

EDUCATION ON BIRTH PLANNING AND COMPLICATION PREVENTION (P4K) FOR FIRST-TRIMESTER PREGNANT WOMEN IN KAUGAPU VILLAGE, EAST MIMIKA DISTRICT, CENTRAL PAPUA

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Abstract

Maternal mortality remains high in Mimika Regency, Central Papua, where delayed decision-making, limited access to care, and limited understanding of the Birth Planning and Complication Prevention Program (P4K) contribute to delays in obtaining care. This community service activity aimed to improve the knowledge of first-trimester pregnant women about P4K in Kaugapu Village, East Mimika District. A participatory approach was used, consisting of preparation, interactive education with leaflets and a banner, group discussion, an empowerment workshop for posyandu cadres, field mentoring, and evaluation. Thirty pregnant women and four posyandu cadres participated. Knowledge was measured with pre-test and post-test questionnaires, and participant satisfaction was measured with a Likert-scale survey. The cumulative knowledge score increased from 51.11 (fair) to 85.56 (good), and the number of participants in the poor category decreased from 17 (56.67%) to none. The cumulative satisfaction score was 90.83%, categorized as very satisfied. These findings indicate that interactive education supported by leaflets and posyandu cadres is an acceptable and effective way to deliver P4K information at the community level.

Keywords: birth planning, community service, health education, P4K, pregnant women

INTRODUCTION

Maternal mortality is still a major global health problem. The World Health Organization (2024) reported that around 287,000 women died in 2020 from complications of pregnancy and childbirth, equivalent to a global maternal mortality ratio (MMR) of 223 per 100,000 live births, which remains far from the targets of the Sustainable Development Goals (SDGs). In Indonesia, the national MMR was estimated at about 189 per 100,000 live births, still well above the SDG target of 70 per 100,000 live births by 2030 (Kemenkes RI, 2023). High maternal mortality is not caused only by medical conditions such as hemorrhage and hypertension in pregnancy, but also by delays in decision-making and in reaching health services, as described in the Three Delays Model (Kemenkes RI, 2023).

Regional data show a similar picture. The Central Papua Provincial Health Office (2025) recorded an MMR of 151.57 per 100,000 live births, an infant mortality rate of 6.80 per 1,000 live births, and chronic energy deficiency among 9.7% of pregnant women. The Mimika District Health Office (2025) reported an even higher MMR of 304 per 100,000 live births and an infant mortality rate of 11 per 1,000 live births. These figures are often linked to delays in deciding to seek care, delays in reaching a health facility because of distance and transportation, and delays in receiving adequate treatment.

The Birth Planning and Complication Prevention Program (Program Perencanaan Persalinan dan Pencegahan Komplikasi, P4K) was introduced to help reduce maternal deaths. The program is facilitated by village midwives together with posyandu cadres, uses a sticker displayed at the pregnant woman's home, and aims to strengthen the active role of husbands, families, and the community in planning a safe delivery (Kemenkes RI, 2025). From the first trimester, pregnant women and their families are encouraged to agree on and record the expected date of delivery, birth attendant, place of delivery, birth companion, transportation, prospective blood donors, emergency savings, and the plan for postpartum family planning.

From the perspective of the Health Belief Model, a person is more likely to take a health action when perceived susceptibility, perceived severity, perceived benefits, and cues to action are present (Glanz, 2020). P4K education can serve as a cue to action that improves pregnant women's knowledge of complication risks and of the benefits of childbirth readiness. Structured and interactive education has been reported to improve understanding more than one-way delivery, and the choice of method influences how much knowledge is gained (Puspitasari et al.,

2025). Previous studies reported significant knowledge gains after P4K education among 40 first-trimester pregnant women (Mawardi, 2025; $p = 0.000$), after health education interventions (Irmayanti & Sahariah, 2024; $p = 0.000$), and after application-based antenatal class education compared with classical methods (Sudarmi & Pranajaya, 2023; $p = 0.000$).

