

Effectiveness of the implementation of the birth planning and complication prevention (P4K) program for pregnant women in supporting the optimization of the labor process in the Working Area of Poasia Health Center, Kendari City

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Abstract

Overview: Improving maternal health is crucial for achieving the Sustainable Development Goals (SDGs), specifically reducing the Maternal Mortality Ratio (MMR) to 70 per 100,000 live births by 2030. Indonesia faces significant challenges in maternal health, particularly in Southeast Sulawesi. This study aims to analyze the impact of Birth Planning and Complication Prevention (P4K) on labor outcomes in the Poasia Health Center's working area in Kendari City. It focuses on the relationship between P4K preparation and the smoothness of labor among pregnant women in this region.

Body of Knowledge: Maternal health is directly linked to lower maternal mortality and reduced complications during childbirth. Programs like P4K help pregnant women prepare for safe deliveries by educating them on recognizing danger signs and managing potential complications. Previous research has shown that birth planning and early detection of complications lower labor risks. These findings emphasize the importance of education, accessible health services, and psychological support to improve maternal health outcomes.

Methods: The study used a cross-sectional design with a total sample of 69 pregnant women from the Poasia Health Center's working area. Data were collected through questionnaires and observations, with statistical analysis using the Chi-square test to assess the relationship between P4K preparation and smooth labor. Total sampling was employed to ensure all eligible participants were included.

Results: Results revealed a significant link between P4K preparation and smoother labor. Of the 69 women surveyed, 85.7% who prepared for P4K had smooth deliveries, while 50% of those who did not prepare experienced complications. The statistical analysis indicated a p-value of 0.041, confirming the positive impact of P4K.

Recommendation:

The study recommends enhancing education and accessibility of P4K services, particularly for women facing transportation or economic challenges. Additionally, improving psychological support and educating families on pregnancy danger signs can further reduce complications and improve maternal health in the Poasia Health Center area.

Keywords: Birth Planning; Complication Prevention; Maternal Mortality Ratio (MMR); Smooth Labor Process; Maternal Health

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1. Introduction

The Birth Planning and Complication Prevention Program (P4K) is one of the key initiatives to improve maternal and child health, focusing on birth preparation and early detection of complication risks (1). This program aims to ensure that pregnant women have a well-prepared birth plan, including the selection of a delivery place, transportation, birth attendants, as well as financial readiness and blood donors if needed. This is particularly relevant in Indonesia, where maternal mortality rates (MMR) and infant mortality rates (IMR) remain major challenges in the national healthcare system.

Improving maternal health is one of the primary goals of the Sustainable Development Goals (SDGs), which targets a reduction in the Maternal Mortality Rate (MMR) to 70 per 100,000 live births by 2030 (2). However, recent data indicates that Indonesia still faces significant challenges in achieving this target. Based on data from the Maternal Perinatal Death Notification (MPDN) of the Ministry of Health, the number of maternal deaths in 2022 reached 4,005 cases, and increased to 4,129 cases in 2023. This rise highlights that Indonesia's MMR remains high and far from meeting the SDGs target (3).

In Southeast Sulawesi Province, the maternal mortality rate (MMR) also shows an increasing trend. According to data from the Southeast Sulawesi Provincial Health Office, in 2021, the MMR was recorded at 67 per 100,000 live births, rising to 74 per 100,000 live births in 2022 (4). However, Kendari City, the capital of Southeast Sulawesi Province, has shown a declining trend in MMR. In 2022, 11 maternal deaths were recorded, which decreased to 6 cases in 2023. As of October 2024, the maternal mortality rate has remained at 6 cases (5).

The working area of Poasia Community Health Center (Puskesmas Poasia) in Kendari City has a diverse population in terms of social, economic, and geographical aspects. These factors influence access to healthcare services, especially for pregnant women. Although basic health services are available, many pregnant women lack a comprehensive understanding of the importance of birth preparation, increasing the risk of complications that may lead to maternal or infant mortality. Therefore, the implementation of the Birth Planning and Complication Prevention Program (P4K) is crucial to address these gaps and improve the quality of maternal and child healthcare services.

