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Gender-Based Preconception Screening Service Skills Training for Posyandu Cadres

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ABSTRACT

Background: *Preconception services play an important role in preventing pregnancy risks and improving the health of the mother and baby. However, its utilization in rural communities is still low, including the involvement of male couples. Posyandu cadres have the potential to become drivers of preconception screening if they are equipped with gender-responsive training. The purpose of this community service is to improve the ability of posyandu cadres in preconception screening services.*

Methods: *This community service was carried out in Cikadu Village, Kuningan Regency, in August 2025 with a target of 35 Posyandu cadres. Training activities were carried out for one day, including pre-tests, delivery of materials (basic concepts of preconception health, preconception risk factors, gender concepts in preconception services, effective communication, and gender-based counseling and preconception screening services), and simulation of preconception screening practices using preconception and post-test screening checklists. The media used during the training are training modules, pocketbooks, and leaflets. The evaluation was conducted using the preconception screening skill score to assess participants' practical competence.*

Results: *The average preconception screening skill score increased from 105.29 ± 23.93 (pretest) to 120.69 ± 30.60 (post test), and a paired t-test showed this improvement was statistically significant ($p < 0.001$), indicating an enhancement in practical competence after training.*

Conclusion: *Posyandu cadre training is effective in improving gender-based preconception screening skills. It is hoped that preconception services can be integrated into the regular posyandu program with the support of the health center and the husband's involvement strategy.*

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INTRODUCTION

Maternal and infant health is still a priority because it has not yet reached the target of reducing maternal mortality. To date, more than half a million deaths of women of childbearing age worldwide have died from cases related to pregnancy and childbirth (1). In West Java Province, 60.13% of maternal deaths occurred at the age of 20-34 years (2).

WHO recommends one of the efforts, and significantly reduces the maternal and infant mortality rate, which is to provide preconception services. The purpose of preconception services is to improve health status, prevent, detect early, reduce risky behaviors, and environments that can affect poor health, which is particularly risky to pregnancy and health in the future (3).

At the global level, cutting-edge evidence confirms preconception care contributes to improved pregnancy outcomes (low birth weight, prematurity, congenital defects) and is effective when integrated into primary services (4). However, implementation in primary and community services is often hampered by low literacy, barriers to access, and gender norms that limit joint decision-making.

The results of the literature show that knowledge and access to information on preconception care in women of reproductive age are still limited, and the method of delivering information is still dominated by conventional face-to-face and is not evenly distributed using digital channels. This has an impact on the low utilization of preconception services and comprehensive coverage of screening topics (pre-pregnancy immunization, infection or chronic disease screening) (5, 6). Various policy reviews also emphasized the need for standardized guidelines and checklists to make preconception screening more systematic in primary services (7,8).

Posyandu is the forefront of community health in Indonesia. The results of the study show that the training of Posyandu cadres improves knowledge and skills, especially in early detection and stunting prevention through short courses, home visits, and continuous coaching. Improving the competence of cadres after training has an impact on the accuracy of measurement or screening and referral follow-up. The same goes for the results of other researchers (quasi-experimental or community RCTs), which are consistent across different regions (9,10). However, the focus of cadre training so far has been more on child nutrition and development. Specific modules on comprehensive preconception screening, including components of chronic disease, mental health, gender-based violence, immunization, and pregnancy planning counselling, are still rarely evaluated (4,7).

The gender-based dimension is crucial. Studies in Indonesia and Low- and Middle-Income Countrie (LMIC) countries show that men's involvement in preconception health is still low and hampered by social norms, knowledge, and program design that are less gender sensitive. The results of the study found that integrating gender-responsive approaches such as partner communication techniques, equal parenting role sharing, and mapping of structural barriers was proven to improve male participation and the quality of maternal services. Therefore, effective preconception screening needs to explicitly include the gender dimension (11,13).

