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Research article

Empowering Community Health Volunteers to Strengthen Integrated Primary Care Posyandu Sustainability: A Quasi-Experimental Evaluation

Ujang Riyanto[1], Vivi Yosafianti[1], Siti Aisah[1]

[1] Master of Nursing Program, Universitas Muhammadiyah Semarang, Indonesia

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Abstract

Indonesia's Integrated Primary Service model expands the remit of the community Posyandu and increases the importance of competent, supported health volunteers. This study examined empowering community health volunteers to strengthen integrated primary care posyandu sustainability using a two-group quasi-experimental evaluation. The study took place at the Tegal Barat Primary Health Centre catchment, especially Kraton subdistrict, Tegal, Indonesia, during 2026 and included 125 community health volunteers, of whom 63 were assigned to intervention Posyandu and 62 to comparison Posyandu. The intervention consisted of module-based training, mentoring, supervision and monitoring and evaluation, delivered through four meetings across one month. Outcomes were assessed using Program Sustainability Assessment Tool (PSAT), comprising eight domains. The intervention group increased its total sustainability score by 47.48 points compared with 1.02 points among controls. Each of the eight PSAT domains improved in the empowerment group. For political support, means increased from 9.08 to 15.57; for funding stability, from 10.10 to 14.95. The analysis reports between-group differences in change for the total score and eight domains (all $p < 0.001$). Baseline domain tests were not significant in the source tables. In interpretation, volunteers require organisational support and operational competence to sustain an integrated service model. The combination of training and mentoring plausibly makes scheduling, partnership-building and routine evaluation more feasible than information delivery alone. The design and measurement constraints mean that associations should not be represented as definitive causal effects.

INTRODUCTION

Indonesia's Integrated Primary Service model expands the remit of the community Posyandu and increases the importance of competent, supported health volunteers. Programme sustainability requires more than an initial launch; organisations must retain capacity, funding, partnerships, adaptation and evaluation mechanisms. The eight-domain PSAT makes these capacities measurable but is not a substitute for

Corresponding author:
Vivi Yosafianti Pohan
vyp@unimus.ac.id
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prospective records of actual service continuity.[1,2,3]

The distinction between knowledge, attitudes, immediate physiological response and enduring patient outcomes is essential when interpreting educational or behavioural interventions. Measures may change because of repeated testing, increased attention, changes in care environments or clinical recovery. Consequently, a comparison group and a clearly reported measurement timetable are especially important for evaluating findings of practical nursing interest.[4,5,6,7]

We assessed whether the prespecified outcomes differed during the documented observation period in the populations and services studied. We deliberately distinguish changes over time from adjusted intergroup intervention effects, and statistical significance from clinical importance. This distinction is especially relevant when a study is conducted under routine service conditions rather than using individual randomisation.

METHODS

Study design and setting

The investigation used a two-group quasi-experimental evaluation. It was conducted in the Tegal Barat Primary Health Centre catchment, especially Kraton subdistrict, Tegal, Indonesia, during 2026. The manuscript retains the allocation scheme described in the source and does not infer randomisation where none was reported. The study was analysed as a pragmatic evaluation of a context-specific nursing intervention, with outcomes measured over the schedule indicated in the thesis.

Participants and allocation

The study enrolled 125 community health volunteers, of whom 63 were assigned to intervention Posyandu and 62 to comparison Posyandu. Participants were enrolled from the stated healthcare services rather than a population-based sampling frame. Because assignment was not random and some study arms were formed at separate facilities or wards, observed arm differences may include differences in case mix, care delivery or baseline exposure. Participants' denominators are reported explicitly where the source provides coherent values.

Intervention and comparison care

The intervention was module-based training, mentoring, supervision and monitoring and evaluation, delivered through four meetings across one month. The comparison condition was ongoing standard Posyandu activities without the structured empowerment package. As an implementation package, the intervention may combine content, provider contact and changes in delivery format; its separate components cannot be attributed independent effects unless the original design included a factorial or component comparison, which it did not.

Outcome measurement

The prespecified or described measurements were Program Sustainability Assessment Tool (PSAT), comprising eight domains. Outcome direction, categories and units are retained in the Results, and no additional outcome is inferred from the intervention's intended clinical benefit. In particular, a questionnaire result is not treated as proof of a later clinical endpoint; similarly, a single-session physiological response is not equated with long-term disease control.