The implementation of P4K involves collaboration among various stakeholders, including health workers, families, and the community. This community-based approach aims to create collective awareness of the importance of birth planning and complication prevention. However, the success of this program greatly depends on the effectiveness of its implementation, ranging from education to supporting pregnant women throughout their pregnancy process (6)

Preliminary data indicates that there are still challenges in implementing P4K in certain areas, including low awareness among pregnant women about danger signs during pregnancy, low participation of husbands as birth companions, and limited resources at healthcare facilities. These challenges can affect the optimization of the delivery process, particularly for high-risk mothers. This study aims to evaluate the extent to which the implementation of P4K at Poasia Community Health Center has successfully addressed these challenges and supported safe and smooth deliveries.

In addition, the effectiveness of P4K is also closely related to the utilization of the MCH (Maternal and Child Health) Handbook, which is an integral part of this program. The MCH Handbook serves as a communication tool between healthcare providers and pregnant women, as well as a guide for birth planning. However, in practice, not all pregnant women use the MCH Handbook optimally, resulting in incomplete understanding of important information related to P4K. This highlights the need to improve education and monitoring regarding the use of the MCH Handbook (7).

This study also considers the role of healthcare providers in the implementation of P4K. Healthcare providers have a significant responsibility to deliver education, conduct early detection of complications, and ensure that pregnant women receive timely referrals if needed. Through a structured and evidence-based approach, the implementation of P4K is expected to enhance the preparedness of pregnant women, leading to a more optimal childbirth process.

On the other hand, family involvement, particularly that of husbands, is one of the key factors in the success of P4K. Emotional and practical support from families can help pregnant women feel more prepared and confident in facing childbirth. Therefore, it is essential to evaluate the extent to which family roles have been integrated into the implementation of P4K at Poasia Community Health Center.

This study aims to evaluate the effectiveness of P4K implementation in supporting the optimization of the childbirth process in the working area of Poasia Community Health Center, Kendari City. The findings of this study are expected

to provide recommendations for improving the quality of program implementation, thereby contributing to reducing maternal and infant mortality rates in this region.

1.1. Statement of the Problem

Maternal health is a crucial aspect of achieving the Sustainable Development Goals (SDGs), especially in reducing the Maternal Mortality Ratio (MMR), which is a primary target. In Indonesia, including Southeast Sulawesi, maternal health issues remain significant challenges, with the MMR even increasing in some areas. One approach believed to help reduce maternal mortality and improve labor outcomes is through the implementation of Birth Planning and Complication Prevention (P4K). This study aims to analyze the impact of P4K implementation on labor outcomes in the working area of Poasia Health Center in Kendari City.

1.2. Purpose of the Study

This study aims to analyze the effect of Birth Planning and Complication Prevention (P4K) on the smoothness of labor in the working area of Poasia Health Center, Kendari City. Specifically, this study focuses on the relationship between P4K preparation and labor smoothness among pregnant women in this region.