The results of a preliminary study conducted by researchers in Cikadu Village, Kuningan Regency through a brief interview with the Posyandu coordinator showed: (a) cadres have never received preconception screening training; (b) screening practices when the Posyandu is still focusing on toddlers or pregnant women; (c) the husband's involvement in counseling is still low; and (d) cadres stated that they need skill simulation (e.g. risk anamnesis, preconception Body Mass Index/BMI or Mid-Upper Arm Circumference/MUAC) measurement, anemia or disease history screening, referrals) and gender-sensitive communication materials. Thus, the purpose of this community service is to evaluate preconception screening training on the skills of Posyandu cadres in Cikadu Village, Nusaherang District, Kuningan Regency in 2025.

METHODS

This community service was carried out in Cikadu Village, Nusaherang District, Kuningan Regency. The training participants were all posyandu cadres, totaling 35 people. Cadre training will be held for 1 day, namely on August 9, 2025, from 09.00 to 15.00 WIB, at the Hall of Bhakti Husada Indonesia University. Steps to implement community service:

Socialization of activities

At this stage, the head of the community service team applied for permits and socialized community service activities to the head of Cikadu Village and the Head of the Nusaherang Health Center. The socialization aims to convey the purpose and objectives of the activity to all stakeholders (cadres, village heads, Puskesmas).

Training stage

The training was held on Saturday, August 9, 2025, with a total of 35 participants from the Cikadu Village Posyandu, representatives of the health center, and the Village Head. The material was delivered by three speakers. The training method includes lectures, discussions, questions and answers, case studies, role plays, and simulations of preconception screening. Simulation practice involves medical history assessment, physical examination, counseling, and recording of results.

After being given the material, a demonstration was carried out, and cadres were divided into 5 groups, and each group was accompanied by a facilitator to practice the skills of preconception screening services, which include: risk factor anamnesis, physical examination, preconception counseling, and the practice of recording the results of the examination on the preconception screening form. This preconception service practice uses a preconception screening service skill check.

Evaluation stage

The training evaluation was conducted using pre-tests and post-tests through questionnaires to assess the effectiveness of the training in improving pre-pregnancy screening skills. The questionnaire was designed to measure the participants' practical ability to perform pre-pregnancy screening according to standards. The pre-test was administered before the training began to determine the participants' initial abilities. Meanwhile, the post-test was conducted after the training was completed to assess changes and improvements in the participants' skills.

The data obtained from the pre-test and post-test were then analyzed using a paired t-test to determine the significance of the difference in skill scores before and after training. This analysis aimed to ascertain whether the improvement in participants' skills was statistically significant. The test results showed the level of effectiveness of the training in improving the practical competence of the participants. Thus, this evaluation provided evidence that the training method used was effective.

RESULTS

This community service activity was carried out by 35 cadres of the Cikadu Village posyandu, Nusaherang District, for 1 day. The results of community service showed an improvement in the skills of posyandu cadres before and after being given training. The results of community service are as follows:

In socialization stage, socialization succeeded in uniting perceptions between stakeholders so that support from villages and health centers was established. The agreement is the basis for the smooth implementation of the training. The completion of this stage marks the commitment of partners to the sustainability of activities.

In training stage, the training was carried out as planned and documented through video publications on the institution's official channel https://youtu.be/6615k742H0A. Community service activities took place interactively. The facilitator guided the material and Q&A sessions related to preconception screening and gender-inclusive communication techniques. The enthusiasm of the participants can be seen from their focus during the presentation and discussion.

In the simulation session, the cadres were trained in the steps of the preconception screening service, including an anamnesis of risk factors, conducting basic examinations such as blood pressure, height measurement, weight, upper arm circumference (LILA), eye examinations, and counseling as the initial components of preconception screening services. This simulation was carried out in groups and evaluated individually.



Figure 1. Delivery of Preconception Screening Materials and Simulation of Preconception Screening Services

The evaluation stage shows the success of preconception screening training for posyandu cadres with better practical skills improvement.