A situation analysis conducted with the village midwife and community leaders of Kaugapu Village, East Mimika District, identified the following problems among the target group: pregnant women did not understand the meaning of the P4K sticker already displayed at their homes; basic knowledge of danger signs in pregnancy was low; antenatal visits to health workers were low; husbands' support for pregnancy education was limited; some women regarded detailed preparation, such as looking for a blood donor early, as preempting fate; and education was mostly delivered as one-way lectures without attractive visual aids that could be taken home. This community service therefore aimed to improve the knowledge of first-trimester pregnant women about P4K through interactive education supported by leaflets, a banner, and posyandu cadres.

LITERATURE REVIEW

P4K is a government program that accelerates the reduction of maternal and infant mortality by involving husbands, families, and communities in planning a safe delivery. Pregnant women are considered ready to carry out P4K when they have determined the place of delivery (a midwife's practice, health center, or doctor's practice), arranged transportation, chosen a health worker as birth attendant, set up maternal birth savings, identified prospective blood donors, arranged a birth companion, prepared the necessities for delivery, and planned family planning and early breastfeeding initiation (Prawirohardjo, 2022). Knowledge of these components in the first trimester (0–12 weeks of gestation) provides an early basis for planning a safe delivery and for recognizing risks early.

Education is the main strategy for building this knowledge. The Health Belief Model explains why: education that raises perceived susceptibility, severity, and benefits, and that offers a clear cue to action, is more likely to be followed by action (Glanz, 2020). Evidence from the studies cited above suggests that P4K education improves knowledge significantly, whether delivered by video, face-to-face health education, or application-based classes (Irmayanti & Sahariah, 2024; Mawardi, 2025; Sudarmi & Pranajaya, 2023), and that community-based education can strengthen childbirth readiness (Pratiwi, 2026).

However, most of the available evidence concerns specific media or settings that are not always available in remote communities, and education in many communities is still delivered mainly as one-way lectures. Few reports describe how first-trimester pregnant women in a Papuan community can be supported through simple take-home media and posyandu cadres. This activity aimed to address this gap by applying interactive education with leaflets, a banner, and cadre empowerment in Kaugapu Village, East Mimika District, and by documenting changes in knowledge and satisfaction.

METHOD

The activity used a participatory community empowerment approach in which pregnant women, posyandu cadres, health workers, and community leaders were involved in each stage. It was carried out in Kaugapu Village, East Mimika District, Mimika Regency, Central Papua, between July and August 2026. The target audience consisted of 30 first-trimester pregnant women and four posyandu cadres. Participants were determined through coordination with the village midwife and community leaders. The characteristics of the target group are shown in Table 1.

Table 1. Characteristics of the target group

No	Characteristic	Description
1	Number of participants	About 30 mothers
2	Age range	25–40 years
3	Sex	Female
4	Education level	Junior high school, senior high school/vocational school
5	Occupation	Housewife, farmer
6	Knowledge of P4K	Varied; needs improvement through education
7	Implementation of health education	Not yet optimal

The activity consisted of three stages. In the preparation stage, the team coordinated and obtained permission from local authorities and posyandu cadres, carried out an initial survey and needs identification, prepared educational materials (leaflets, a banner, and pre-test and post-test questionnaires), and determined the participants. The leaflet was designed as a P4K card that women could fill in with their expected date of delivery, birth attendant, place of delivery, birth companion, transportation, and prospective blood donor (Image 1).



Perencanaan Persalinan dan Pencegahan Komplikasi	
Nama Ibu :	
Taksiran Persalinan :	20
Penolong Persalinan :	Hp:
Tempat Persalinan :	
Pendamping Persalinan :	Hp:
Transportasi :	
Calon Pendorong Darah :	Hp:

Menuju Persalinan yang Aman dan Selamat

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Image 1. P4K leaflet used as educational medium

In the implementation stage, the team delivered (1) education on P4K through interactive lectures, group discussion, and question-and-answer sessions using the leaflet and banner, covering maternal and child mortality in Indonesia, common problems in pregnancy, birth planning steps, prevention of complications, and the benefits of regular antenatal care; (2) a workshop to strengthen posyandu cadres so that they could convey P4K information using simple media and agree on a joint commitment with the community; and (3) field mentoring, in which the team followed up on participants' understanding and recorded the results for evaluation. Pregnant women who did not attend antenatal visits were also visited.