1.3. Conceptual Framework

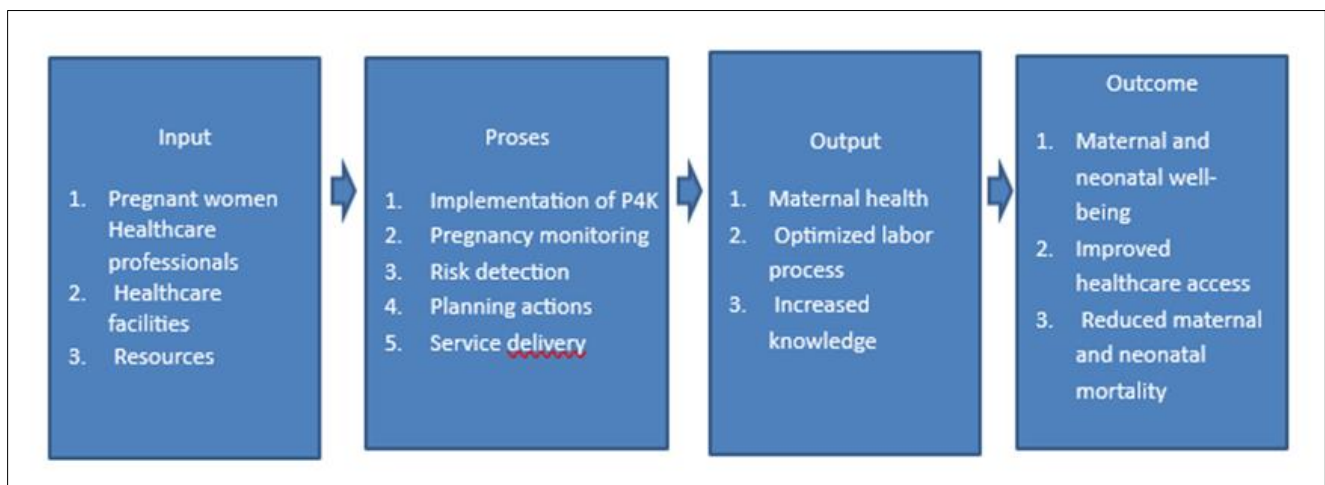


Figure 1 Conceptual Framework

The conceptual framework of this study is based on the theory that proper preparation during pregnancy, such as participating in the P4K program, can reduce complications and improve the smoothness of the labor process. The P4K program involves education on recognizing danger signs, choosing appropriate healthcare facilities, and providing psychological support for pregnant women. The inputs required include pregnant women, healthcare providers, healthcare facilities, and other resources such as budget and training. The process includes pregnancy monitoring, risk detection, medical action planning, and the delivery of healthcare services. The direct outcomes of this program are improved maternal health, smoother labor processes, and increased knowledge for pregnant women about pregnancy and childbirth care. The medium-term outcome is the well-being of both the mother and baby, while the long-term impact includes improved healthcare access and reduced maternal and neonatal mortality. With adequate preparation through P4K, it is expected that pregnant women will be better equipped physically and mentally to face labor, which in turn can expedite and ease the labor process.

1.4. Significance of the Study

This study is expected to contribute significantly to improving maternal health in the Poasia area, particularly in reducing labor complications. By identifying a significant relationship between P4K preparation and smooth labor, the results of this study can serve as a foundation for strengthening the P4K program at the health center and improving pregnant women's understanding of the importance of thorough labor preparation. Additionally, this research can provide valuable information for local and national health policies aimed at reducing maternal mortality rates.

2. Material and Method

2.1. Study Design

This study uses a cross-sectional design, aiming to describe the relationship between the independent variable (P4K preparation) and the dependent variable (smooth labor) in pregnant women within the working area of Poasia Health Center, Kendari City.

2.2. Research Site

This research was conducted in the working area of Poasia Health Center in Kendari City, which covers several urban villages within the subdistrict. This health center is a primary healthcare service facility with extensive access to pregnant women in the region.

2.3. Population, Sample, and Sampling Procedure

The population in this study consists of all pregnant women registered and receiving services at Poasia Health Center. The sample in this study includes 69 pregnant women, selected using total sampling, meaning all pregnant women who met the inclusion criteria during the study period were included in the sample.

2.4. Data Analysis

Data collected through questionnaires and observations were analyzed using the Chi-Square statistical test to determine the relationship between P4K preparation and smooth labor. This analysis was performed using appropriate statistical software, with a p-value < 0.05 considered significant.

2.5. Ethical Considerations

This study followed the principles of ethical research, which include obtaining informed consent from all participants before data collection, maintaining the confidentiality of personal information, and ensuring that the study poses no harm to the participants. All research procedures were approved by the relevant ethics committee before the study was conducted.

3. Research Results

3.1. Univariate Analysis Results

Table 1 Frequency Distribution of Birth Planning and Complication Prevention (P4K) Implementation by Pregnant Women in the Working Area of Poasia Community Health Center, Kendari City

P4K Implementation	Frequency (f)	Percentage (%)
Prepared	49	71.0
Not Prepared	20	29.0
Total	69	100

Out of the 69 pregnant women in the working area of Poasia Community Health Center, 49 women (71.0%) prepared for Birth Planning and Complication Prevention (P4K), while 20 women (29.0%) did not prepare for P4K. This data indicates that the majority of pregnant women have conducted birth planning and complication prevention, which can contribute to improving the smooth delivery process in the area.