Table 1. Frequency Distribution of Posyandu Cadre Skills Before and After Training (n =35)

Category	Pre-Test		Post-Test	
	n	%	n	%
Not Graduated	16	45,72	9	25,72
Graduated	19	54,28	26	74,28
Total	35	100	35	100

Based on Table 1, it is known that before the training, 19 people (54.28%) had not graduated from the new skills. After the training, the number of graduates increased to 26 people (74.28%), and those who had not graduated dropped to 9 people (25.72%).

The average skill score increased significantly from 105.29 ± 23.93 (pretest) to 120.69 ± 30.60 (post test). The correlation of the paired scores ($r = 0.751$) indicates consistency between the two assessments. The paired t-test yielded $t(34) = 4.50$, $p < 0.001$, demonstrating a statistically and practically significant improvement in the preconception screening skills of Posyandu cadres before and after the training.

Table 2. Average Skills of Posyandu Cadres Before and After Training (n = 35)

Skills	Mean ± SD	Correlation	t (df)	p-Value
Pretest	105.29 ± 23.93	0.751	4.50 (34)	<0.001
Posttest	120.69 ± 30.60	0.751	4.50 (34)	<0.001

DISCUSSION

This community service shows that the training is able to improve the skills of posyandu cadres in conducting gender-based preconception screening by 20 points. The increase in the average skill level from 105.29 in the pretest to 120.69 in the posttest showed an absolute increase of 15.4 points or 14.6% in a relative way. The correlation between pre–post scores signaled a strong correlation: participants who were initially more skilled tended to remain higher after training, while the group average remained significantly higher. These findings are in line with the literature that simulation-based training (SBT) with structured debriefing sessions accelerates the acquisition of clinical skills and improves practice safety compared to conventional lectures (12).

Similarly, recent meta-analytical and systematic review findings in medical/nursing education support that simulation sessions contribute to increased skills scores and competency retention (13). The increase in the skills of posyandu cadres is consistent with the mechanism of behavior change: the provision of structured materials, simulation practices, and feedback can accelerate the transfer of practical skills needed for preconception risk assessment and brief counseling involving husbands/partners. Systematic review evidence confirms that educational, screening, and counseling interventions can improve preconception health behaviors, so, naturally, an improvement in cadre competence occurs when the training curriculum is designed with the principles of andragogy and direct practice (14).

In terms of andragogy learning theory, the design that places participants in the demonstration cycle is followed by deliberate practice and given feedback, in line with the principles of andragogy and experiential learning; in the context of competency assessments, OSCE is recognized for its objectivity, blueprinting skills, and evidence of its validity and reliability for measuring clinical performance (15).

Recent studies confirm that preconception is an international recommendation for early intervention and is a strategic intervention to optimize the health of the mother or father and reduce the risk of adverse pregnancy outcomes. Randomized trial studies in primary services show that rapid training improves service providers' knowledge of preconception, although routine changes in practice do not always follow without adequate organizational and governance support.

These findings are consistent with the results of the research: the technical competence of cadres has increased (graduation), and to ensure sustainability, it is necessary to organize the workflow in the health center or village (16). In line with the direction of global policy, prenatal services should be more integrated into the primary service system and community programs, not just disconnected services before pregnancy. WHO (2025) emphasizes strengthening preconception services and integrating them into routine service flows by incorporating preconception screening into Posyandu activities (17).

Evidence from Indonesia also supports a short-term training approach for community cadres: structured training increases cadres' knowledge, confidence, and skills in home visiting services and nutrition care. This effect persists in short-term follow-up measurements. This reinforces the argument that a concise, practical training package can be a cost-effective strategy at the community level (9). Recent evidence suggests that rapid training for primary care workers improves knowledge and readiness of preconception practices; when integrated into local SOPs and referral flows, these kinds of interventions have the potential to increase the reach of pre-pregnancy services in the community. With a dz (effect size) ≈ 0.76 result in this study, the opportunity for translation to field practice is quite large, especially if accompanied by on-the-job mentoring and periodic refresher (16).

