals. Community feedback should be discussed at routine review meetings and translated into specific modifications to content, timing, or delivery. The proposed process becomes sustainable only when these responsibilities are embedded in work routines and supported by sufficient personnel.

For schools, universities, and community partners, the immediate priority is to co-design approaches that residents can practice without excluding less-connected or less-resourced groups. Universities can evaluate learning methods and support scientific review, while schools and social networks can offer settings for intergenerational communication. Community facilitators can help identify locally meaningful examples and barriers. The public and private sectors may contribute resources under transparent agreements, but clinical authority, educational accuracy, and participant privacy should remain non-negotiable. These measures offer a feasible bridge between a conceptual model and an implementable pilot that could generate credible evidence for subsequent policy refinement.

For an evaluation partnership, the recommended next step is a prospective, clearly registered pilot with explicitly defined implementation and health-related indicators. Before activities begin, the participating services should document baseline education schedules, recruitment procedures, facilitator availability, current monitoring practices, and which follow-up information can be collected safely. A repeated survey of knowledge, intentions, and self-reported practices can help identify whether residents retain preventive messages, while routine clinical measures can be considered only under appropriate consent, data governance, and protocols. Qualitative feedback should continue alongside measurement because it may reveal why participation changes or why particular neighborhoods cannot attend. Evaluation reports should distinguish missing data from non-participation and separate improvements associated with exposure from causal effects attributable to the program. No claim of reduced cardiovascular disease incidence should be made from a short pilot or a simple before-and-after comparison without sufficient control of alternative explanations. Finally, each review cycle should document the specific managerial decision taken in response to evidence: a revised learning module, a changed session time, a partnership adjustment, or stronger support for a difficult-to-reach group. This decision trail would make continuous quality improvement observable and allow policymakers to judge whether the proposed governance model is not merely administratively attractive but operationally useful.

CONCLUSION

Community heart-disease prevention in Manado requires more than episodic information campaigns. The qualitative findings identify discontinuity of program management, incomplete interagency coordination, constrained resources, limited community ownership, and weak behavioral monitoring as interrelated obstacles. The same setting contains substantial opportunities through primary-care infrastructure, local policy commitment, health volunteers, educational institutions, and the culturally embedded principle of mapalus. A sustainable educational response needs to connect these assets through agreed goals, regular follow-up, and a shared responsibility for learning and evaluation.

The proposed framework integrates local data-informed planning, multi-actor organization, participatory education, continuous monitoring, and PDCA-based adjustment. Its intended immediate contributions are more coherent delivery, stronger health literacy, and repeated opportunities for preventive action; its longer-term objectives concern durable community participation and improved cardiovascular risk management. These remain intended outcomes requiring prospective evaluation. The scholarly contribution is a context-sensitive management architecture that distinguishes educational activity from sustainable educational systems and offers a practical path for testing that distinction in primary-care and community settings.

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