Out of the 69 pregnant women in the working area of Poasia Community Health Center, 52 women (75.4%) experienced a smooth delivery process, while 17 women (24.6%) experienced a non-smooth delivery process. This data indicates that the majority of pregnant women in the area successfully went through the delivery process smoothly. This reflects the important role of birth planning and complication prevention (P4K) in supporting the delivery process.

Table 2 Frequency Distribution of Smooth Delivery Process by Pregnant Women in the Working Area of Poasia Community Health Center, Kendari City

Delivery Process	Frequency (f)	Percentage (%)
Smooth	52	75.4
Not Smooth	17	24.6
Total	69	100

3.2. Bivariate Analysis Results

Table 3 Cross Tabulation of the Effectiveness of Birth Planning and Complication Prevention (P4K) Implementation on the Delivery Process in the Working Area of Poasia Community Health Center, Kendari City

P4K Implementation	Smooth Delivery Process		Non-Smooth Delivery Process		Total		p-value
	n	%	n	%	n	%	
Prepared	42	85,7	7	14,3	49	100	0,041
Not Prepared	10	50,0	10	50	20	100	
Total	52	75,4	17	24,6	69	100	

Based on Table 3, it is shown that among pregnant women who prepared for P4K, 42 women (85.7%) experienced a smooth delivery process, while 7 women (14.3%) experienced a non-smooth delivery process. In contrast, among pregnant women who did not prepare for P4K, only 10 women (50.0%) had a smooth delivery process, whereas 10 women (50.0%) experienced a non-smooth delivery process.

The chi-square statistical test resulted in a p-value of 0.041. When compared to the significance level ($\alpha = 0.05$), it is found that $p\text{-value} < \alpha$ ($0.041 < 0.05$). This indicates that H_0 is rejected, meaning that the implementation of Birth Planning and Complication Prevention (P4K) by pregnant women significantly affects the delivery process in the working area of Poasia Community Health Center, Kendari City.

4. Discussion

4.1. Preparation for Birth Planning and Complication Prevention (P4K)

Birth Planning and Complication Prevention (P4K) is a key strategy in maternal and child health programs aimed at improving the safety of childbirth. P4K aims to assist pregnant women in preparing for a safe delivery process through education, transportation planning, financial preparation, and identification of nearby healthcare facilities (9). The WHO emphasizes the importance of an integrated approach in pregnancy management to reduce maternal and infant mortality risks. Therefore, the implementation of P4K is a crucial step in ensuring the quality of healthcare services for pregnant women.

The findings of this study in the working area of the Poasia Community Health Center, Kendari City, revealed that 71.0% of pregnant women had prepared for P4K, while 29.0% had not. The high percentage of pregnant women who prepared for P4K reflects relatively good awareness of the importance of birth planning. However, the 29.0% who had not implemented P4K raises concerns, as they are at a higher risk of facing unanticipated complications. These findings align with the Ministry of Health's reports, which highlight that systematic birth planning contributes to reducing complications during delivery.

The researchers assume that the implementation of P4K is influenced by various factors, such as the mother's educational level, access to healthcare facilities, and family support. Mothers with higher education levels tend to have a better understanding of the importance of birth planning. In addition, adequate access to healthcare providers, such as midwives and doctors, encourages active participation in P4K. Social factors, including support from husbands and families, also play a role in enhancing pregnant women's readiness.

These findings can be explained using the Health Belief Model (HBM), which suggests that individuals take health-related actions based on perceived benefits and risks. Pregnant women who prepared for P4K likely have positive perceptions of the benefits of birth planning, such as smoother deliveries and reduced complications. Conversely, those who did not prepare for P4K may face barriers such as limited information or resources, leading to reduced participation in the program.