In the evaluation stage, process evaluation covered attendance, participation, adherence to the schedule, and quality of material delivery, while outcome evaluation compared pre-test and post-test results. Knowledge was measured with a true/false questionnaire covering the P4K sticker, birth planning, blood donors, birth savings, transportation, danger signs in the first trimester, the maternal and child health (KIA) book, the first antenatal visit, and folic acid and iron tablets. Scores were categorized as good (76–100), fair (56–75), and poor (≤ 55). Participant satisfaction was measured with a five-point Likert questionnaire (very satisfied to very dissatisfied). Data were analyzed descriptively using frequencies and percentages, and results were compared with the success indicators set in advance: at least 80% of participants show improved knowledge and at least 80% can explain the definition and purpose of P4K correctly.

RESULTS AND DISCUSSION

Implementation of the Activity

All planned activities were carried out following the stages described above. The realization compared with the plan is presented in Table 2. The activity was attended by 30 pregnant women, equal to 100% of the target, accompanied by four active posyandu cadres. The high attendance indicates a positive response and enthusiasm of the community toward the activity.

Table 2. Realization of activities compared with the plan

No	Activity	Plan	Date realized	Remarks
1	Coordination, initial survey, and permission	Week 1	6 July 2026	Completed as planned
2	Preparation of materials and educational media	Week 1	8 July 2026	30 leaflets and 1 banner printed
3	Health education and pre-test	Week 2	21 August 2026	Attended by 30 mothers and 4 cadres
4	Provision of education	Week 2	21 August 2026	Completed
5	Mentoring and monitoring	Week 3	24 August 2026	Completed
6	Evaluation, post-test, and reflection	Week 4	28 August 2026	Being finalized

Improvement in Participants' Knowledge

Knowledge was measured before (pre-test) and after (post-test) education among 30 participants. The distribution is shown in Table 3. At the pre-test, most participants had poor knowledge (17 participants, 56.67%), followed by fair (10 participants, 33.33%) and good (3 participants, 10.00%), giving a cumulative score of 51.11, categorized as fair. After the education, 17 participants (56.67%) had good knowledge and 13 (43.33%) had fair knowledge, and no participant remained in the poor category. The cumulative post-test score was 85.56, categorized as good. This result meets the success indicator that at least 80% of participants show improved knowledge.

Table 3. Distribution of participants' knowledge before and after education (n = 30)

Knowledge category	Pre-test n	Pre-test %	Post-test n	Post-test %
Good (76–100)	3	10.00	17	56.67
Fair (56–75)	10	33.33	13	43.33
Poor (≤ 55)	17	56.67	0	0.00
Total	30	100	30	100
Cumulative score	51.11 (fair)		85.56 (good)	

The improvement can be explained by the way the education was designed. P4K education acted as a cue to action in the sense of the Health Belief Model (Glanz, 2020): the leaflet and sticker explained why each component of the birth plan matters, and the discussion gave women the chance to relate it to their own situation, including the belief that early preparation, such as looking for a blood donor, preempts fate. The use of interactive lectures, group discussion, and take-home media is consistent with reports that structured and interactive education is more effective than one-way delivery (Puspitasari et al., 2025), and the size of the improvement is in line with earlier studies that found significant knowledge gains after P4K education (Irmayanti & Sahariah, 2024; Mawardi, 2025; Sudarmi & Pranajaya, 2023).



Image 2. Participants of the P4K education with the leaflet

Nevertheless, 13 participants (43.33%) remained in the fair category at the post-test. This shows that a single session, even when supported by mentoring, does not bring every participant to a good level of knowledge. Repeated reinforcement by cadres at posyandu and involvement of husbands and families are therefore needed, because the planning of birth attendant, transportation, funds, and companions is a family decision rather than the decision of the pregnant woman alone.

Participant Satisfaction

Participants' satisfaction with the activity is shown in Table 4. Sixteen participants were moderately satisfied, nine were satisfied, and five were very satisfied, and none were dissatisfied. The cumulative satisfaction score was 90.83% of the maximum score, categorized as very satisfied. The highest-rated aspects were the clarity of the material and the usefulness of the leaflet as an educational medium, whereas the duration of the activity received more varied ratings because some participants wanted a longer question-and-answer session.