On the other hand, the training component emphasizes gender-inclusive communication by involving husbands. This is in line with global recommendations for gender-sensitive primary services. The integration of this perspective is common in improving service acceptance and the quality of clinical interactions, thus potentially strengthening the implementation of preconception screening by cadres in the community (11). Decisions related to pregnancy, nutrition, access to services, and contraceptive use are often influenced by gender norms, power relations, and economic roles in households. In the preconception phase, gender inequality can manifest as: (a) limited mobility or permission to facilities; (b) financial control by spouses or families; (c) exposure to cigarette smoke at home; (d) stigma in adolescents or unmarried women; and (e) domestic violence (KDRT).

Therefore, training that only adds clinical knowledge without gender competence often fails to transform into a change in family behavior. In this training, cadre skills not only improve technical skills but also ensure services that respect autonomy, are safe, and effective for women and encourage constructive support from their spouses. Literature results show that male involvement before pregnancy improves behavioral support (smoke-free home, Fe or folate consumption, financial readiness) and correlates with better maternal outcomes; However, male participation is still low without specific strategies (flexible service hours, community outreach, relevant messages for fathers-to-be) (18). Gender responsiveness by involving husbands addresses common gaps in community programs and also adds external relevance to areas with limited resources.

However, the challenge of implementing preconception screening training after the training is not routinely carried out because the program has not been integrated into routine services, in addition to the husband's work schedule, limiting the presence of the partner. Thus, preconception screening needs to be integrated into the Posyandu routine service, supervised and monitored in stages, as well as context-friendly husbandry involvement (home visit, use of local figures, flexible working hours, visual materials for men) in order to improve gender-based preconception services (19).

In addition, the results of this service support the scale-up of training with a training of trainers (ToT) model, periodic refreshers, and system strengthening (SOP for preconception services at posyandu, basic logistics, field supervision). With a combination of individual competency enhancement and service governance improvements, the opportunity for the translation of post-training competencies into consistent preconception screening practices will increase (16). It is supported by Kostania (2024) that training for cadres needs to be improved and routineized. Refreshing knowledge is needed to improve the ability of both individuals, community groups, and

social institutions from the aspects of science, skills, and behavior through activities that are interesting for cadres (19).

The improvement of preconception service skills for Posyandu cadres in Cikadu Village has positive implications because cadres are more ready to carry out education and simple screening for prospective brides and couples of childbearing age, so that the detection of risk factors can be carried out earlier and referrals to health facilities can be more timely and this effort has the potential to strengthen the prevention of pregnancy problems since before pregnancy through improving nutritional knowledge, reproductive health readiness, and safe pregnancy planning.

However, this activity has limitations, namely the relatively short duration of training and the variation in the initial abilities of different categories. Therefore, it is recommended that after the training, field assistance and routine supervision from midwives/health centers be carried out, as well as periodic evaluations through advanced pre-post tests and tracing of the application of skills at Posyandu, so that the preconception program is more consistent, measurable, and has a real impact.

CONCLUSIONS AND SUGGESTIONS

Preconception screening service training for posyandu cadres is effective in meaningfully improving skills. The implication is that cadres are more ready to carry out simple education and screening for prospective brides and couples of childbearing age, so that they can prevent the risk of pregnancy before pregnancy at the village level. Therefore, the program needs to be continued through field assistance and routine supervision from midwives/health centers, as well as periodic evaluations to ensure that skills are really applied and have a real impact.

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DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

AI tools were used solely for grammar and language editing. The authors take full responsibility for the content and integrity of the manuscript.

CONFLICT OF INTERESTS

The author declares that there is no conflict of interest regarding the results of this community service activity.

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