A similar study by (10) found that pregnant women who prepared for P4K were more likely to experience smooth deliveries compared to those who did not. The study highlighted that health education provided by medical personnel, such as midwives, plays a crucial role in increasing awareness and participation among pregnant women in the P4K program. These findings are consistent with the results of this study in Poasia Health Center, where most pregnant women who prepared for P4K successfully underwent smooth delivery processes.

The implementation of P4K significantly contributes to the smoothness of the delivery process. Careful planning enables pregnant women and their families to be prepared for various possibilities, such as the need for emergency transportation or complications requiring referrals to more advanced healthcare facilities. A study by (10) noted that proper birth planning can reduce delays in addressing complications by up to 60%.

However, challenges in P4K implementation cannot be overlooked. Factors such as low health literacy, long distances to healthcare facilities, and limited medical resources and personnel remain major obstacles. Therefore, community-based interventions, such as health cadres and Posyandu (integrated health service posts), can help reach pregnant women who lack access to information about P4K.

The findings of this study have important implications for efforts to improve maternal and child health in the Poasia Community Health Center, Kendari City. Continuous educational programs, improved access to healthcare services, and strengthened roles of healthcare workers at the community level must be prioritized to ensure the success of P4K. With a holistic approach, the participation rate of pregnant women in the P4K program can be increased, contributing to reduced delivery complications and improved maternal and child health in the area.

4.2. Childbirth Process

The childbirth process is a critical phase that determines the safety of both the mother and the baby. The smoothness of delivery is influenced by various factors, including the mother's health, physical and mental readiness, and support from healthcare providers. The WHO emphasizes that appropriate interventions during pregnancy and childbirth can reduce maternal and infant mortality rates (11). In this study, 75.4% of pregnant women in the working area of Poasia Community Health Center, Kendari City, experienced smooth deliveries. This indicates the success of various health initiatives implemented in the region, particularly the Birth Planning and Complication Prevention (P4K) program.

Among the 69 pregnant women involved in this study, 24.6% experienced complications during childbirth. This figure highlights the potential risk of complications for some pregnant women. However, the high percentage (75.4%) of smooth deliveries demonstrates that most pregnant women had good access to health information and services, including support from medical personnel. These findings align with reports from the Indonesian Ministry of Health, which indicate that smooth deliveries correlate with maternal preparedness and the availability of healthcare facilities.

The researchers assume that the smoothness of the delivery process is influenced by the preparations made by pregnant women during pregnancy, including the implementation of P4K. Mothers who prepare thoroughly for childbirth tend to be more physically and mentally ready to face labor. Additionally, factors such as maternal health, nutritional status, and pregnancy history may also impact the smoothness of delivery.

These findings can be explained through holistic nursing theory, which emphasizes the importance of a comprehensive approach to maternal healthcare. Childbirth preparation involves not only physical aspects but also psychological and social readiness. Emotional support from family members and healthcare providers can create a sense of security for pregnant women, reducing stress and the risk of complications during labor.

A study by (11) revealed that pregnant women who prepared for delivery through participation in the P4K program had a lower risk of complications. The study found that educational interventions during pregnancy, such as prenatal classes, significantly contributed to smoother deliveries. These findings are consistent with the results of this study at Poasia Community Health Center, where most mothers who prepared for childbirth through P4K experienced smooth deliveries.

Birth Planning and Complication Prevention (P4K) is one of the main factors supporting smooth deliveries. This program helps pregnant women prepare for all delivery-related needs, such as emergency transportation, identification of healthcare facilities, and education about danger signs during labor. Research by (6) noted that effective implementation of P4K could reduce delays in handling complications by up to 40%.

However, not all pregnant women can undergo smooth deliveries. Factors such as limited access to healthcare facilities, lack of education about childbirth preparation, and suboptimal health conditions can pose barriers. Therefore, community-based approaches, such as strengthening the role of health cadres and involving families, are needed to support pregnant women who are vulnerable to complications.