Table 4. Participant satisfaction with the activity (n = 30)

Response	Score	n	Total score	%
Very satisfied	5	5	25	22.94
Satisfied	4	9	36	33.03
Moderately satisfied	3	16	48	44.04
Dissatisfied	2	0	0	0.00
Very dissatisfied	1	0	0	0.00
Total		30	109	100

Cumulative satisfaction: 90.83% (very satisfied).

Achievement of Outputs

The comparison between the targets and the realization of outputs is shown in Table 5. Five of the six output indicators were achieved, while the preparation of the scientific article was still in progress. The 30 leaflets and one banner were handed over to cadres and used in two follow-up posyandu activities, which supports the sustainability of the activity after the team's mentoring ended.

Table 5. Targets and realization of activity outputs

No	Indicator	Target	Realization	Status
1	Number of participants	≥ 30 mothers	30 mothers and 4 posyandu cadres	Achieved
2	Participants with improved knowledge	≥ 80%	85.56%	Achieved
3	Participants able to explain the definition and purpose of P4K correctly	≥ 80%	86.66% (26 of 30 participants)	Achieved
4	Educational media (leaflet and banner) available and used	Available and actively used	30 leaflets and 1 banner distributed and used by cadres in 2 follow-up posyandu activities	Achieved
5	Community commitment to be active at posyandu	Joint commitment formed	Cadres and 30 participants agreed to participate regularly in posyandu activities	Achieved
6	Activity report and draft scientific article	Prepared	Progress report prepared; article draft being prepared	In progress

Discussion

P4K is a government program to accelerate the reduction of maternal and infant mortality through active involvement of husbands, families, and the community in planning a safe delivery, and it is usually marked by a sticker at the pregnant woman's home that contains key delivery data (Kemenkes RI, 2025). Knowledge of P4K in the first trimester is the initial understanding needed to plan a safe delivery and to detect risks early from 0–12 weeks of gestation. In this activity, participants received education on the planned components: determining the birth attendant and referral facility, preparing a birth companion, transportation, and a prospective blood donor, preparing savings or health insurance such as BPJS, and planning postpartum contraception (Prawirohardjo, 2022).

The leaflet, P4K card, delivery calendar, and KIA book gave participants tools they could keep and reuse at home, which addresses the problem that visual aids that can be taken home were rarely available. Support from posyandu cadres during and after the activity also contributed to the results. The improvement in knowledge should be interpreted with some caution. The activity had no control group, knowledge was measured only immediately after education, and changes in behavior, such as actually completing the sticker or attending antenatal visits, were not measured. In addition, the satisfaction score reflects participants' perceptions and cannot be separated from the group setting in which the questionnaire was completed.

These findings underline the need to continue and strengthen P4K at the community level. P4K is not only a tool to detect risks early, but also an educational and promotive channel that equips mothers with the knowledge and readiness to face possible events during pregnancy and childbirth. Activities of this type should be repeated regularly and integrated into community health services, especially in areas with high maternal mortality such as Mimika.

CONCLUSION

Education on birth planning and complication prevention (P4K) for 30 first-trimester pregnant women and four posyandu cadres in Kaugapu Village, East Mimika District, increased participants' knowledge, with the cumulative score rising from 51.11 (fair) to 85.56 (good), and the number of women with poor knowledge falling from 17 to none. Participants' cumulative satisfaction was 90.83%, categorized as very satisfied. Interactive education supported by leaflets, a banner, and posyandu cadres proved to be effective and acceptable as a means of delivering P4K information at community level. The target of at least 80% of participants with improved knowledge was achieved, although 13 participants still had fair knowledge after the education.

For future service, we recommend that pregnant women attend regular antenatal visits at the nearest posyandu; that cadres continue to use the leaflet and banner in routine posyandu activities and monitor pregnant women regularly; that the institution support replication in other partner areas; and that future activities involve husbands and families, evaluate behavior change over a longer period, and develop other media such as videos or digital applications to reach mothers who cannot attend in person.

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