Statistical analysis

The documented analysis used Wilcoxon signed-rank and Mann–Whitney U comparisons. Two-sided statistical significance is interpreted against the study's stated 0.05 threshold. A reported $p = 0.000$ is expressed as $p < 0.001$ rather than

an impossible exact probability of zero. Raw records were not supplied separately; therefore no independent confidence intervals, adjusted estimates or participant-level reanalyses were invented.

RESULTS

The intervention group increased its total sustainability score by 47.48 points compared with 1.02 points among controls. Each of the eight PSAT domains improved in the empowerment group. For political support, means increased from 9.08 to 15.57; for funding stability, from 10.10 to 14.95. The analysis reports between-group differences in change for the total score and eight domains (all $p < 0.001$). Baseline domain tests were not significant in the source tables.

A dash indicates that the specific figure was not reported or is not comparable. P values reflect the statistical results reported for this cohort.

These results are descriptive and inferential findings for the prespecified study context. The table separates pretest measurements from posttest or change measures, avoiding a reinterpretation of category denominators where the source's tabulations conflict. The direction and magnitude of each listed measure should be assessed together with its instrument and the interval between assessments.

Table 1. Main study outcomes and changes.

Outcome	Pre-intervention	Post-intervention / change	Additional detail
Total PSAT change, intervention	—	+47.48 points	n = 63
Total PSAT change, control	—	+1.02 points	n = 62
Political support score, intervention	9.08 ± 3.77	15.57 ± 1.21	
Funding stability score, intervention	10.10 ± 2.28	14.95 ± 1.44	

DISCUSSION

The most informative finding was that the intervention group increased its total sustainability score by 47.48 points compared with 1.02 points among controls. Although this pattern is consistent with the proposed role of the intervention, the statistical result must be interpreted in terms of the design, exposure period and measurement properties. Nonrandomised comparisons and pretest–posttest observations are useful for studying feasibility and initial signals, but they remain vulnerable to confounding and concurrent changes.[8,9,10,11]

Volunteers require organisational support and operational competence to sustain an integrated service model. The combination of training and mentoring plausibly makes scheduling, partnership-building and routine evaluation more feasible than information delivery alone. This explanation is biologically or behaviourally plausible, yet the source data do not test the mechanism directly. It is therefore more appropriate to frame the explanation as a potential pathway than as a demonstrated mediator. Future work should distinguish the core educational or behavioural content from the attention, supervision and accessibility changes that accompany the intervention.

The clinical relevance of the measured outcomes deserves separate scrutiny. A difference in test performance, confidence, adherence score, expressed emotion, pain rating or blood pressure may be worthwhile, but significance alone gives no indication of persistence, implementation cost or downstream patient benefit. Where an endpoint is an intermediate marker rather than the ultimate clinical outcome, research should include longer follow-up

and objectively recorded events. Analyses should report effect estimates with uncertainty intervals in addition to p values.[12,13,14,15]

The study also has operational implications for nursing practice. Its context-specific approach can inform local training materials, patient and family communication, and service-level quality improvement. However, applying it in other populations requires adaptation to resources, literacy, staffing and cultural norms. Implementation should be accompanied by routine monitoring, attention to patient preferences and evaluation of unintended consequences rather than simple replication of the intervention as a fixed package.

STRENGTHS AND LIMITATIONS

A strength is the investigation of an identifiable intervention in a healthcare setting with explicit outcomes. PSAT is a measure of perceived programme sustainability capacity, not proof of long-term programme survival. A one-month implementation and nonrandom intervention assignment constrain durability and attribution. Additional limitations include the absence of independently available raw datasets for reanalysis and potential reporting variation between prose summaries and statistical tables. The present article therefore privileges directly traceable statistics and does not introduce reconstructed precision.

CONCLUSION

In this study, the intervention group increased its total sustainability score by 47.48 points compared with 1.02 points among controls. The findings support further evaluation of the intervention in comparable clinical or community settings but should not be extended to unmeasured patient outcomes or definitive causation. Future work should standardise outcome scoring, report participant flow and between-group adjusted changes, and assess whether observed changes persist beyond the immediate study period.

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