The findings of this study provide important implications for maternal and child health programs in the Poasia Community Health Center area of Kendari City. Strengthening health education programs, improving access to healthcare services, and providing continuous support from healthcare providers are necessary to ensure smooth deliveries. Additionally, routine monitoring of pregnant women, especially those at high risk, can help prevent complications and increase the success rate of childbirth in the region.

4.3. Effectiveness of Birth Planning and Complication Prevention (P4K) Implementation for Pregnant Women in the Childbirth Process

The implementation of birth planning and complication prevention (P4K) plays a vital role in ensuring smooth childbirth processes. P4K includes a series of steps taken by pregnant women to prepare for labor, such as recognizing danger signs, selecting appropriate health facilities, and organizing family support (12). Both WHO and the Indonesian Ministry of Health emphasize the importance of this preparation in reducing maternal and infant morbidity and mortality rates. Based on Table 2, 85.7% of pregnant women who prepared P4K experienced smooth deliveries, indicating that this preparation positively impacts childbirth outcomes.

Statistical analysis using the Chi-square test revealed a p-value of 0.041, which is smaller than the α value of 0.05, leading to the rejection of H_0 . This demonstrates a significant relationship between P4K implementation and smooth childbirth processes. This study aligns with research conducted by (13), which also showed that mothers who followed birth planning were more likely to have smooth deliveries. Therefore, proper preparation during pregnancy is a critical factor influencing childbirth outcomes.

Based on these findings, it can be concluded that implementing P4K positively influences childbirth smoothness. Pregnant women who prepare P4K effectively possess better knowledge of danger signs, ways to handle complications, and facilities that can assist during delivery. A study by (13) also indicated that pregnant women's readiness, through education and thorough preparation, reduces complications and facilitates faster labor processes.

The theory of maternal readiness suggests that proper preparation before childbirth increases the likelihood of smooth deliveries. In this context, holistic nursing theory, which emphasizes a comprehensive approach to maternal health—including physical, psychological, and social aspects—provides a strong foundation to support this research outcome. With adequate preparation, pregnant women are better equipped to face physical and psychological challenges during delivery. This is further supported by public health theories that focus on preventing complications through education and increased awareness among pregnant women.

A study by (14) corroborates these findings, showing that pregnant women who implement P4K are more likely to experience smooth deliveries. According to the study, mothers who attended prenatal education classes and had a good understanding of pregnancy and labor danger signs were less likely to experience severe complications. This explains why mothers who did not prepare P4K faced higher risks of complicated deliveries.

In addition to P4K implementation, several other factors influence childbirth smoothness. These include maternal health status, maternal age, previous childbirth history, nutritional condition, and access to adequate healthcare services. Although this study highlights a significant relationship between P4K and childbirth outcomes, future research should account for other factors that may influence delivery results.

While most mothers who followed P4K experienced smooth deliveries, some mothers who did not prepare P4K faced complications. This indicates that although P4K contributes significantly, limited access to healthcare facilities, lack of knowledge, and socioeconomic factors may hinder optimal childbirth preparation. Therefore, further efforts are needed to expand the reach of P4K, including more widespread education throughout communities.

Based on these findings, it is essential to continue educating pregnant women about the importance of P4K preparation for smooth deliveries. Poasia Community Health Center in Kendari City, as a primary healthcare provider, plays a strategic role in providing education and supporting pregnant women in preparing for childbirth. To improve service quality, the health center can strengthen the P4K program through counseling, prenatal education classes, and expanded access to supporting health facilities. Additionally, efforts should be made to address disparities in healthcare access, enabling more pregnant women to benefit from P4K.

The data in Table 2 indicates that the implementation of birth planning and complication prevention (P4K) by pregnant women is effective for childbirth processes in the working area of Parakannyasag Health Center, Tasikmalaya City, with a $p\text{-value} < \alpha$ ($0.037 < 0.05$). The data showed that 82.4% of mothers who prepared P4K had smooth deliveries, while 53.8% of those who did not prepare P4K experienced complications.

Pregnant women with high-risk pregnancies must prepare P4K, as it relates to the health and safety of both the mother and the fetus, as well as safety during delivery. According to the theory presented by (14), the first stage of labor varies among mothers. The more relaxed and active a mother is, the shorter the time required for complete dilation. During early labor, mothers are encouraged not to remain in bed but to change positions every 30 minutes to 2 hours to facilitate smooth deliveries. This highlights that a well-prepared P4K plan helps reduce delivery risks by providing structured preparation during pregnancy (14).

The researchers assume that risk factors in childbirth can lead to complications. However, complications may also occur in mothers without apparent risk factors. Detailed analysis shows that mothers who had smooth deliveries were better informed and more knowledgeable about P4K, enabling them to prepare adequately. Thus, it is crucial for healthcare providers to increase the knowledge and understanding of pregnant women, families, and communities about the objectives, benefits, and components of P4K implementation.

The researchers believe that efforts to reduce maternal mortality rates depend heavily on services provided at the Parakannyasag Health Center. These services must continually emphasize the importance of P4K implementation for pregnant women and families to prevent complications early. The fundamental principle of midwifery care states that pregnancy and childbirth are normal, natural, and healthy processes. However, complications may arise due to risk factors, and even mothers without identified risks can experience complications.

The Birth Planning and Complication Prevention (P4K) program begins with monitoring low-, high-, and very-high-risk groups to anticipate and address complications early. Early detection of risk factors during pregnancy is an effective strategy to prevent complications during pregnancy and ensure safe childbirth and postpartum periods. The goal is to ensure safe deliveries without maternal or neonatal morbidity or mortality.

The program emphasizes that all risk levels—low, high, and very high—should thoroughly prepare for P4K to prevent complications early. Most importantly, pregnant women, families, and communities must be aware of and actively participate in P4K preparations. This awareness must also be supported by adequate knowledge. The better the understanding of pregnancy risks and P4K, the more effective the implementation, lowering risk levels and preventing complications. Such efforts are crucial in reducing maternal morbidity and mortality rates.

5. Conclusion

Based on the results of this study, it can be concluded that the implementation of Birth Planning and Complication Prevention (P4K) has a significant influence on the smooth delivery process among pregnant women in the working area of Poasia Health Center, Kendari City. The majority of pregnant women who prepared P4K experienced smooth deliveries (85.7%), whereas those who did not prepare P4K were more likely to face complications during delivery (50.0%). Statistical tests with a $p\text{-value}$ of 0.041, which is smaller than $\alpha = 0.05$, indicate a significant relationship between P4K preparation and the smoothness of the delivery process.

Although P4K preparation has proven to positively affect delivery outcomes, other factors such as maternal health, age, and access to healthcare services also influence delivery results. Therefore, it is crucial for stakeholders, including health centers, to continue improving education and accessibility to P4K to ensure that more pregnant women can adequately prepare for childbirth and reduce the risk of complications. Thus, well-planned childbirth preparation can significantly contribute to improving maternal and infant health in the Poasia Health Center area.

Recommendations

Poasia Health Center in Kendari City is advised to enhance socialization and education programs about the importance of Birth Planning and Complication Prevention (P4K) for pregnant women through various channels, including health cadres, medical personnel, and social media. This is essential to ensure that more pregnant women understand the benefits of P4K and adequately prepare for childbirth.

Additionally, the health center should facilitate easier access to P4K services for pregnant women, particularly those facing transportation or economic barriers. Strengthening education about the signs of pregnancy complications is also necessary to help pregnant women recognize danger signs early and seek medical assistance promptly. Providing psychological support to pregnant women is equally important to prepare them mentally for a smooth delivery.

Furthermore, Poasia Health Center is recommended to conduct regular monitoring and evaluation of the P4K program to assess its effectiveness. Family involvement in this program is also essential to support pregnant women in preparing for childbirth. The health center should establish partnerships with various stakeholders to enhance program implementation, while also focusing on improving healthcare infrastructure and building the capacity of medical personnel. These measures are expected to improve the quality of maternal health services in the area, reduce complications, and enhance the smoothness of the delivery process.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

All research procedures were approved by the relevant ethics committee before the study was conducted.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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